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THE CALENDAR

1947-48

Vol. I

MYSORE :

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1948

UNIVERSITY OF MYSORE

1947-48

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BAHADUR OF MYSORE, G.C.B., G.C.S.I.

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MUSHIR-UL-MULK MR. J. MOHAMED IMAM, B.A., B.L.

(from 16 3-1948.)

Secretary—THE REGISTRAR.

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DESCRIPTION OF THE COAT OF ARMS

“ The common seal of the University contains the Mysore Coat of Arms with the subscription in Sanskrit ‘Nahi Jnânêna Sadriṣam’ meaning ‘there is nothing comparable to knowledge,’ and the words ‘University of Mysore’ with the Kannada equivalent ‘Mysore Visvavidyanilaya’ circumscribed.”

The following Statutes and Ordinance have been renumbered
in the Calendar for 1947-48 :—

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ALMANAC FOR 1947-48

- NOTE.—1. Varamahalakshmi Vratam, Sri Krishna Jayanti, and Gauri, will be observed as holidays in the Women's Colleges.
2. Penultimate Saturdays will be holidays for the University Office.

G indicates General Holiday.
H indicates Hindu Holiday.
C indicates Christian Holiday.
M indicates Muslim Holiday

JUNE, 1947

1	Sun	Lunar Eclipse.
2	M	
3	Tu	
4	W	
5	Th	
6	F	
7	S	
8	Sun	Last day for receiving M.A. and M.Sc. thesis. Official observance of H. M. the King Emperor's Birthday. Meeting of the University Council.
9	M	
10	Tu	
11	W	
G 12	Th	
13	F	
14	S	
15	Sun	● P. Sa.
16	M	
17	Tu	
18	W	
19	Th	
20	F	
G 21	S	
22	Sun	Colleges re-open after Summer Vacation.
23	M	
24	Tu	
25	W	
26	Th	
27	F	
28	S	
29	Sun	
30	M	

JULY, 1947

1	Tu	(i) Preliminary report of admissions (n) Report regarding admissions of students of other Universities (m) M A. and M.Sc Written examinations begin
2	W	
3	Th	
4	F	Shab-e-barat.
5	S	Last day for receiving applications for the I.A., I Sc, I Com, L Com, B A, B A. (Hons.) Preliminary, B Sc, B Sc (Hons) Preliminary Examinations of September 1947.
6	Sun	
7	M	
8	Tu	
G 9	W	H. H the Maharaja's Birthday
10	Th	
11	F	
12	S	Meeting of the University Council.
13	Sun	
14	M	
15	Tu	Dakshinayana Punyakala
16	W	
17	Th	
18	F	
G 19	S	P Sa Last day for receipt of consolidated statement of students admitted to the several classes.
20	Sun	
21	M	
22	Tu	University Incorporated 1916.
23	W	
24	Th	
25	F	
26	S	
27	Sun	
28	M	
29	Tu	
30	W	
31	Th	

AUGUST, 1947

1	F	<i>Viva-Voce</i> Examination for M.A., and M.Sc.
2	S	
3	Sun	Meeting of the University Council
4	M	
5	Tu	
6	W	
7	Th	
8	F	
9	S	
10	Sun	The Twenty-seventh day of Ramzan will be a holiday for all Colleges and the Medical School. Last day for receipt of applications for the L M P Examination of October 1947
11	M	
12	Tu	
13	W	
14	Th	
15	F	
16	S	
17	Sun	Kutb e-Ramzan
G 18	M	
19	Tu	
20	W	
21	Th	
22	F	
G 23	S	
24	Sun	Sravani. Varamahalakshmi Vratam.
25	M	
26	Tu	
27	W	
28	Th	
G 29	F	
30	S	
31	Sun	

SEPTEMBER, 1947		
1 2 3 4 5 6	M Tu W Th F S	
7 8 9 10 11 12 13	Sun M Tu W Th F S	Sri Krishna Janmashtami. Sri Krishna Jayanti. Meeting of the University Council.
H 14 G 15 G 16 G 17 G 18 G 19 G 20	Sun M Tu W Th F S	Gauri. Ganesha. P.Sa.
21 22 23 24 25 26 27	Sun M Tu W Th F S	Pattabhishekam Day.
H 28 H 29 30	Sun M Tu	Anantha Chaturdasi.

Meeting of the Academic Council.

OCTOBER, 1947		
1 2 3 4	W Th F S	L.M.P. Diploma Examinations begin.
5 6 7 8 9 10 11	Sun M Tu W Th F S	Meeting of the University Council.
12 G 13 14 G 15 16 17 G 18	Sun M Tu W Th F S	● Mahalaya Amavasya. ● Commencement of Dasara. P. Sa.
19 20 21 22 23 24 G 25	Sun M Tu W Th F S	Durgashtami. Mahanavami. Vijaya Dasami. Bakrid.
26 27 28 29 30 31	Sun M Tu W Th F	Convocation.

NOTE.—Dasara Holidays in the case of the University Institutions will be from 18th to 26th October 1947 (both days inclusive) and in the case of the University Office from 22nd to 24th October only.

NOVEMBER, 1947		
1	S	
2	Sun	Last Day for receiving applications of the Pre-Medical and M.B.B.S. Examinations of December 1947.
3	M	
4	Tu	
5	W	
6	Th	
7	F	Meeting of the University Council.
8	S	
9	Sun	Deepavali. ● Balipadyami.
10	M	
G 11	Tu	
12	W	
G 13	Th	
14	F	
15	S	
16	Sun	Report regarding shortage of attendance in respect of the Pre-Medical and M.B.B.S. Examinations. P. Sa.
17	M	
18	Tu	
19	W	
20	Th	
21	F	
G 22	S	
23	Sun	Last day of Muharram. Publication of L.M.P. Diploma results.
G 24	M	
25	Tu	
26	W	
27	Th	
28	F	
29	S	
30	Sun	

Meeting of the Senate.

DECEMBER, 1947

1	M	Pre-Medical and M.B.B.S. Examinations begin.
2	Tu	
3	W	
4	Th	
5	F	
6	S	
7	Sun	Last day for receiving applications for all the Examinations except L.M.P., M.B.B.S., M.A., and M.Sc.
8	M	
9	Tu	
10	W	
11	Th	
12	F	
13	S	Meeting of the University Council
14	Sun	P. Sa.
15	M	
16	Tu	
17	W	
18	Th	
19	F	
G 20	S	
21	Sun	Christmas Holidays.
22	M	
23	Tu	
24	W	
25	Th	
26	F	
27	S	
G {		
28	Sun	
29	M	
30	Tu	
31	W	

* Christmas and New Year Holidays in the case of educational institutions will be from 24th December 1947 to 8th January 1948 and in the case of the other institutions from the 24th December 1947 to 1st January 1948

JANUARY, 1948		
G 1 2 3	Th F S	New Year's Day.
4 5 6 7 8 9 10	Sun M Tu W Th F S	Publication of results of the Pre-Medical and M.B.B.S. Examinations. Colleges re-open. ● Meeting of the University Council.
G 11 12 13 14 15 16 17	Sun M Tu W Th F S	Uttarayana Punyakala.
18 19 20 21 22 23 G 24	Sun M Tu W Th F S	P. Sa. Id-i-meelad.
25 26 27 28 29 30 31	Sun M Tu W Th F S	

FEBRUARY, 1948		
1 2 3 4 5 6 7	Sun M Tu W Th F S	
8 9 10 11 12 13 14	Sun M Tu W Th F S	● Last day for the Report regarding shortage of attendance in respect of all the University Examinations except M.B.B.S., M.A., M.Sc., and L.M P. Meeting of the University Council.
15 16 17 18 19 20 G 21	Sun M Tu W Th F S	P. Sa.
22 23 24 25 26 27 28 29	Sun M Tu W Th F S Sun	B. T. Degree Examination—Practical. Last day for receiving applications for M A. and M.Sc. Degree Examinations.

Meeting of the Academic Council.

MARCH, 1948		
1	M	I.A., I.Sc., I Com., and L.Com. Examinations begin. Last day for receiving applications for Pre-Medical, M.B.B.S. and T. D. D. Examinations.
2	Tu	
3	W	
4	Th	
5	F	
6	S	
G 7	Sun	Sivaratri. First and Final Engineering (Degree) Examinations begin. ● B.A., B.Sc. Pass and Hons. Preliminary Examinations begin. Meeting of the University Council.
8	M	
9	Tu	
10	W	
11	Th	
12	F	
13	S	
14	Su	Receipt of report regarding shortage of attendance in respect of L.M.P. Examinations.
15	Mon	
16	Tu	
17	W	
18	Th	
19	F	
G 20	S	P. Sa.
21	Sun	{ Second and Third Engg. (Degree) Examinations begin. First and Second B.Sc. Textiles and B.Sc. Agriculture Examinations begin. Holi Feast. Receipt of report regarding the shortage of attendance in respect of Medical and T.D.D. Examinations. Hons. Final and B.T. Degree Examinations begin, Good Friday.
22	M	
23	Tu	
H 24	W	
25	Th	
G 26	F	
27	S	
28	Sun	
29	M	
30	Tu	
31	W	

APRIL, 1948		
	Th	M.B.B.S. Degree Examinations begin. Colleges close for summer vacation.
2	F	
3	S	
4	Sun	L.M.P. Diploma Examinations begin.
5	M	
6	Tu	
7	W	
8	Th	
9	F	
G 10	S	● Lunar New Year's Day.
11	Sun	Tamil New Year's Day.
12	M	
H 13	Tu	
14	W	
15	Th	
16	F	
G 17	S	P. Sa. Sree Ramanavami.
18	Sun	T.D.D. Course Examination begins. Meeting of the University Council Publication of results of I.A., I. Sc., I. Com., L. Com. and B.T. Degree.
19	M	
20	Tu	
21	W	
22	Th	
23	F	
24	S	
25	Sun	
26	M	
27	Tu	
28	W	
29	Th	
30	F	

Meeting of the Senate.

MAY, 1948		
1	S	
2	Sun	
3	M	
4	Tu	
5	W	
6	Th	
7	F	
8	S	
9	Sun	
10	M	
11	Tu	
12	W	
13	Th	
14	F	
15	S	
16	Sun	
17	M	
18	Tu	Meeting of the University Council.
19	W	
20	Th	
21	F	
G 22	S	P. Sa. Publication of results of all other University Examinations and S.S.I.C.
23	Sun	
24	M	
25	Tu	
26	W	
27	Th	
28	F	
29	S	
30	Sun	
31	M	

JUNE, 1948

1	Tu	Report regarding cases of shortage of attendance in respect of the Master's Degree Examinations.
2	W	
3	Th	
4	F	
5	S	
6	Sun	Last day for receiving M.A. and M.Sc. thesis.
7	M	
8	Tu	
9	W	
10	Th	
11	F	Meeting of the University Council.
12	S	
13	Sun	P. Sa.
14	M	
15	Tu	
16	W	
17	Th	
18	F	
G 19	S	
20	Sun	Colleges re-open after Summer Vacation.
21	M	
22	Tu	
23	W	
24	Th	
25	F	
26	S	
27	Sun	
28	M	
29	Tu	
30	W	

JULY, 1948		
1	Th	(i) Preliminary report of admissions. (ii) Report regarding admissions of students of other Universities. (iii) M.A. and M.Sc. Written examinations begin.
2	F	
3	S	
4	Sun	Meeting of the University Council.
5	M	
6	Tu	
7	W	
8	Th	
9	F	
10	S	
11	Sun	
12	M	
13	Tu	
14	W	
15	Th	
16	F	
17	S	
18	Sun	Last day for receipt of consolidated statement of students admitted to the several classes. P. Sa.
19	M	
20	Tu	
21	W	
22	Th	
23	F	
G 24	S	
25	Sun	
26	M	
27	Tu	
28	W	
29	Th	
30	F	
31	S	

CHAPTER I

LAWS OF THE UNIVERSITY OF MYSORE

Part I—ACT

ACT No. III OF 1933

(Received the assent of His Highness the Maharaja on the sixth day of January 1933)

An Act to Amend the Mysore University Act

Preamble. WHEREAS it is expedient to amend and consolidate the provisions of the Mysore University Act V of 1916, as amended from time to time. It is hereby enacted as follows:—

- 1.** This Act may be called the Mysore University Act, 1933.

Short title.

- 2.** It shall come into force on the first day of July 1933.

Commencement.

- 3.** In this Act unless there is anything repugnant in the subject or context—

Definitions.

“Council” means the University Council.

“The Constituent Colleges” means the Maharaja’s College, the Central College, the Engineering College, the Medical College, the Maharani’s College for Women and such other colleges in Mysore or in Bangalore as may be declared by the Government from time to time to be constituent colleges.

An “Affiliated College” means a college admitted to the privileges of affiliation with the University under conditions prescribed in the Statutes and Ordinances.

“Registered Graduates” means graduates registered under this Act or under Act V of 1916, as amended from time to time.

“Statutes and Ordinances” means the Statutes and Ordinances of the University for the time being in force.

“University” means the University of Mysore.

“University Professor” means a Professor in the University appointed as University Professor by the Government.

THE UNIVERSITY

4. (1) The persons who have been specified in this behalf by notification of the Government published in the official Gazette as the Vice-Chancellor and Members of the Senate and of the Council and all persons who may hereafter become or be appointed as Vice-Chancellor and Members of the Senate and of the Council and of the Academic Council as hereinafter constituted so long as they continue to hold such office or membership, shall be a body corporate by the name of the University of Mysore.

(2) The University shall have perpetual succession and a common seal and shall sue and be sued by the name first aforesaid.

(3) The University shall be deemed to be incorporated for the purposes, among others, of making provision for imparting education, literary, scientific, and artistic as well as agricultural, technical, commercial and professional, of furthering original research, of promoting the study of literature, science, art, philosophy, history, medicine and other branches of useful knowledge, and of imparting physical and moral training.

5. The University shall have power—

(a) to provide for instruction in such branches of learning as the University may decide and also for research and for the advancement and dissemination of knowledge ;

Power to provide for instruction, to grant degrees, etc.

(b) to affiliate colleges under conditions prescribed in the Statutes and Ordinances ;

(c) to grant and confer degrees and other academic distinctions to and on persons who shall have pursued a prescribed course of study in the University and shall have passed the examinations held by the University ;

(d) to grant diplomas, certificates or other distinctions to persons who have pursued a course of study under conditions approved by the University ;

(e) to confer honorary degrees or other distinctions ;

(f) to withdraw or cancel degrees, diplomas, certificates or other distinctions granted or conferred ; and

(g) to do all such other acts and things as may be required in order to further the objects of the University as a teaching and examining body.

6. (1) The University shall be able and capable in law to take, purchase and hold any property, moveable or immoveable, which may become vested in it for the purpose of the University by purchase, grant, testamentary disposition or otherwise ; and shall be able and capable in law to grant,

Power to hold and to dispose of property.

demise, alien or otherwise dispose of all or any of the property moveable or immoveable, belonging to the University; and also to do all other acts incidental or appertaining to a body corporate.

(2) All immoveable property transferred to the University by the Government either prior to the coming into force of this Act or subsequent thereto shall be under the direction, management and control of the University, and applied by it as trustee subject to the provisions and for the purposes of this Act.

THE CHANCELLOR

7. (1) His Highness the Maharaja of Mysore shall be the Chancellor and the highest controlling authority of the University.

Chancellor.

(2) The Chancellor may, at any time, direct an inspection of the University Institutions including buildings, laboratories and other appurtenances, generally and for the purpose of seeing that the proceedings of the University are in conformity with this Act, the Statutes and the Ordinances.

(3) The Chancellor may, by order in writing, annul any proceeding which is not, in his opinion, in conformity with this Act, the Statutes or the Ordinances.

Provided that before making any such order, he may call upon the University to show cause why such an order should not be made, and if any cause is shown within reasonable time, may consider the same.

THE PRO-CHANCELLOR

8. The Chancellor may, at any time, appoint a Pro-Chancellor to exercise such powers and functions of the Chancellor as may be delegated to him by the Chancellor.

Pro-Chancellor.

The Pro-Chancellor shall, in all public functions connected with the University, take rank and precedence immediately after the Chancellor.

OFFICERS

9. The officers of the University shall include—

Officers of the University.

(a) the Vice-Chancellor,

(b) the Registrar, and

(c) such other officers as may be provided for by the Statutes.

10. (1) The Vice-Chancellor shall be appointed by, and shall hold office during the pleasure of, the Chancellor.

(2) The Vice-Chancellor shall take rank in the University next to the Pro-Chancellor and shall be *ex-officio* Chairman of the Senate, of the Council and of the Academic Council and of any

committee appointed by the University of which he is a member. He shall be the principal executive officer of the Senate, of the Council and of the Academic Council. He shall, in the absence of the Chancellor and of the Pro-Chancellor, preside over the Convocation and confer degrees.

(3) It shall be the duty of the Vice-Chancellor to ensure that the provisions of this Act, the Statutes and the Ordinances are observed and carried out; and he may exercise all powers necessary for this purpose.

(4) The Vice-Chancellor may take action in any emergency which, in his opinion, calls for immediate action. He shall, in such a case, and as soon as may be thereafter, report his action to the authority which would ordinarily have dealt with the matter.

(5) The Vice-Chancellor shall perform such other functions and exercise such other powers as may be defined in the Statutes and in the Ordinances.

11. The Registrar shall be appointed by the Government on the recommendation of the Council. He shall be the custodian

Registrar. of the records and of the common seal of the University on behalf of the Council.

He shall act as Secretary to the Senate, to the Council and to the Academic Council, and shall perform such other duties as may be prescribed by the Statutes or required, from time to time, by the Council or by the Vice-Chancellor.

AUTHORITIES

12. The authorities of the University shall include—

- (a) the Senate,
- (b) the Council,
- (c) the Academic Council,
- (d) the Faculties, and
- (e) such other authorities as may be provided for in the Statutes.

THE SENATE

13. (1) The Senate shall consist of—

CLASS I—*Ex-Officio Members*

- (a) The Vice-Chancellor and the other members of the Council mentioned in Section 14.

Constitution.

- (b) The Registrar,
- (c) The Deans of the Faculties,
- (d) The University Professors,
- (e) The Principals of affiliated and constituent colleges,

CLASS II--*Elected Members*

(f) Four members elected by the Academic Council from among its members.

(g) Six members elected by registered graduates from among themselves.

(h) Four members elected by and from the Legislative Council.

(i) Eight members elected by and from the Representative Assembly.

CLASS III--*Nominated Members*

(j) Other members nominated by the Chancellor so as to make up along with members in Classes I and II a total membership not exceeding seventy-five.

CLASS IV--*Additional Members*

(k) One representative of each of such Municipalities, District Boards and Associations as undertake to contribute a sum of not less than Rs. 2,000 per annum for a period of not less than five years to the University Fund for the general purposes of the University so long as the contributions continue to be paid.

(l) Every person who contributes to the University Fund for the general purposes of the University a sum of not less than ten thousand rupees or transfers property of the like value. Every such person shall be a life-member of the Senate.

(2) The election of members of the Senate coming under Class II and the appointment of additional members under Class IV shall be subject to the approval of the Chancellor.

(3) The Chancellor may, on the representation of the Senate, cancel the appointment of any person as a member of the Senate, and as soon as such order is notified in the official Gazette, the said person shall cease to be a member of the Senate.

(4) The Senate shall be reconstituted every three years.

(5) Except in such cases as are otherwise provided in the Statutes, a member of the Senate shall hold his seat until the next reconstitution of the Senate or of the body he represents thereon, whichever takes place earlier.

(6) The Senate may institute and confer such degrees and grant such diplomas, licenses, certificates and other distinctions under such conditions as may be prescribed by the Statutes and the Ordinances.

(7) The Senate shall, subject to the provisions of Sections 20 and 21, have power to make, amend or repeal Statutes, either of its own motion or on the motion of the Council and to consider or cancel Ordinances under conditions laid down by the

(8) The Senate shall review the annual report and the annual accounts of the University which shall be placed before it by the Council and shall consider the Budget according to the provisions of the Statutes.

(9) The Senate shall have power to co-operate with other Universities and authorities.

(10) The Senate shall discharge such other functions as may be assigned to it by this Act and the Statutes.

THE COUNCIL

14. (1) The Executive Government of the University including the general superintendence and control over the institutions of the University, shall be vested in the Council: provided that the Government may, by rules framed in this behalf from time to time, reserve to themselves such powers relating to the appointment, punishment, removal and leave of the officers mentioned in Section 26 as they may deem fit.

(2) The Council shall consist of fifteen members and shall include—

(a) the Vice-Chancellor,
 Constitution. (b) the Director of Public Instruction in Mysore,

(c) three members elected by the Senate from among its members who are not on the staff of constituent or affiliated colleges,

(d) two members elected by and from the Academic Council,

(e) four heads of constituent or affiliated colleges nominated by the Chancellor,

(f) four other members nominated by the Chancellor, of whom not more than one shall be employed on the staff of constituent or affiliated colleges.

(3) The Council shall be reconstituted every three years after the reconstitution of the Senate; it shall continue to function until it is reconstituted.

(4) The Council shall have power—

(a) to propose Statutes for the consideration of the Senate,

(b) to make Ordinances subject to the sanction of the Government provided that Ordinances relating to academic matters shall not be considered by the Council except on the initiative of the Academic Council and that after consideration of Academic Ordinances drafted and recommended by the Academic Council; the Council shall have power to assent to, withhold assent from, to reject or to remit for further consideration by the Academic Council such Academic Ordinances, but not to modify them, and

(c) to affiliate institutions within the State in accordance with the conditions prescribed in the Statutes and Ordinances.

(5) The Council shall hold, control and administer the property and funds of the University.

(6) The Council shall have the custody and shall direct the use of the common seal of the University.

(7) The Council shall have power to accept donations and transfers of any moveable or immoveable property on behalf of the University.

(8) The Council shall be responsible for the maintenance of discipline in the University.

(9) The Council shall exercise such other powers and perform such other functions as may be prescribed by this Act, the Statutes or the Ordinances.

THE ACADEMIC COUNCIL

15. (1) The Academic Council shall be the academic authority in the University and shall, subject to the provision of the Act, the Statutes and the Ordinances, be responsible for maintaining the standard of teaching and examination in the University.

Academic
Council.

(2) The Academic Council shall consist of—

The Vice-Chancellor,
The Director of Public Instruction in Mysore,
The Registrar,
The Principals of the constituent and affiliated colleges,
University Professors, Professors and such Assistant Professors as are in full charge of subjects in the constituent and affiliated colleges,
The Superintendents of Intermediate Colleges,
The University Librarian,
The Deans of Faculties,
Five members elected by and from the Senate,
Five members nominated by the Government.

(3) The Academic Council shall be reconstituted every three years after the reconstitution of the Senate; it shall continue to function until it is reconstituted.

(4) The Academic Council shall have power to propose Ordinances relating to academic matters for the consideration of the University Council and to make bye-laws regarding courses, examinations and other academic matters assigned to it by this Act, the Statutes and the Ordinances.

(5) It shall be a function of the Academic Council to promote research within the University.

THE FACULTIES

16. (1) The University shall include the Faculties of Arts, Science, Engineering and Technology, and Medicine and such other Faculties as may, from time to time, be constituted by the Statutes.

(2) The Faculties shall be constituted every three years from among the members of the Academic Council, each member of which body shall be assigned by it to one or more Faculties.

(3) In addition to the members of the Academic Council assigned to the Faculties, the Academic Council shall appoint three teachers to each Faculty and the Faculty so constituted shall have power to co-opt not more than three persons as members of the Faculty on the ground of their expert knowledge of subjects coming within the purview of the Faculty.

(4) Each Faculty shall act generally in an advisory capacity to the Academic Council in academic matters falling within its purview.

(5) The Faculties shall perform such other functions as may be prescribed by this Act, the Statutes and the Ordinances

(6) Each Faculty shall elect a Dean of that Faculty, who shall preside as Chairman at meetings of the Faculty and shall perform such other functions and duties as may be prescribed by this Act, the Statutes and the Ordinances.

THE UNIVERSITY INSTITUTIONS

17. Colleges, Schools and other Institutions for study and research other than affiliated colleges, shall be maintained by the University according to the provisions of the Statutes.

FINANCE AND CONTROL

18. (1) Subject to rules made by Government in this behalf, all grants made by the Government from time to time and all sums paid or endowments made by private persons or local authorities for the purposes of the University, together with all fees received and rents and profits and other income derived from the property and funds vested in the University, shall form a fund styled the University Fund which shall be at the disposal of the University to be employed for any of the purposes mentioned in this Act or in the Statutes or Ordinances.

(2) The University Fund shall be managed according to rules laid down in that behalf in the Statutes.

19. (1) The Government shall have power at any time to order an audit of the accounts of the University by such auditors as it may direct.

Powers of Government.

(2) If at any time the Government is of opinion that in any matter the affairs of the University are not managed in the furtherance of the objects and purposes of the University or in accordance with this Act and the Statutes and the Ordinances framed thereunder, or that special measures are desirable to maintain the standard of University teaching or examination, it may indicate to the Council any matter in regard to which it desires an explanation and call upon that body to offer such explanation as they desire to offer within such time as may be prescribed. If the Council fail to offer any explanation within the time prescribed or offer an explanation which, in the opinion of the Government, is unsatisfactory, the Government may issue such instructions as appear to it to be necessary and desirable in the circumstances of the case and may exercise such powers as may be necessary for giving effect to those instructions.

THE STATUTES

20. Subject to the provisions of this Act, the Statutes may provide for all or any of the following matters :—

Statutes.

(a) The powers and duties of the officers of the University other than the Chancellor and the Pro-Chancellor, in so far as these are not defined herein ;

(b) the constitution, powers and duties of the authorities of the University in so far as these are not defined herein ;

(c) the conditions of affiliation of colleges by the University ;

(d) the procedure to be followed in the matter of the nomination, the election and the continuance in office of members of the University authorities and the filling up of vacancies among members, in so far as these matters are not prescribed herein and all other matters relating to these bodies which it may be necessary or desirable to provide ;

(e) the degrees, diplomas, licenses, certificates and other academic distinctions to be awarded by the University ;

(f) the withdrawal or cancellation of degrees, diplomas, licenses, certificates and other academic distinctions ;

(g) the maintenance of a register of registered graduates ;

(h) all such other subjects as are required or authorised by this Act to be prescribed by means of Statutes.

21. (1) All proposals by the Senate to make, amend or repeal Statutes shall be submitted to the Government with the opinion of the University Council which shall have been already submitted to the Senate. It shall be open to Government to assent to, or withhold assent from, such proposals or to remit them for further consideration.

(2) No new Statute and no amendment or repeal of an existing Statute made by the Senate shall have effect until it is assented to by the Government.

22. The First Statutes shall be those attached as Appendix A to this Act.

First Statutes.

THE ORDINANCES

23. Subject to the provisions of this Act and the Statutes, the Ordinances may provide for any or all of the following, among other matters :—

(a) The direction of academic matters relating to courses of study and examinations ;

(b) the discipline to be required of graduates and undergraduates ;

(c) conditions of admission to the various courses of study ;

(d) qualifying attendance required in the various courses ;

(e) membership of the University and the duties and privileges attached thereto ;

(f) the payment of fees to the University in relation to the enjoyment of privileges therefrom ;

(g) the number and designations of officers of the University, their powers and duties and the terms for which they shall hold offices in so far as these matters are not provided for in the Act and the Statutes ;

(h) the appointment and the prescription of the duties of Boards of Studies and Boards of Examiners ;

(i) all such other subjects as are required or authorised by the Act and the Statutes to be prescribed by means of Ordinances.

24. The procedure to be followed in making Ordinances and in amending or repealing existing Ordinances shall be according to provisions made in that behalf in the Statutes.

Procedure for making Ordinances.

MISCELLANEOUS

25. The Senate, the Council, the Academic Council and other bodies that may be constituted under this Act, the Statutes and the Ordinances, may make such **Subsidiary Rules.** subsidiary rules, and bye-laws not inconsistent with this Act, and the Statutes and the Ordinances in force as may be required to regulate the conduct of business entrusted to them severally.

26. Notwithstanding anything contained in this Act, all Professors, Assistant Professors and other officers and servants now employed in the colleges and other institutions maintained by the University and all such as may be employed hereafter for carrying on the work of the University shall, unless a reservation to the contrary is made at the time of their employment, be deemed to be officers holding appointments under the Government and shall in all respects be governed by the rules framed by the Government and in force for the time being in respect of such officers.

27. No act or proceeding of the Senate, the Council, the Academic Council or other body constituted under this Act or the Statutes or the Ordinances shall be deemed to be invalid merely by reason of any vacancy in the body doing or passing it at the time any such act or proceeding is done or passed.

TRANSITIONAL

28. The Ordinances of the University of Mysore in force at the time of the coming into operation of this Act shall, so far as they may be applicable, remain in force until they are replaced by Statutes and Ordinances to be framed under this Act.

29. In case of difficulty arising as to the first constitution or reconstitution of any authority of the University after the commencement of the operation of this Act or otherwise in first giving effect to its provisions, the Government may by order do anything which appears to it necessary for the purpose of removing such difficulty.

30. The Acts mentioned in Schedule B are hereby repealed.

Repeal of enactments.

SCHEDULE B

(See Section 30)

Year	Number	Short title	Extent
1916	... V	The Mysore University Act	The whole
1919	... II	Act to amend the Mysore University Act, 1916	Do
1923	... XIV	Do	Do
1925	... I	Do	Do
1927	... III	Do	Do
1928	... II	Do	Do

Part II—STATUTES

THE SENATE

1. Any member of the Senate other than an *ex-officio* or life-member, who shall have been absent from three consecutive meetings of the Senate, shall be deemed to have vacated his seat except as provided in Statute 85.

Absence from three consecutive meetings.

2. Vacancies of a permanent nature occurring between two consecutive reconstitutions by resignation, or by death, or under the preceding Statute or by reason of any disqualification arising under Statute 86 shall be filled up by the same body or authority which made the original appointments.

Vacancies.

3. A member of the Senate who has vacated his seat shall be eligible for re-appointment.

Re-appointment.

4. The Senate may, on the recommendation of not less than two-thirds of the members of the Council, remove the name of any person from the register of graduates, or remove any person from membership of any authority of the University, if such person has been convicted by a court of law

Removal from membership of University, etc.

of what in the opinion of the Senate is a serious offence involving moral delinquency, or has been guilty of scandalous conduct and may, on such recommendation as aforesaid and for the like reason, withdraw any degree or diploma, license, certificate or other distinction conferred or granted by the University.

5. When a person ceases to be a member of the Senate, he shall cease to be a member of every University authority of which he may be a member by virtue of his membership of the Senate.

Term of office of members of the Senate on other bodies.

6. The Senate shall, in addition to all other powers vested in it by the Act, have the following powers and functions :—

Powers and functions of the Senate.

(i) To consider and pass resolutions on the budget estimates laid before it by the Council and communicate such resolutions to the Council ;

(ii) to deal with Ordinances and proposals for Ordinances in manner hereinafter prescribed.

7. (i) There shall be two ordinary meetings of the Senate in a year on dates to be fixed by the Vice-Chancellor, respectively in October or November and in March or April. At the former meeting, the Annual Report of the University for the preceding academic year shall be presented ; at the latter, the annual accounts and the audit report for the preceding academic year together with the financial estimates for the following year shall be presented.

Ordinary meetings of the Senate.

(ii) The Senate may also meet at such other times as may be determined.

8. (i) The Vice-Chancellor may, whenever he thinks fit, convene a special meeting of the Senate.

(ii) The Vice-Chancellor shall convene a special meeting of the Senate on a written requisition signed by not less than twelve members of the Senate accompanied by a copy of resolution or resolutions to be moved at the meeting together with the name of the proposer of each such resolution.

Special meetings.

9. (i) Twenty-five members shall constitute a quorum for every meeting, ordinary or special, and all questions requiring decision shall, unless otherwise provided, be decided by a majority of the votes of the members present.

Quorum for a meeting.

(ii) If at any time during the progress of a meeting, any member shall call attention to the number of members present, the Chairman shall, within a reasonable time, count the number of members present and, if a quorum be not present, he shall declare the meeting dissolved and shall leave the chair. The fact

of such dissolution shall be recorded by the Registrar, and the record shall be signed by the Chairman.

10. Any member of the Senate shall be entitled to bring forward a resolution on a matter within the purview of the Senate. The Chairman shall be the sole judge as to whether a subject falls within the purview of the Senate or not, and his decision thereon shall be final. Any such resolution, if carried, shall be forwarded to the Council, and the Council shall inform the Senate in due course, of the action taken.

11. Copies of proceedings of the Senate shall be submitted to Government by the University Council.

THE UNIVERSITY COUNCIL

12. Any member of the Council, other than an *ex-officio* member, who shall have been absent from three consecutive ordinary monthly meetings shall be deemed to have vacated his seat except as provided in Statute 85.

13. Vacancies of a permanent nature occurring between two consecutive reconstitutions by resignation or by death, or under the preceding Statute or by reason of any disqualification arising under Statute 86, in the Council shall be filled, as soon as conveniently may be, by the authority which made the original appointments.

14. A member of the Council who has vacated his seat shall be eligible for re-appointment.

15. (i) The Council shall meet ordinarily once a month and at other times when convened by the Vice-Chancellor. The Vice-Chancellor, or in his absence the senior member present, shall preside at meetings of the Council.

(ii) Seniority for the purpose of this Statute shall be according to the date of appointment to the Council; and in the case of members appointed on the same date, according to the order in which their names have been notified in the official Gazette.

(iii) The Council shall submit to Government without delay copies of its proceedings and orders, and copies of the proceedings of the Senate and of the Academic Council.

16. (i) Seven members shall constitute a quorum.

(ii) If at any time during the progress of a meeting any member shall call attention to the number of members present, the Chairman shall, within a reasonable time, count the number of members present, and, if a quorum be not present, he shall declare the meeting dissolved and shall leave the chair. The fact of such dissolution shall be recorded by the Registrar, and the record shall be signed by the Chairman.

17. The Council shall, in addition to all other powers vested in it by the Act and subject to the provisions thereof, have and exercise the following powers and functions:—

(i) to determine from time to time the number of Professors, Assistant Professors, Readers, Lecturers and other members of the staff that may be necessary for the University and its institutions;

(ii) to appoint the teachers of the University and fix their emoluments and conditions of service in accordance with rules made by Government in this behalf;

(iii) in the case of any appointment within its power of disposal, to delegate the power of filling the same, subject always to its general control, to such authority or authorities as the Council may, from time to time, by general or special resolution, direct;

(iv) to manage and regulate the finances, accounts, investments, property, business and all other executive affairs of the University and for that purpose to appoint such agents as it may think fit;

(v) to cause to be maintained proper accounts relating to the University Fund;

(vi) to invest any moneys belonging to the University, including any unapplied income, in such stocks, funds, shares or securities as the Council may from time to time think fit or in the purchase of immoveable property in Mysore, and vary such investments from time to time;

(vii) to provide buildings, premises, furniture and apparatus and other requirements for carrying on the work of the University;

(viii) to enter into, vary, carry out and cancel contracts on behalf of the University;

(ix) to entertain, adjudicate upon and dispose of grievances, if any, of the officers of the University, the teaching staff, graduates, undergraduates and University servants;

(x) to maintain a register of donors to the University;

(xi) to select a seal for the University and provide for the custody and use of the same;

(xii) to draft Ordinances as and when the Council deems necessary in accordance with the Act and these Statutes ;

(xiii) to refer any matter to the Academic Council, the Faculties, or Boards of Studies ;

(xiv) to decide what examinations of other Universities may be accepted as equivalent to those of this University ;

(xv) to establish or recognize hostels and lodges ;

(xvi) to arrange for and direct the inspection of hostels and of colleges and other University institutions ;

(xvii) to affiliate any college within the State after consultation with the Academic Council, to arrange for the periodical inspection of affiliated colleges, to withdraw or suspend for a definite period the affiliation granted to a college, after due enquiry and consultation with the Academic Council, provided that before consulting the Academic Council, the University Council shall inform the management of the college concerned of the findings of the enquiry and shall allow them an opportunity of making such representation as they may deem fit.

(xviii) to adjudge stipends, scholarships, medals, prizes and other awards in conformity with the Ordinances and under the prescribed conditions ;

(xix) to form such boards and committees as the Council thinks necessary, including the following, and appoint one of the members of each such board or committee, as the case may be, to be its chairman :—

- Boards of Studies,
- Boards of Examiners,
- Students' Residence Committees,
- Extension Lectures Committee,
- Students' Information Bureau,
- Union Committees,
- University Library Committee,
- Publication Committees,

the quorum for a meeting of each such board or committee being half its strength ;

(xx) to institute examinations in conformity with the Ordinances, and to appoint examiners, after considering the recommendations, if any, of the Boards of Studies ;

(xxi) to declare the results of examinations and make recommendations for degrees, honours, diplomas, licenses, certificates and other marks of distinction ;

(xxii) to maintain a list of graduates ;

(xxiii) to publish lists of prescribed or recommended text-books and courses of study ;

(xxiv) to consider and make such reports or recommend such action as may be deemed necessary on proposals or motions brought forward by the members of the Senate or the Academic

Council, for consideration by the Senate or the Academic Council as the case may be;

(xxv) to prepare such forms and registers as are, from time to time, prescribed by the Ordinances, or as may be deemed by the Council to be necessary;

(xxvi) Subject to the provisions of any laws or orders of Government in this behalf, to appoint, fine, suspend, or dismiss any servant of the University;

(xxvii) to take cognizance of any misconduct by any student of the University or by any candidate for any University examination or for a degree, diploma, license, title or mark of honour, brought to the notice of the Council by the head of the University institution concerned or by a member of any one of the University authorities or by the Registrar of the University or by a Chairman of a Board of Examiners or by a Chief Superintendent at any centre of examination, and to punish such misconduct at any time by expulsion from the University or the University institution concerned or by exclusion from any University examination or from any Convocation for the purpose of conferring degrees, either permanently or for a specified period, or by cancelling any University examination, or by deprivation of any University scholarship or endowment held by the person guilty of such misconduct.

18. The Council may, in case of urgency, dispose of academic matters which cannot be delayed. The Council shall, in such cases, report its action to the Academic Council at its next meeting. It shall be open to the Academic Council to cancel such decision, but without retrospective effect.

Powers to dispose of urgent academic matters.

THE ACADEMIC COUNCIL

19. Any member of the Academic Council other than an *ex-officio* member who shall have been absent from three consecutive meetings of the Academic Council shall be deemed to have vacated his seat except as provided in Statute 85.

Absence from three consecutive meetings.

20. Vacancies of a permanent nature occurring between two consecutive reconstitutions by resignation, or by death, or under the preceding Statute or by reason of any disqualification arising under Statute 86, in the Academic Council; shall be filled up as soon as conveniently may be, by the authority which made the original appointments.

Vacancies.

21. A member of the Academic Council who has vacated his seat shall be eligible for re-appointment.

Re-appointment.

22. When a person ceases to be a member of the Academic Council, he shall cease to be a member of every University authority of which he may be a member by virtue of his membership of the Academic Council.

Tenure of office of a member of Academic Council on other bodies.

23. (i) The Academic Council shall meet twice a year, *viz.*, in August or September and in January or February on dates to be fixed by the Vice-Chancellor, and at other times when convened by the Vice-Chancellor. In the year of reconstitution the meeting may be held in September.

Ordinary meetings of Academic Council.

(ii) The Vice-Chancellor shall convene a meeting of the Academic Council on a written requisition signed by not less than fifteen members of the Academic Council, accompanied by a copy of the resolution or resolutions to be moved at the meeting together with the name of the proposer of each such resolution.

Other meetings on requisition.

24. Copies of the proceedings of the Academic Council shall be submitted to Government without delay.

25. (i) Twenty members shall constitute a quorum, and all questions requiring decision shall, unless otherwise provided, be decided by a majority of the votes of the members present.

Quorum for a meeting

(ii) If at any time during the progress of a meeting any member shall call attention to the number of members present, the Chairman shall, within a reasonable time, count the number of the members present, and, if a quorum be not present, he shall declare the meeting dissolved and shall leave the chair. The fact of such dissolution shall be recorded by the Registrar and the record shall be signed by the Chairman.

26. The Academic Council shall, in addition to all other powers vested in it by the Act and subject to the provisions thereof, have and exercise the following powers and functions:—

Powers and functions.

(i) to constitute Faculties in accordance with the Act and the Statutes;

(ii) to advise the University Council on all academic matters;

(iii) to have control and general regulation of the standards of instruction and examination;

(iv) to make bye-laws relating to courses of studies and schemes of examinations;

(v) to make proposals to the University Council for the conduct of University examinations;

(vi) to make recommendations to the University Council regarding conditions of admission to the University;

(vii) to advise the University Council regarding the affiliation of any college and the suspension or the withdrawal of the affiliation granted to a college;

(viii) to advise the University Council as to what examinations may be accepted as equivalent to those of the University of Mysore;

(ix) to advise the University Council in regard to students' fees for instruction and examination and in regard to all subjects relating to teaching and examinations;

(x) to make proposals for the organisation of courses of instruction and be responsible for teaching work in the University and in general for all purely academic matters;

(xi) to advise the University Council in regard to the conditions of award for endowed fellowships, scholarships, medals and prizes subject to fulfilment of the expressed wishes of the donors;

(xii) to refer any matter within its purview to the Faculties and Boards of Studies;

(xiii) to make recommendations to the University Council regarding the management and use of the University Library;

(xiv) to co-operate with other Universities and with Inter-University organisations in such work as may be germane to the University.

27. The Academic Council shall, at its first meeting, appoint

Standing Committee
of the Academic
Council.

a Standing Committee consisting of the Vice-Chancellor as Chairman and six other members to be elected from among its own members.

Four members of such Standing Committee shall form a quorum. The Standing Committee shall perform such functions as may be delegated to it from time to time by the Academic Council.

THE FACULTIES

28. The constitution of Faculties, including the assignment

Constitution of
Faculties.

of members of the Academic Council and the appointment of teachers to Faculties, shall be made at the first meeting of the Academic Council after its constitution; and, in the case of a member appointed to the Academic Council at a subsequent date, the assignment to a Faculty shall be made at the meeting next after his becoming a member.

29. Each Faculty shall continue to function until it is reconstituted.

Tenure of office.

30. The election of the Dean of a Faculty under clause 16 (6) of the Act shall be by ballot and shall be held at the first meeting of the Faculty after its constitution, provided that no member shall be declared elected, unless he obtains not less than 50 per cent of the votes recorded at the ballot. The Dean of a Faculty, so long as he is a member of such Faculty, shall hold office until the election of his successor.

31. The meetings of each Faculty shall be convened by the Dean or, in his absence, by the Registrar. In the absence of the Dean from a meeting of a Faculty, the members thereof present shall elect one of their number to preside at the meeting.

32. The quorum for a meeting of a Faculty shall be one half of the number of members of the Faculty.

33. It shall be competent for the University Council or the Academic Council to refer any matter for consideration to a joint meeting of two or more Faculties. Such joint meeting shall be convened by the Registrar. The quorum therefor shall be one half of the total strength of the said Faculties, no one member, however, counting more than once. One of the Deans and, in the absence of all of them, one of the members present, shall be elected to preside at the joint meeting.

34. A Faculty shall have power—

(i) to consider and report on any matter referred to it by the Senate, the University Council or the Academic Council;

(ii) to draft rules in regard to courses of study and examinations prescribed by the University and to lay such rules before the Academic Council;

(iii) to remit any matter to a Board of Studies related to the Faculty for consideration and report;

(iv) to consider any report or recommendation received from a Board of Studies;

(v) to hold meetings of the Faculty or of a committee of the Faculty jointly with any other Faculty or a committee thereof, for the discussion of any matter of common interest.

35. Any member of a Faculty may bring before a meeting of the Faculty any matter within its purview by giving not less than three days' previous notice to the Dean.

FINANCE

36. The University Council shall cause to be maintained proper accounts relating to the University Fund.
 Accounts of University Fund.

37. The Council shall arrange for the conduct of a detailed running audit by the Comptroller to the Government or by such other agency as may be determined by the Council with the approval of Government, of the accounts of the University including those of the institutions under it. It shall be competent to the University to make a contribution out of its funds towards the charges connected therewith.

38. The accounts of receipts and expenditure of each year ending 30th June shall, as soon as possible after they are audited, be published in the official Gazette together with a statement of cash assets and liabilities and a statement of endowments and investments. Copies thereof shall, together with copies of the audit report, be placed before the Senate and submitted to Government.
 Publication of accounts.

39. The Council shall cause to be prepared and laid before the Senate at a meeting to be held not later than the month of April in each year an estimate of the income and expenditure of the University for the year to commence on the 1st July following after such estimates shall have been placed before and scrutinized by the Committee of Finance.
 Preparation of Budget estimates.

40. The Senate shall consider the budget estimates, and shall communicate such resolutions as it may pass thereon to the Council. The Council shall take such action on the resolutions of the Senate as it may deem necessary, provided that, where the Council does not give effect to any such resolution, reason shall be briefly recorded.
 Consideration of budget estimates by Senate.

41. The budget estimates, after consideration by the Senate and such revision, if any, by the Council as may be deemed necessary, shall be submitted to Government; and it shall be competent to Government to sanction the budget estimates with such modifications, if any, as they may deem fit.
 Sanction of budget estimates by Government.

COMMITTEE OF FINANCE

42. The University Council shall, at its first meeting after reconstitution, appoint a Committee of Finance hereby declared to be an authority of the University under Section 12 of the Act and consisting of the
 Constitution.

Vice-Chancellor as Chairman, three members of the Senate who shall not be members of the Council, two members of the Council (in addition to the Vice-Chancellor) and one financial expert. The Registrar shall act as Secretary to the Committee. Four members of the Committee shall form a quorum. Casual vacancies on the Committee shall be filled up by the Council.

43. The Committee of Finance shall have and exercise the following functions :—

Powers. (i) to examine the annual budget estimates and advise the Council thereon ;

(ii) to conduct a general examination of the accounts of the University and review the audit objections and replies thereon ;

(iii) to make recommendations to the Council on all matters relating to the finances of the University ;

(iv) to examine every proposal for new expenditure involving a sum exceeding Rs. 5,000 and advise the Council thereon ;

(v) to review the financial position periodically ; and

(vi) generally to devise means for the improvement of the financial position of the University.

VICE-CHANCELLOR.

44. The Vice-Chancellor shall exercise general supervision over the educational arrangements of the University, regulate the admission of students, and maintain the discipline of the University, for which he shall be responsible to the University Council.

General supervision.

45. The Vice-Chancellor shall have power to convene meetings of the Senate, the University Council and the Academic Council and, when necessary, of any other University body.

Power to convene meetings.

46. The Vice-Chancellor may, in matters which are not provided for in the Act, the Statutes or the Ordinances, and in which he considers a reference to Government is necessary, make a reference thereon to Government.

Power to make reference to Government.

47. In any matter connected with the management, administration and development of the University, the Vice-Chancellor may take the necessary initiative.

Power of initiative.

THE REGISTRAR

48. The Registrar shall conduct the official correspondence of the Senate, the University Council and the Academic Council. He shall issue all notices convening meetings of the Senate, the University Council and the Academic Council. He is empowered to sign agreements on behalf of the University Council. He shall manage the property and investments of the University and the University Fund, under the directions of the Council. He shall act as Secretary to the Students' Information Bureau and shall perform such other duties as may, from time to time, be prescribed by the Council, and render such assistance as may be desired by the Vice-Chancellor in the performance of his official duties.

49. The Registrar shall ordinarily hold office for a period of three years in the first instance, but the same person shall be eligible for re-appointment.

50. The scale of the establishment for the offices of the University shall be fixed by the University Council from time to time.

COMMITTEES

51. The University Council may, from time to time, appoint committees consisting of members of the Senate and also, if the Council thinks fit, of persons who are not members of the Senate and may delegate to such committees such duties as it thinks fit as regards administrative or other matters affecting the University or any particular Faculty or department, the management or supervision of any buildings or other property of the University, and the like.

52. The Senate, the Academic Council, the Faculties and the Boards of Studies may likewise appoint committees to deal with, and report on any matter that falls within their respective spheres.

ORDINANCES

53. (i) Ordinances shall be of two kinds :—

Ordinances : two kinds,
 (a) Academic,
 (b) Administrative.

(ii) Ordinances dealing with academic matters, such as courses of study, examinations and the promotion of research, shall be deemed to be Academic Ordinances.

(iii) Ordinances dealing with administrative matters, such as elections, audits, inspections, fees, scholarships, free-studentships and such other matters as may be necessary for carrying on the administration of the University, shall be deemed to be Administrative Ordinances.

(iv) In the event of doubt arising as to the category in which an Ordinance or a proposed Ordinance should fall, the matter shall be decided by the ruling of the Vice-Chancellor.

54. Proposals to make new Academic Ordinances or to amend or repeal existing Academic Ordinances, shall originate with the Academic Council, which may act on its own motion or on a reference from the Senate or the University Council or other University authority. Such proposals as may be accepted by the Academic Council shall be forwarded to the University Council which may assent to, or withhold assent from, such proposals or remit the same for further consideration.

55. All proposals relating to Ordinances forwarded by the Academic Council to the University Council, whether approved by the latter or not, shall be referred to the Senate at the next regular meeting of the Senate.

56. Proposals to make new Administrative Ordinances or to amend or repeal existing Administrative Ordinances, shall originate with the University Council, which may act on its own initiative or on a reference from the Senate or other University authority. The University Council may proceed to make and to bring into effect from such date as it may appoint any Ordinance, whether originating with the University Council or with the Academic Council: provided that, before any Ordinance is brought into effect, it shall be submitted to the Government, and it shall be competent to the Government to disallow it or suspend its operation pending consideration by the Senate.

57. All Ordinances passed by the University Council shall be referred to the Senate at the next meeting of the Senate for consideration: provided that a member of the Senate may give notice of a proposition in the nature of an Ordinance, which may be referred by the Senate, with or

without discussion, to the University Council or to the Academic Council, as the case may be, and the latter shall proceed with the proposition as in the case of a proposal coming under Statute 54 or 56 as the case may be.

58. The Senate may deal with Ordinances or proposals in respect of Ordinances referred to it by the University Council in any one of the following ways :—

Procedure of Senate in regard to Ordinances.

(a) the Senate may assent ;

(b) the Senate may cancel by a two-thirds majority of the members present at the meeting at the time of voting ;

(c) the Senate may, by a three-fifths majority of the members present at the meeting at the time of voting, remit for further consideration, with or without suggestion for amendment ;

(d) in the case of proposals affecting Ordinances emanating from the Academic Council and referred by the University Council, in respect of which there is disagreement between the Academic Council and the University Council, it shall be open to the Senate to assent or not to assent, but not to amend.

59. Every Ordinance which has received the assent of the Senate or which has not been cancelled or remitted by it for further consideration shall be submitted to the Government who may sanction or reject the same or remit it for further consideration.

Ordinances not cancelled or remitted for further consideration to be submitted to Government.

GENERAL PROVISIONS RELATING TO ELECTIONS

60. (i) Except as otherwise provided in the Act, Statutes or Ordinances, the Vice-Chancellor shall be responsible for the conduct of all elections, and shall have power to fix the dates of elections. Unless specifically provided otherwise, the decision of the Vice-Chancellor on any question relating to such elections shall be final.

Vice-Chancellor responsible for conduct of elections,

(ii) If any dispute arises as to whether any person has been duly elected or nominated as, or is entitled to be, a member of any authority or body of the University, the Vice-Chancellor shall refer the question to the Chancellor with a report expressing his own view on the question. The decision of the Chancellor on such reference shall be final.

Reference to Chancellor in case of dispute.

61. The Vice-Chancellor shall have power to hold or cause to be held elections in anticipation of vacancies that are about to occur owing to efflux of time.

Election in anticipation of vacancies.

62. No election to an authority of the University shall be invalid by reason of any vacancy among the number of persons entitled to vote at such election, or in the case of a postal vote, on account of the loss in the post of any notice or voting paper.

Existence of vacancy or loss of papers in post not to invalidate election.

63. The results of all elections shall be notified in the official Gazette, and shall have effect from the date fixed in such notification.

Notification of results of election.

64. In the case of elections by registered graduates, all graduates who are entered on the register of graduates at the time of the issue of nomination papers shall be entitled to vote or to be elected (as the case may be) at such elections and shall be the only persons so entitled.

Eligibility of registered graduates to vote or to be elected.

65. When a member of a University authority has to be elected by the Legislative Council or the Representative Assembly, the Registrar shall request the Secretary to the Legislative Council or the Representative Assembly as the case may be, or any other officer deputed by the Government in this behalf, to arrange for such election. Subject to the provisions of the Act, the election shall be conducted in such manner as such Secretary or other officer as aforesaid may determine.

Election by Legislative Council or Representative Assembly.

66. The election of members to the University Council by the Senate or by the Academic Council shall be held at a meeting of the Senate or Academic Council in accordance with the rules of business of the Senate or Academic Council: provided that no member shall be declared elected, unless he obtains not less than fifty per cent of the votes actually recorded at the ballot. Other elections shall be held at a meeting or by correspondence as may be decided by the Vice-Chancellor.

Elections at a meeting.

UNIVERSITY INSTITUTIONS

67. In addition to the Constituent Colleges, the University of Mysore shall maintain the following teaching institutions, namely :—

Teaching institutions other than Constituent Colleges

- (i) The Intermediate College, Mysore ;
- (ii) The Intermediate College, Bangalore ;
- (iii) The Maharani's Intermediate College, Mysore ;
- (iv) The Intermediate College, Tumkur ;
- (v) The Intermediate College, Shimoga ;
- (vi) The Intermediate College, Hassan :

(vii) The Intermediate College, Davangere ;
 (viii) The Medical School, Bangalore ;
 and such other teaching institutions as the University may, from time to time, decide to conduct with the sanction of Government.

AFFILIATION OF COLLEGES

68. Colleges may be affiliated under the following conditions :—

Every affiliated college shall be managed by a regularly constituted managing body on which the teaching staff shall be represented at least by the Principal.

Constitution of Managing Body of a College.

Any change in the constitution of the managing body shall be reported forthwith to the University Council.

Change in the Managing Body.

Every affiliated college shall have a duly constituted college council properly representative of the teaching staff, to advise the Principal in the internal affairs of the college relating to admission, promotion and award of scholarships and free-studentships.

College Council.

Every affiliated college shall satisfy the University Council that adequate financial provision is available for its continued and efficient maintenance, either in the form of an endowment or by an undertaking given by the person or body maintaining it and that the rules regarding the fee to be paid by its students have not been so fixed as to involve competition with a constituent college.

Financial provision of a College.

Every affiliated college shall satisfy the University Council on the following other points :—

(1) The suitability and adequacy of its accommodation and equipment for teaching ;

Condition of recognition, affiliation or approval.

(2) The character, qualification, and adequacy of its teaching staff and the conditions of their service ;

(3) the residence, physical welfare, discipline and supervision of its students ; and

(4) such other matters as are essential for the maintenance of the tone and standards of University education.

In regard to matters referred to above, the University Council shall be guided by the reports of inspections and by any rules which may be prescribed.

Every college shall furnish such returns and other information as the Council may require to enable it to judge of its efficiency and shall take such action as the University Council may consider necessary to maintain its efficiency.

Returns from colleges.

Appointments to the teaching staff of a college shall be made only after the Principal has been given an opportunity of expressing his views.

Teaching staff appointments.

All appointments shall be reported to the University Council which shall satisfy itself that they meet the requirements of the University.

Every college shall make adequate arrangements for the physical training of its students and their medical examination.

Facilities for physical culture and games.

Every college shall have attached to it a medical officer of the qualifications prescribed by the University Council in order to conduct the medical examination of the students of the college.

Medical examination of students.

Every college shall be subject to inspection from time to time by one or more persons appointed by the University Council in this behalf.

Inspection of colleges.

Every college inspected in respect of which an enquiry has been made by the University Council shall take within such period as may be fixed, such action as the University Council may specify.

Action to be taken by colleges on reports after inspection.

It shall be open to a college to suspend, after previous intimation to the University Council, instruction in any subject or course of study in which the college is affiliated for a total period not exceeding three consecutive academical years.

Temporary suspension of instruction in courses.

At the end of the period of suspension, work may be resumed with the previous approval of the University Council. If the work is not resumed at the end of the period of suspension, the affiliation previously granted shall be regarded as having lapsed, provided that, when in any year a college, being prepared to make the usual arrangements to give instruction in the subjects in which it has been affiliated does not, for want of students, open classes, in one of those subjects, and it reports to the University Council before the 1st of August, it shall not be deemed that the college has suspended instruction in that subject; provided also that, notwithstanding anything contained in the foregoing proviso, it shall be competent for the University Council to consider the need for the continuance of affiliation of

the college in a subject which has not been taught for three consecutive years.

The following registers and records shall be maintained by each college in the form that may be prescribed by the University Council ; and in every case in which a school forms a part of the institution, they shall be maintained distinct from those kept for the school department :—

- (a) A register of admissions and withdrawals.
- (b) A register of attendance.
- (c) A register of attendance at physical training.
- (d) A register or other record of addresses of students.
- (e) A register of the members of the staff, showing their qualifications, previous experience, salary, number of hours of work and classes and the subjects taught.
- (f) A register of fees paid showing dates of payments.
- (g) A counterfoil fee receipt book.
- (h) A register of scholarships and concessions of all kinds, whether tuition, boarding or lodging.
- (i) A counterfoil book of transfer certificates.
- (j) A counterfoil book of certificates of medical examination of students.
- (k) A register of marks obtained by each student at the college examinations.
- (l) Account books showing the financial transactions of the college as separate from those of the management.

The procedure to be followed in regard to affiliation and other details not specified in the foregoing Statute shall be provided in the Ordinances.

DEGREES

69. The University may confer the following degrees :—

Degrees that may
be conferred.

Bachelor of Arts	...	B.A.
„ Arts Honours	...	B.A. Honours
„ Science	...	B.Sc.
„ Science Honours	...	B.Sc. Honours
„ Commerce	...	B.Com.
„ Engineering	...	B.E.
„ Medicine and Surgery	...	M.B.B.S.
„ Teaching	...	B.T.
Master of Arts	...	M.A.
„ Science	...	M.Sc.
„ Engineering	...	M.E.

Doctor of Letters	...	D.LITT.
„ Science	...	D.Sc.
„ Engineering	...	D.E.
„ Laws	...	LL.D. (<i>Honoris causa</i>)

HONORARY DEGREES

70. The Senate may, on the concurrent recommendation of the University Council and the Academic Council, if accepted by not less than two-thirds of the members present at a meeting of the Senate, confer an honorary degree upon a person on the ground that he is, by reason of eminent position and attainments, or by virtue of his contribution to learning or eminent services to the cause of education, a fit and proper person to receive such a degree: provided that every proposal for the conferment of an honorary degree shall be subject to the confirmation of the Chancellor, and provided further that, in a case of urgency, the Chancellor may act on the recommendation of the University Council only.

71. Honorary degrees shall be conferred only at a Convocation and may be received in person or *in absentia*.

72. The presentation at the Convocation of persons on whom honorary degrees are to be conferred shall be made by the Vice-Chancellor or in his absence by a member of the Senate nominated by the Council.

73. The diploma or certificate for an honorary degree shall be signed by the Chancellor.

Diplomas.

74. The University may grant the following Post-Secondary Diplomas to persons who have pursued a course of study under conditions prescribed in the Ordinances:—

Diploma in Medical Practice	...	L.M.P.
„ Agriculture	...	L.Ag.
„ Sericulture	...	L.S.
„ Veterinary Science	...	L.V.Sc.
„ Engineering (Civil)	...	L.E. (Civil)
„ „ (Mechanical)	...	L.E. (Mech.)
„ „ (Electrical)	...	L.E. (Elec.)
„ „ (Automobile)	...	L.E. (Auto.)
„ Teaching	...	L.Ed.
„ Commerce	...	L.Com.
„ Prints and Engraving	...	L.P.E.
„ Printing and Binding	...	L.P.B.

Diploma in Pharmacy	...	...	L.Ph.
„ Music	...	...	L.Mus.
„ Home Science	...	...	L.H.Sc.
„ Painting and Drawing			L.P.D.

75. The University may grant the following Post-Graduates Diploma in Tuberculosis to persons who have pursued in the Ordinances :—

“Tuberculosis Diseases Diploma—T D.D.”

CANCELLATION OF DEGREES

76. Where evidence is laid before the Council showing that any person on whom a degree, diploma, license, certificate or other distinction has been conferred or granted by the Senate, has been convicted of what in the opinion of the University Council is a serious offence involving moral delinquency, and where the University Council at a meeting recommends to the Senate that the degree, diploma, license, certificate or other distinction be cancelled, and where such recommendation is accepted by not less than two-thirds of the members present at a meeting of the Senate and is confirmed by the Chancellor, the degree, diploma, license, certificate or other distinction shall be cancelled accordingly.

Procedure for
cancellation of
degrees.

REGISTRATION OF GRADUATES

77. The Council shall maintain a register in which a graduate of any of the following classes may be entered :—

(i) Graduates who have taken the degree of Master of Arts or Master of Science in the University of Mysore.

(ii) Other graduates of this University who, having passed the Bachelor's Degree examination not less than five years before the date of application, have also taken the degree.

(iii) Mysoreans by birth or domicile who have graduated in a University other than the University of Mysore not less than five years prior to the date of application for registration.

78. The fee for registration shall be five rupees for life and shall be paid along with the application for registration.

Fee for registra-
tion.

79. The register of graduates shall be revised and corrected on the first day of January of each year. Applications for revision or correction shall reach the Registrar not later than the fifteenth day of December preceding.

Revision of regis-
ter of graduates.

80. Any graduate may inspect the register of graduates during office hours on application to the Registrar and may obtain a copy of a complete list of registered graduates on payment of two rupees.

Inspection of
register.

CONVOCATION

81. Convocations for the purpose of conferring degrees shall ordinarily be held at Mysore as and when directed by the Chancellor, but degrees may, when so directed by the Chancellor, be conferred *in absentia* without the holding of a Convocation.

Convocation, annual and special.

82. The University Council shall frame rules of procedure at Convocations.

Council to frame rules of procedure for Convocation.

GENERAL

83. (i) Any notice of information or intimation required to be given, and any paper, minutes or proceedings required to be sent to any person by the laws of the University shall, unless otherwise provided, be given or sent by messenger or post to the address of that person as registered in the University Office.

Addresses to which notices, etc., may be sent.

(ii) Every officer of the University and every member of a University authority or body appointed under the laws of the University shall, if required by the Registrar, give an address to which communications may be sent; and the posting of communications to that address shall be a sufficient compliance with requirements of the law as to notice or despatch of papers.

Officers and members to furnish address.

84. Where by any provision of law or of the Statutes or Ordinances, any act or proceeding is directed or allowed to be done or taken in the office of the Registrar on a certain day or within a prescribed period, and the office is closed on that day or the last day of the prescribed period, the act or proceeding shall be considered as done or taken in due time if it is done or taken on the day on which the office re-opens.

Where holiday intervenes, business may be done on next working day.

85. If any person nominated to an authority or a body of the University intends to go on leave or be absent from India for a period exceeding three months, he shall, if he desires to resume his membership on his return, give due notice of his intention to the University. In such case his membership shall cease temporarily during such absence, the vacancy being temporarily filled by nomination under the Act.

Cessation of membership.

86. No person shall be qualified for membership of any authority or body of the University, if he is of unsound mind, or deaf-mute, or suffers from contagious leprosy, or is an uncertificated bankrupt or undischarged insolvent or has been convicted of what in the opinion of the University Council is a serious offence involving moral delinquency.

The University Council shall determine whether a person is disqualified and its decision shall be final.

REGISTER OF DONORS

87. The University Council shall maintain a register showing the name and address of every person or association making a donation for the general purposes of the University under Section 13—(1) (j) and (k) of the Act.

Part III—ORDINANCES

A. Administrative Ordinances

PROVISIONS RELATING TO ELECTIONS

1. The Registrar of the University shall be the Returning Officer for all elections conducted by the University and shall, subject to the provisions of the Act, Statutes and Ordinances, do all things necessary for the conduct of elections.

2. The voting papers, together with the declaration papers, if any, of all the elections shall be preserved in the University Office for a month after the results are duly notified.

3. If any vacancy occurs, or is about to occur by efflux of time, among the members of any University authority, which has to be filled up by the election conducted by the University, the Registrar, under the direction of the Vice-Chancellor, shall notify the electors of the fact and also simultaneously cause a notification of the fact to be published in the official Gazette.

4. Every elector shall be at liberty to nominate a qualified person to fill the vacancy. Every nomination shall be made by an elector in writing, and shall be seconded in writing by another elector. Every such nomination shall be accompanied by the consent in writing of the nominee agreeing to serve on the University authority if elected, and must reach the Registrar not

later than ten days after the publication of the notification in the Gazette :

Provided that no candidate for election to the Senate shall stand for election at the same time from more than one constituency.

5. If the number of nominees does not exceed the number of vacancies to be filled, the Registrar shall declare such nominees to be elected.

Nominations not exceeding the vacancies.

6. If the number of nominees exceeds the number of vacancies to be filled, the Registrar shall forward to each candidate nominated a complete list of nominees. It will be competent for any candidate nominated to withdraw his candidature by intimation in writing to the Registrar, which should reach him not later than five clear days after the date of the issue of the list.

7. If the number of nominees still continuing exceeds the number of vacancies to be filled, the Registrar shall arrange to conduct the elections as detailed below:—

Procedure for election.

(i) The Registrar shall forward to each elector a declaration paper and a voting paper, which shall bear on it the date of posting, together with a notice stating the number of vacancies, the date fixed for the poll, the hour of the closing of the ballot and the day and hour of the scrutiny and counting of votes. The dates fixed for the poll shall be not less than ten days from the date of posting of the voting papers to the electors.

Despatch of declaration and voting papers.

(ii) The declaration paper and the voting paper shall be filled up and returned to the Registrar, in accordance with the directions given thereon to secure the secrecy of the ballot, and so as to reach him not later than the day and the hour notified for the closing of the ballot.

Return of voting and declaration papers.

(iii) The Registrar shall deposit all the covers containing the declaration and voting papers in a safe in his office, until the time fixed for opening them and for scrutinising and counting the votes.

Safe custody of voting papers.

(iv) The Council shall appoint two members of the Senate to act with the Registrar in the scrutiny and counting of the votes.

Appointment of tellers.

(v) On the day and at the time appointed for the scrutiny and counting of votes, the Registrar shall arrange the covers received and open them in the presence of the said members and scrutinise

Scrutiny of papers.

the declaration papers. After the declaration papers have been scrutinised, the voting papers excepting those rejected shall be examined and the valid votes counted.

(vi) A voting paper shall then be rejected—

- (a) if the number of votes recorded therein exceeds the number of vacancies to be filled ;
- (b) if no vote is recorded thereon ;
- (c) if it is void for uncertainty ;
- (d) if it bears any mark by which the elector can be identified.

(vii) Only one vote shall be recorded for any one candidate. If more votes than one are recorded by a voter for the same candidate, such votes shall be counted as one vote.

Only one vote to be recorded for each candidate.

(viii) The decision of the Registrar and the two members of the Senate appointed to act with him shall be final as to the validity of any votes recorded. In case of a difference of opinion, the decision shall be in accordance with the opinion of the majority.

Decision regarding validity.

8. After the scrutiny is completed, and the votes have been counted, a statement shall be prepared showing the number of votes received by each candidate. Such statement shall be signed by the Registrar and the said two members of the Senate and shall be forwarded to the Vice-Chancellor. Candidates who have received the largest number of votes shall, subject to the provisions of Section 13 (2) of the Act, be deemed to be elected up to the number of vacancies available, provided that in the event of two or more candidates obtaining an equal number of votes, the Vice-Chancellor shall give a casting vote.

Declaration of results.

ADMISSION TO COURSES

9. No student shall be admitted to the Intermediate course unless he shall have—

(i) passed the Mysore Secondary School Leaving Certificate Examination and obtained the minima as hereinafter prescribed ; or

Qualification for admission to Intermediate course.

(ii) passed the Matriculation Examination of an Indian University or any other examination recognised by this University as equivalent thereto and satisfies the Council as to his fitness for admission to the course chosen.

No student shall be admitted to a Post-Secondary Diploma course unless he shall have passed the Mysore Secondary School Leaving Certificate Examination with the corresponding optional subject and obtained the minima as hereinafter prescribed or passed the Matriculation Examination of an Indian University or any other examination recognised by this University as equivalent thereto and satisfies the Council as to his fitness for admission to the course chosen.

10. The following shall be the minima referred to in Ordinance 8 (above) :—
Minima.

I. Compulsory Subjects

- 40 per cent in English ;
- 35 per cent in the Second Language ;
- 35 per cent in Elementary Mathematics ;
- 35 per cent in General Science, including Human Physiology ;
- 35 per cent in History, Civics and Geography.

II. Optional Subjects

30 per cent in each division of a group in which there are divisions.*

35 per cent in the aggregate of the group.

For admission to the Intermediate in Arts Course in the University, a candidate should have passed the S.S.L.C. Examination as above taking the Optional Group A (Humanistic Group) or Group B (Mathematics and Science), provided that, for a combination in the Intermediate in Arts Course comprising

* The divisions referred to are as follows :—

A. Humanistic Group—

- 1. History and Geography
- 2. Optional Language : One of the following :—

(a) English	(e) Islamic History
(b) Sanskrit	(f) Indian History
(c) Persian	(g) Hindi
(d) Arabic	

B. Mathematics and Science Group—

- 1. Mathematics
- 2. Science.

C. Practical Arts Group—

- (i) Domestic Arts—
 - 1. Theory.
 - 2. Practical.
- (ii) Agriculture—
 - 1. Theory.
 - 2. Practical.
- (iii) Sericulture—
 - 1. Theory.
 - 2. Practical.
- (iv) Industrial Arts —
 - 1. Theory.
 - 2. Practical.
- (v) Commercial Arts—Each subject forms a division.

D. Music and Fine Arts—

- 1. Theory.
- 2. Practical.

Mathematics, a candidate should have passed the S.S.L.C. examination with Group B (Mathematics and Science).

For admission to the Intermediate in Science course in the University, a candidate should have passed the S.S.L.C. Examination as above taking the Optional Group B (Mathematics and Science).

For admission to the Diploma courses, the following shall be the scheme of correspondence of optional subjects :—

Agriculture	...	S.S.L.C., Group C (ii) or Group B.
Sericulture	...	S.S.L.C., Group C (iii) or Group B.
Veterinary Science	...	S.S.L.C., Group B.
Engineering	...	S.S.L.C., Group C (iv) in corresponding subjects as below.*
		S.S.L.C., Group B after a year's further course in Industrial Arts.
Teaching	...	S.S.L.C., Group A or Group B.
Commerce	...	S.S.L.C., Group C (v).
		S.S.L.C., Group A or B
Prints and Engraving		S.S.L.C., Group C (iv) h (Prints and Engraving) or Group B or Group D (b) (Painting and Drawing).
Music	...	S.S.L.C., Group D (a) (Music).
Printing and Binding		S.S.L.C., Group C (iv) i (Composing, Printing or Binding) or Group B.
Pharmacy	...	S.S.L.C., Group B.

Admission of candidates who shall have passed examinations other than the Mysore S.S.L.C. shall be regulated according to these rules in so far as they may be applicable.

11. No student shall be permitted to study for the Post-Graduate Diploma Course in Tuberculosis unless he has passed the M.B.B.S. Degree of the Mysore University or an examination recognised equivalent to it, at least two years before the date of commencement of the course.

12. No student shall be permitted to study for the B.A., B.A. (Hons.), B.Sc., B.Sc. (Hons.), B.E. or B. Com. Degree, or for the Pre-Medical course unless he has passed the Intermediate Examination of this University or any other University, subject in the latter case to the approval of the University Council.

Qualification for admission to Degree courses.

O (iv) a—Electrical Engineering.

O (iv) b—Civil Engineering.

O (iv) c—Mechanical, Electrical or Automobile Engineering (when courses are suitably revised).

O (iv) d, e and f—Mechanical, Electrical or Automobile Engineering.

- 13.** No admission shall be made later than a fortnight from the date of commencement of the session except with the previous approval of the Vice-Chancellor.
- Latest date for admission to Colleges.

In other special cases where the approval of the University Council or of the Vice-Chancellor is required, the heads of institutions may admit students provisionally, in which case attendance shall be counted during the provisional period, should such admissions be approved.

- 14.** In all applications for admission to any institution of the University, the date of birth shall be given. This date shall be the same as that given for purposes of Matriculation or in the S.S.L.C. record. No change shall be permitted in the date of birth as registered on admission to the University.

- 15.** Students of other Universities seeking admission to the University shall be required to produce a migration certificate from the University from which they have passed the last examination, and pay a fee of rupees five.
- Migration certificate to be produced by other University students.

- 16.** No student shall be admitted to any institution of the University unless he produces a transfer certificate from the institution where he studied last.
- Transfer certificate.

- 17.** Every student obtaining admission shall be enrolled as a student of the University on payment of the prescribed admission fee.
- Enrolment of students.

RECOGNITION OF EXAMINATIONS

- 18.** Subject to the provisions of the Act and the Statutes, the University Council shall have power to recognize—

(i) the examinations conducted by other Universities or bodies, which correspond to the Intermediate Examination of the University of Mysore, for purposes of admission to the degree courses of the University; and

Power to recognize examinations of other Universities.

(ii) the examinations of other Universities which correspond to the degree examinations of this University for purposes of admission to the post-graduate courses.

19. The University Council shall have power to frame rules for the recognition of other examinations, but such rules shall require the approval of the Academic Council before they are given effect to.

Power to frame
rules for recogni-
tion.

ADMISSION TO EXAMINATIONS

20. No attendance for instruction in any institution other than an institution conducted, affiliated or approved by the University shall qualify for admission to any examination of the University :

Attendance.

Provided that in respect of Post-Secondary Diploma courses, the University Council shall have power to recognise instruction in an approved institution as qualifying for admission to the examination :

Provided that in regard to a second language in which there is no provision for instruction in any University institution, the University Council may grant exemption to a candidate from attendance for instruction in a University institution, if the Council is satisfied regarding the reason for which the second language is offered, the previous training in that language and the arrangements made by the candidate for instruction in the language under the supervision of the head of the institution.

21. No candidate shall be admitted to any examination until he has been registered. A candidate shall be registered afresh on each occasion on which he presents himself for examination, and no candidate shall be registered until he has paid the prescribed fee. No candidate for any examination shall be entitled to a refund of any such fee.

Registration for
examinations

22. Every candidate for an examination shall produce such evidence as may be required of having previously passed the qualifying examination prescribed by the rules, if any. He shall also, unless exempted produce a certificate of attendance.

Condition for
registration.

23. No candidate who is in default in respect of fee library books, hostel dues or other similar dues to a University institution shall be granted a certificate of attendance. No candidate who is in default in respect of fees, library books, hostel dues or other similar dues to a University institution shall be admitted to any University examination. The University Council shall have power to withhold the results of a candidate who may be reported subsequent to the examination to be in default in respect of fees or dues of any kind to the University or to any of the institutions, until the dues are cleared.

CERTIFICATES

24. A certificate signed by the Registrar shall be given to each successful candidate at a University examination other than an examination for a degree. The certificate shall set forth the date of the examination, the subjects in which the candidate was examined and the class in which he was placed.

Certificates in the case of examinations other than those for a degree.

25. A diploma under the seal of the University and signed by the Vice-Chancellor shall be presented at a Convocation to each successful candidate at an examination for a degree. The diploma shall set forth the date of the examination, the subjects in which the candidate was examined and the class in which he was placed.

Diplomas in the case of degree examinations.

26. A duplicate of a University certificate or diploma shall not be granted except in cases in which the Vice-Chancellor is satisfied, by the production of an affidavit signed before a magistrate or otherwise, that the applicant has lost the certificate or diploma or that it has been destroyed. In such cases a duplicate inscribed as such may be granted on payment of a fee of ten rupees, the duplicate being signed by the Registrar or the Vice-Chancellor as the case may be.

Conditions for issue of duplicate certificate and diploma.

BOARDS OF STUDIES

27. There shall be a Board of Studies for each of the following branches of study :—

Enumeration of Boards of Studies.	English. Kannada. Tamil. Telugu. Sanskrit, Pali and Prakrit. Urdu, Persian and Arabic. Hindi French. Latin. Mathematics. Physics. Chemistry. Geology. Zoology. Botany. History. Geography. Economics, Political Science and
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Mental and Moral Science.
 Teaching.
 Engineering and Technology.
 Medicine.
 Agriculture, Sericulture and Veterinary
 Science.
 Commerce.
 Prints, Engraving, Printing and Binding.
 Music.
 Home Science.
 Painting and Drawing.

28. The members of the Boards shall be appointed by the Council from among Professors of the University and other
 Constitution of persons possessing special knowledge of the
 Boards. subjects concerned.

29. A member of a Board of Studies shall hold office for three years, but shall be eligible for re-appointment :

Term of office. Provided that when a member of a Board on the staff of the University or in the Mysore State service is on leave or is transferred to another service, or when a member of a Board is absent from India, the Council shall have power to make temporary appointment during the period of such absence.

30. No Board shall consist of fewer than three or more than eight members except the Board of Studies in Medicine and the Board of Studies in Engineering and
 Strength of Board Technology in each of which the maximum
 and quorum. number of members may be twelve. The quorum for a meeting of any Board shall be half the strength of that Board.

31. When the Chairman of a Board is temporarily unable to carry on his functions, the Vice-Chancellor may appoint another member of the Board to act for him during
 Arrangements such period.
 during absence of Chairman.

32. The duties of the Boards shall be to recommend textbooks, courses of study and the appointment of examiners, and
 Functions. of to report or advise on all matters referred
 Boards. to them by the University Council, the Academic Council or a Faculty.

Any Board of Studies may consult specialists who are not members of the Board.

EXAMINATIONS

33. Examinations shall be held at such times, in such places and in such manner as may be prescribed.

Dates of Examinations, etc.

34. There shall be Boards of Examiners for the following subjects or groups of subjects :—

Boards of Examiners.

- English.
- Kannada.
- Tamil.
- Telugu.
- Sanskrit, Pali and Prakrit.
- Urdu, Persian and Arabic.
- Hindi.
- French.
- Latin.
- Mathematics.
- Physics.
- Chemistry.
- Geology.
- Geography.
- Zoology.
- Botany.
- History.
- Economics, Political Science and Statistics.
- Mental and Moral Science.
- Teaching.
- Engineering and Technology.
- Medicine.
- Agriculture, Sericulture and Veterinary Science.
- Commerce.
- Prints, Engraving, Printing and Binding.
- Music.
- Home Science.
- Painting and Drawing.

35. At least one examiner who is not on the teaching staff of the University of Mysore shall be appointed to each Board.

Each Board to comprise one external examiner.

36. The University Council shall issue detailed instructions to examiners and determine the scales of remuneration to be paid to them, provided that the total remuneration paid to any one examiner in any year shall not ordinarily exceed one thousand rupees.

University Council to issue instructions to examiners.

37. Credit shall be given for regular work and progress during the years of study at the University. Candidates may be required to submit for the inspection of examiners their library and laboratory note books countersigned by the Professor or Professors under whom they have worked.

F E E S

38. The scale of fees for the courses of study for the several examinations of the University shall be as follows :—

A. PROFESSIONAL COURSES—

Pre-Medical Course :			Rs.
Whole course	...	...	72 for the course
One subject	...	...	25 "
Two subjects	...	...	45 "
Three subjects	...	...	60 "
M.B.B.S. Degree, whole	...	...	200 a year (payable in eight equal instalments)
M.B.B.S. Degree, for a six months' course for the Final M.B.B.S. Examination in respect of a failed candidate			100 (payable in two equal instalments, in January and March)
Fee for a supplementary course	...	...	30 for each subject
Fee for L.M.P. Diploma holders admitted to the M.B.B.S. Degree	...	...	100 per year
Diploma course	...	...	60 per year
Post Graduate Diploma Course in Tuberculosis.			300 "
L.M.P. (for a course extending for six months or less)	...	...	30
B.E. Degree, whole course	...	...	150 per year
Lectures only for students repeating the course	...	...	45 "
Lectures and drawing for students repeating the course	...	...	60 "
B.T. Degree	...	...	80 "
B. Com. Degree—			
Whole	...	...	96 "
Part I	...	...	60 "
Part II	...	...	45 "

PROVIDED THAT IN RESPECT OF NON-MYSOREAN† STUDENTS ADMITTED TO PROFESSIONAL COURSES OF STUDIES FROM THE YEAR 1934-35, THE FOLLOWING SHALL BE THE SCALE :—

Pre-Medical—	Rs.
Whole course	144 for the course
One subject	50 „
Two subjects	90 „
Three subjects	120 „
M.B.B.S. Degree, whole	400 per year (payable in eight instalments).
For 'a six months' course for the	200 (payable in two equal instalments).
Final M.B.B.S. Examination in respect of a failed candidate ...	
Fee for a supplementary course	60 for each subject
Diploma courses	120 per year
Post Graduate Diploma Course in Tuberculosis.	600 „
L.M.P. (for a course extending for six months or less for failed students)	60
B.E. Degree, whole course ...	300 per year
Lectures only for failed students	90 „
Lectures and drawing for failed students... ..	120 „
B.T.	160 „
Intermediate Examination in Commerce.	144 „
B. Com. Degree	192 „

B. ARTS, SCIENCE AND COMMERCE COURSES—

Intermediate Arts :	Rs.
Whole	72 per year
(Plus Rs. 8 for Science subjects)	
Part I	24 „
Part II	12 „
Part III	44 „
(Plus Rs. 8 for Science subjects)	

† *Definition of Domicile.*—A student may be considered a Mysorean if he has been in *continuous* residence in Mysore for a period of five years or more with the intention of making it his permanent home, or if his father is or was a Mysorean.

Explanation.—(i) The domicile of a child irrespective of the place of birth follows the domicile of the father, just as in the case of all others who are legally dependent on their guardians. By reason of the accident of the birth of the child in Mysore, he or she cannot be classed as a Mysorean since at that time the parents had no Mysore domicile.

(ii) The domicile of the wife is the domicile of her husband.

Intermediate Science :		Rs	
Whole	...	88	per year
Part I	...	24	"
Part II	...	12	"
Part III	...	60	"
For failed I.Sc. candidates who are admitted for lectures only—			
Whole course	...	72	"
Part I only	...	24	"
Part II only	...	12	"
Part III only	...	44	"
Intermediate in Commerce, whole	...	72	"
Part I	...	24	"
Part II	...	28	"
Part III	...	28	"
B.A. Degree, whole	...	96	"
(Plus Rs. 12 for Science subjects)			
English	...	30	"
Second Language	...	20	"
Optionals	...	55	"
(Plus Rs. 12 for Science subjects)			
B.A. (Hons.) Degree, whole	...	120	"
English	...	30	"
Second Language	...	20	"
Minor subjects	...	40	"
Major subjects	...	60	"
(In the 1st or 2nd year class)			
B.Sc. Degree, whole	...	120	"
English	...	30	"
Second Language	...	20	"
Optionals	...	80	"
B.Sc. (Hons.) Degree, whole	...	144	"
English	...	30	"
Second Language	...	20	"
Minor subjects	...	50	"
Major subjects	...	70	"
(In the 1st or 2nd year class)			
M.A. Degree	...	120	"
M.Sc. Degree	...	144	"

Note 1.—For purposes of calculation of fees, Mathematics is treated as an Arts subject in the Arts course.

Note 2.—Mysorean women students in the Arts and Science Colleges shall be charged half the rate of fees for tuition. Mysorean women students in the Medical College and the Medical School shall be exempted from payment of tuition fee until the end of 1949-50.

Note 3.—Students belonging to the depressed classes are exempted from payment of tuition fees in the University for a period of five years from June 1945, that is, up to the end of the academic year 1949-50.

Note 4.—Mysorean Women students shall be charged half the fee for the T.D.D. Course. No fee shall be charged for officers deputed by the Government of Mysore for T.D.D. course.

- 39.** The fee prescribed shall be paid in equal instalments as follows :—

Instalments.

Arts and Science Colleges—Eight Instalments—July, August, September, October, November, December, January and February.

College of Engineering—Eight Instalments—July, August, September, October, November, December, January and February.

Medical College—Pre-Medical Class—Two Instalments.—July and October

M.B.B.S. Classes—Eight Instalments—January, February, June, July, August, September, October and November.

T.D.D. Course—Three equal Instalments—July, October and January.

Medical School—Four Instalments—July, October, December and February.

Provided that in respect of students newly admitted or rejoining after a break, the first instalment shall be payable on admission and that in respect of those who attend for part of either term, the fee for the full term shall be payable the session consisting of only one term in the case of the Pre-Medical Class.

- 40.** The fee for the admission of a non-promoted student^t of a junior class in any course to the promotion examination to which he can be admitted without further attendance shall be equivalent to an instalment of the annual tuition fee for the course.

- 41.** An admission fee shall be levied according to the following scale :—

Admission fee.	Rs.
Intermediate Course ...	1
B.A. or B.Sc. Degree Course ...	2
M.A., M.Sc., or B.T. Degree Course ...	5
B. Com. Degree Course . . .	2
B.E. Degree Course ...	10
Diploma Course ...	5
Pre-Medical Course ...	10
T.D.D. Course ...	10

The admission fee shall not be levied in the case of those who, having passed the Intermediate Examination or intermediate Examination in Commerce of this University, proceed to the B.A. or B.Sc. Degree course (Pass or Honours B. Com.), or who having passed the B.A. or B.Sc. Degree Examination (Honours) of this University, proceed to the M.A. or M.Sc. Degree course.

42. Any student discontinuing studies in the middle of a course and joining after a year's break, or any student discontinuing studies after completing the course of studies for an examination and joining after a break of three years, or any student leaving the University after obtaining a leaving certificate and rejoining, shall be required on re-admission to pay the admission fee prescribed for the course.

43. Provision shall be made for awarding free-studentships (which may include half free-studentships) up to a maximum of 30 per cent of the number of men students in each constituent college and fifteen per cent of the number of men students in the Medical College and the Medical School and up to a maximum of 50 per cent of the number of women students, in each constituent college, the percentage being calculated on the total strength of each institution exclusive of the number of holders of Government scholarships. Such free-studentships and half free-studentships shall be awarded by the respective College or School Councils. The poverty of the applicant shall be a primary condition of the award in each case.

44. The scale of free-studentships (which may include half free-studentships) in the Intermediate College shall be 25 per cent of the number of men students in each Intermediate College and 50 per cent of the number of women students, the percentage being calculated on the total strength of the college exclusive of the number of holders of Government scholarships. The free-studentships and half free-studentships shall be awarded by the respective college councils. The poverty of the applicant shall be a primary condition of the award in each case.

45. The scale of fees for admission to the several examinations of the University shall be as follows :—

(1) Intermediate Arts or Science :—			Rs.
Whole	...	...	30
Part I	...	...	10
Part II	...	...	5
Part III	...	...	20
Intermediate in Commerce—			
Whole	...	...	30
Part I	...	...	10
Part II	...	...	12
Part III	...	...	12
(2) (a) B.A. Degree, whole (plus Rs. 5 for Science subjects)			...
	...	...	40
(b) Compulsory English			...
	...	...	10

	Rs.
(c) Compulsory Second Language ...	6
(d) Optional subjects (plus Rs. 5 for Science subjects) ...	30
(3) (a) B.A. (Hons.) Preliminary, whole (plus Rs. 5 for Science subjects) ...	20
English ...	10
Second Language ...	6
Optional Subjects (Minor) (plus Rs. 5 for a minor group including a Science subject) ...	10
(b) B.A. (Hons.) Degree, Final (plus Rs. 10 for Science subjects) ...	40
(4) (a) B.Sc. Degree, whole ...	50
(b) Compulsory English ...	10
(c) Compulsory Second Language ...	6
(d) Optional Subjects ...	40
(5) (a) B.Sc. (Hons.) Preliminary ...	25
English ...	10
Second Language ...	6
Optional Subject (Minor) ...	15
(b) B.Sc. (Hons.) Degree, Final ...	50
(c) (1) Intermediate Examination in Commerce	30
(2) B. Com. Degree Examination	40
(6) B.A. Degree ...	100
M.Sc. Degree ...	100
M.E. Degree ...	100
(7) B.T. Degree, whole ...	35
Group B, Practice in Teaching only	15
(8) Pre-Medical Examination :—	
Whole examination ...	30
One subject only ...	10
Two subjects only ...	18
Three subjects only ...	25
(9) I M.B.B.S., whole ...	35
One subject ...	15
Two subjects ...	25
II M.B.B.S., Part I, one subject only ...	15
Part II, whole ...	25
One subject only ...	15
Part III, whole ...	25
One subject only ...	15
Final M.B.B.S., whole ...	45
One subject only ...	20
Two subjects ...	35
(10) (a) First Examination in Engineering :—	
Whole ...	20
One subject ...	10

	Rs.
(b) Second Examination in Engineering :—	
Whole	20
One subject	10
(c) Third Examination in Engineering :—	
Whole	20
One subject	10
(d) Final Examination for the B.E. Degree :—	
Whole	45
One subject	15
(11) B. Com. Degree whole	40
Part I	30
Part II	16
(12) D.LITT., D.Sc. or D.E.	200
(13) Post-Secondary Diploma courses —	
Preliminary Examination or any intermediary examination	15
Final Examination	20
Fee for one subject in respect of the Diploma in Engineering	5
(14) Post- Graduate Diploma Course in Tuberculosis	50

Note 1.—Students belonging to the depressed classes shall be exempted from payment of fees in respect of examinations conducted by the University up to the end of May 1950.

Note 2.—For purposes of calculation of fees, Mathematics shall be treated as an Arts subject in the Arts course.

46. The University Council may fix and levy such fees as it may, from time to time, determine for any information or document to be furnished from the University Office or for any other purpose.

Fees for information, etc.

THE FOLLOWING FEES ARE PRESCRIBED :—

Sl. No.	Items	Fee	Remarks
		Rs.	
1	Sports fee	4	Per year
2	Union* Fee	4	"
3	Reading Room (where membership of Union is not compulsory).	2	"
3 (a)	Sports and Reading Room fees for the Pre-Medical class and for the Final M.B.B.S. repeat course of six months' duration.	4	For the course

* Union means University Union.

Sl. No.	Items	Fee	Remarks
		Rs.	
4	Medical Examination fee	1	Per year
5	For an eligibility certificate (for admission of students of other Universities)	5	
6	For a migration certificate (for students proceeding to other Universities).	2	Each time. The application should be accompanied by a certificate of 'no dues' from the head of the Col- lege in which the applicant last studied.
6 (a)	For duplicate migration certi- ficate.	1	
7*	For permission to change name	5	(Plus Rs. about 6 for notifying)
8	For issue of the Intermediate Examination certificate after the expiry of six months from the notification of the results in the <i>Gazette</i> .	2	
9	For issue of a provisional certi- ficate in respect of a degree examination before the degree is taken.	2	
10	For a duplicate of certificate or diploma.	10	Application to be made through head of institu- tion accompanied by a declaration before a magis- trate that the original is lost or destroyed and that the applicant is the person named in the original.
11	For a duplicate leaving certi- ficate.	1	
12	For a duplicate membership card.	1	
13	For a duplicate scholarship card	1	
14	Association fee besides fee for Reading Room in respect of the Intermediate College, Bangalore.	2	
15	For supplying copies of or extracts from applications for University examinations.	2	

** Procedure regarding change of name :—*

A student of the University, past or present, desiring to change his name should sign a declaration before a Magistrate and forward it to the Registrar through the head of the institution in which he last studied or is studying with an application in the prescribed form and a fee of Rs. 5 for registering the change plus charges for notifying the change (about Rs. 6).

Sl. No.	Items	Fee	Remarks
		Rs.	
16	For furnishing to a candidate a statement of marks obtained by him in each examination where there are no parts or in each part of any examination where there are parts.	2	Details regarding each subject or part for which a separate minimum is prescribed will be furnished. Applications should be made by the candidate.
17	For re-totalling the marks in each paper of an examination where there are no parts or of each part of an examination where there are parts.	10	Application to be supported by the head of the institution from which the candidate last appeared within one month after the announcement of the results by the University

Note.—For information or documents not otherwise provided for, a fee of Rs. 2 will be charged.

UNIVERSITY EXTENSION SCHEME

47. The University Council shall appoint a committee to make arrangements for extension work including lectures for the benefit of persons who are unable to attend the ordinary courses of study at the University, and may direct the publication of any extension lectures on the recommendation of the said committee.

Committee for extension work.

PUBLICATION

48. The University Council shall appoint a committee or committees for printing and publishing approved works of merit, a special committee being appointed for the publication of Kannada works.

Committee for Publications.

49. Works of merit recommended by such committees may be published under the orders of the University Council at the cost of the University.

RESIDENCE

50. Every student who does not reside with his parents or guardian shall reside in hostels or lodgings approved by the University Council or in the case of an affiliated college by its management

Residence of students.

51. The University Council shall appoint a committee to deal with questions relating to the residence of students.

Students' Residence Committees.

HEALTH

52. Every student shall, on admission to the University present, besides the other prescribed certificates, a certificate of medical examination, wherever possible, from the school or college last attended.

Medical Examination certificates to be produced on admission.

53. Every student admitted to the University shall be required to undergo medical examination during his course in the University in accordance with directions issued by the University Council.

Medical examination during the course.

TERMS, VACATIONS AND HOLIDAYS

54. The University session for the Arts and Science Colleges the College of Engineering and the Medical School shall commence on 24th June and end on 31st March following University session. and shall comprise two terms, namely, the first term from 24th of June to 31st of October, and the second term from 1st November to 31st March. In respect of the Medical College, the session for the Pre-Medical class shall commence on 24th June and end on 30th November following; the session for the M.B.B.S. Degree classes shall commence on 9th January and end on 30th November following and shall comprise two terms, namely, the first term from 9th January to the end of March, and the second term from 24th June to the 30th November.

55. The long vacation of the University shall commence on the 1st April and continue up to 23rd June provision being made for clinical work in the Medical College and the Medical School during the vacation.

Vacation.

56. The casual holidays for students during the session shall be fixed by the Council and notified at the beginning of each year. The Office of the University shall be closed on Sundays, the penultimate Saturday of each month, gazetted holidays and such other holidays as may be notified by the Vice-Chancellor.

Holidays.

MIGRATION CERTIFICATE

57. A migration certificate in the prescribed form may be issued by the Registrar to any student of the University on payment of a fee of two rupees.

Registrar may issue migration certificates.

58. No migration certificate shall be granted to a student unless he produces a certificate from the Principal of the college where he has studied that he has paid all his dues to the college, the hostel, and the University Union and returned all Library books borrowed.

Certificate of no dues to be produced.

59. A student who has completed the course of study for any University Examination and migrated to another University may be permitted at the discretion of the University Council to appear for that examination without further attendance for instruction, subject to the conditions of Ordinance 54.

60. No migration certificate shall be issued to a student who has been debarred from attendance at an examinations or dismissed from the University for misconduct.

Migration certificate not to be issued to rusticated students.

PROCEDURE TO BE ADOPTED IN GRANTING AFFILIATION

61. A college applying for recognition, affiliation or approval shall send a formal letter of application to the Registrar between the 1st July and 31st October preceding the academical year in which the courses are proposed to be started and shall give full information in the letter of application on the following matters :—

(a) Constitution and personnel of the Managing Body.

(b) Subjects and courses in which recognition, affiliation or approval is sought.

(c) Previous applications, if any, for recognition, affiliation or approval in the same subjects and their disposal.

(d) Accommodation, equipment, the strength of the college, the number of students for whom provision has been made or is proposed to be made. The information relating to accommodation should be accompanied by drawings.

(e) Qualifications, salaries and work of the teachers, together with a time-table of work.

(f) Hostels and lodgings, and playgrounds; and residences for the Principal and the other members of the staff.

(g) Fees proposed to be levied and the financial provision made for capital expenditure on buildings and equipment for the continued maintenance of the college.

All applications for affiliation of colleges shall be considered by the University Council not later than the month of November.

Applications when considered.

The University Council may call for any further information which it may deem necessary before proceeding with the application, or may advise the management that the application is premature and should be submitted in a subsequent year, or may

Procedure on receipt of application.

decline to proceed with the application if it is satisfied that the arrangements made, or likely to be made, before the beginning of the academical year in which the courses are to be started for the conduct of courses are not sufficient or suitable, or if the college has failed to observe the conditions laid down in respect of any previous recognition, affiliation or approval.

If the University Council decides to proceed with the application, it shall direct a local enquiry to be made by a com-

petent person or persons appointed by it in this behalf: provided that it shall be competent for the University Council to dispense with the enquiry above mentioned in the case of any subject or group of subjects in which it does not, for special reasons which shall be recorded, consider a local enquiry necessary.

After considering the report of the local enquiry, if any, and after making further enquiries it may deem necessary, the University Council shall decide whether the affiliation should be granted or refused, either in whole or in part, and shall after consultation with the Academic Council, grant or refuse the affiliation accordingly. In case the affiliation is granted, the fact shall be reported to the Academic Council and the Senate at the next meeting.

Affiliation may be granted to a college or to departments of a college which provides courses of instruction in Arts, Science, Engineering, or Medicine. The Grant of recognition, affiliation or approval. recognition, affiliation or approval shall be given specially for each subject or each group of subjects and for each separate standard.

Where a college is affiliated in a number of optional subjects, the college shall be at liberty to provide instruction in

any combinations of them out of the list approved by the Academic Council, provided Combination of optional subjects. it satisfies the University Council that the accommodation and staff are adequate whenever a fresh combination is proposed to be introduced. A statement of the different combinations of subjects in which instruction is provided shall be forwarded to the University Council before the close of the first term in every year.

The affiliation granted may be provisional. If provisional, affiliation shall be granted for a fixed period; the length

of the period and the conditions which shall be fulfilled by the college before the expiry of the period shall be specified in the order of the Conditional recognition, affiliation or approval.

University Council granting the affiliation. If the conditions are not fulfilled by the end of the period fixed, the affiliation shall cease automatically, and in no case shall any extension of time be permitted. If the conditions are fulfilled, the University Council shall have the power at the end of the period to confirm affiliation

The confirmation of affiliation shall be reported to the Academic Council and the Senate.

Affiliation shall in no case be granted with retrospective effect. Attendance at courses of instruction provided in colleges or in subjects before affiliation is granted shall not qualify for the grant of certificates of attendance; and such attendance shall not entitle any candidate to exemption from the production of certificates of attendance.

An application for affiliation may be withdrawn at any time before an order has been passed by the University Council, provided that the college shall not be entitled to a refund of the fee paid, in cases in which the University has incurred the expenditure of sending out an Inspection Commission.

Where a college desires to add to the course of instruction in respect of which it is affiliated, the procedure prescribed in the preceding Ordinances shall, so far as may be followed.

Recognition, etc., not granted with retrospective effect.

Procedure for further recognition, affiliation and approval.

An affiliated college shall satisfy the following academical requirements :—

(1) No lecture shall be delivered to more than sixty-four students at a time.

Academical requirements. Provided that the University Council may permit lectures to be delivered to more than sixty-four students at a time, if it is satisfied that the size, structure, seating arrangements and acoustic properties of each lecture room concerned are suitable and that adequate arrangements for the tuitional instruction of students have been made.

(2) No teacher shall teach for more than twenty hours a week.

Provided that in the case of M. A. and M. Sc. classes, two hours of teaching shall count as three hours for the purpose of this calculation.

(3) Laboratories of approved design shall have been constructed and adequately equipped.

(4) A demonstrator shall be provided for every sixteen students during practical work in any experimental science subject.

(5) Where adequate hostel accommodation does not already exist, it shall be provided within two years from the date of affiliation.

B. Academic Ordinances

BREAK OF CONTINUITY

62. A student who has attended the course of studies for any examination for one full session may be permitted a break of continuity for a period not exceeding one year. A student who has

Break of continuity.

completed the course of studies for any examination may be permitted to appear for the examination without further attendance for instruction within a period not exceeding three years after the completion of the course except as otherwise provided for. After the expiry of such period of three years, he shall be required to attend again the final year of the course before he is permitted to appear for the examination.

Provided that in respect of the Intermediate Examination a student may appear without further attendance not more than four times within a period of two years following the first appearance. After the expiry of such period of two years he shall be required to attend again the final year of the course, before he is permitted to appear for the examination again.

A student who has been admitted to a course for further instruction in any year before the expiry of the period specified in the preceding paragraphs shall be required to produce a fresh attendance certificate before he is permitted to appear for the examination.

INTERMEDIATE EXAMINATION

- 63.** The course of study for the Intermediate Examination shall extend over two years.

Length of course.

64. Each year shall be taken as a unit for purposes of calculating attendance. A student shall be considered to have completed the attendance for the year, if he has attended three-fourths of the number of working periods in each of the subjects during the said year, and his conduct and progress have been satisfactory.

Minimum attendance.

65. The University Council shall have power to condone shortage of attendance on the recommendation of the heads of institutions.

Condonation of shortage of attendance

Applications for the condonation of shortage of attendance shall be made to the Registrar in the month of February each year.

66. At the Intermediate Examination in Arts, a candidate shall be examined in—

Course of studies for I. A.

(1) *English*.—The course shall consist of the study of English Grammar, the detailed study of prescribed books in Poetry, Drama and Prose and Non-detailed study of other prescribed books, and the examination shall comprise three papers on—

1. English Grammar.
2. Poetry and Drama.
3. Prose—Detailed and Non-detailed.

(2) *Second Language*.—One of the following languages:—
Kannada, Urdu, Tamil, Hindi,* Telugu, Sanskrit,
Persian, Arabic, French and Latin.

The examination shall comprise two papers as
under :—

(a) *Indian Languages*—

(i) Composition based on texts prescribed
for non-detailed study and translation
from English to Second Language.
Common to I.A. and I. Sc.

(ii) Texts for detailed study and grammar

(b) *Classical and Western Languages*—

(i) Texts, Grammar and Translation
Common to I.A. and I.Sc.

(ii) Texts and Grammar. I.A. only.

NOTE.—(a) *Indian Languages*.—

Kannada, Tamil, Telugu, Hindi and Urdu.

(b) *Classical and Western Languages*.—

Sanskrit, Persian, Arabic, French and Latin.

(3) *Optional Subjects*.—Three of the following :—

A Selected Language, History, Logic, Economics,
Geography, Mathematics, Physics, Chemistry, Biology :

Provided that—

(i) Either Logic or Mathematics must be taken ;

(ii) A candidate taking Physics must take
Mathematics ;

(iii) Not more than one of the last three subjects
may be offered ;

(iv) The same language cannot be taken under
both (2) and (3).

The selected language shall be taken from Old and
Middle Kannada, Modern Kannada, Tamil, Telugu, Urdu, Sans-
krit, Hindi, Arabic, Persian (Old and Modern).

The following shall be the scheme regarding the corres-
ponding language for each selected language in the Intermediate
in Arts list :—

*Selected Language in the
I.A. Scheme*

Old and Middle Kannada
Modern Kannada
Tamil
Telugu
Urdu
Sanskrit

*Corresponding Language
in the S.S.L.C. Scheme*

Kannada
Kannada
Tamil
Telugu
Urdu
Sanskrit

* Those whose mother tongue is a language allied to Hindi, such as Gujrathi
Maharati and Bengali, will be permitted to offer Hindi as Second Language,
and also those who are so circumstanced that they can take up Hindi more
easily than Kannada or Urdu.

*Selected Language in the
I.A. Scheme*

Persian
Arabic
Hindi

*Corresponding Language
in the S.S.L.C. Scheme*

Persian
Arabic
Hindi or Sanskrit

The examination in the optional group shall comprise two papers on each of the subjects selected.

67. At the Intermediate Examination in Science, a candidate shall be examined in—

Course of studies
for I.Sc.

(1) *English*.—Same as for the Intermediate Examination in Arts.

(2) *Second Language*.—One of the following languages :—
Kannada, Urdu, Tamil, Telugu, Hindi,* Sanskrit, Persian, Arabic, French and Latin.

The course shall consist of the non-detailed study of prescribed texts.

The examination shall comprise :

(a) *Indian Languages*—

One paper in Composition based on texts prescribed for non-detailed study and translation from English to Second Language Common to I.A. and I.Sc.

(b) *Classical and Western Languages*—

Texts, Grammar and Translation. Common to I.A. and I.Sc.

NOTE.—(a) *Indian Languages*.

Kannada, Tamil, Telugu, Hindi and Urdu.

(b) *Classical and Western Languages*.—

Sanskrit, Persian, Arabic, French and Latin.

(3) *Optional Subjects*.—One of the following groups :—

- (i) Physics, Chemistry, Mathematics.
- (ii) Physics, Mathematics, Geology.
- (iii) Botany, Zoology, Chemistry.
- (iv) Botany, Geology, Chemistry.
- (v) Geology, Zoology, Chemistry.
- (vi) Botany, Zoology, Geology.
- (vii) Physics, Mathematics, Economics.
- (viii) Economics, Geology, Chemistry.
- (ix) Economics, Geology, Geography.
- (x) Mathematics, Economics, Geography.
- (xi) Economics, Geography, Chemistry.
- (xii) Geology, Geography, Chemistry.

The examination shall comprise two papers in each division of the group.

* Those whose mother tongue is a language allied to Hindi, such as Gujrathi, Mahrati and Bengali, will be permitted to offer Hindi as second language, and also those who are so circumstanced that they can take up Hindi more easily than Kannada or Urdu.

68. (i) The Intermediate Examination in Arts and the Intermediate Examination in Science shall be held twice a year (in February and in September or October) in three parts—Part I English, Part II Second Language, and Part III Optional Subjects.

(ii) Candidates for the Intermediate Examination shall present themselves for examination in all the parts except as provided in clause (iv) following.

(iii) No candidate shall be declared to have passed the Intermediate Examination in Arts or the Intermediate Examination in Science unless he obtains not less than 35 per cent of the total number of marks in English, 35 per cent in the Second Language and 35 per cent in the whole group of optional subjects and also not less than 30 per cent in each of the subjects of the optional group.

(iv) Candidates failing in any part or parts of the examination will be permitted to appear for such part or parts at any subsequent examination *subject to the conditions prescribed in Ordinance 62.*

69. The results of the examination shall be declared in three classes as follows :—

Classification of
successful candi-
dates.

First Class ...	Those who obtain 'not' less than 90 per cent of the aggregate marks in the three parts taken together.
Second Class ...	Those who obtain less than 60 per cent but not less than 50 per cent.
Third Class ...	Other successful candidates.

The names of the candidates who pass in the first and second classes shall be arranged in order of merit, and the names of those who pass in the third class shall be arranged in alphabetical order.

Candidates who pass in the examination in parts shall not be classed.

DEGREE COURSES

70. The period of study necessary to qualify for graduation shall be as noted below, and shall be subsequent to the date at which the student passes the Intermediate Examination of this University or an examination recognised as equivalent to it :—

Length of Degree
course.

B.A.	...	Not less than 2 years
B.A. (Hons.)	...	" " 3 "
B.Sc.	...	" " 2 "
B.Sc. (Hons.)	...	" " 3 "
B. Com.	...	" " 2 "
B.E.	...	" " 4 years followed by a year's practical course
M.B.B.S.	...	" " 5½ years.

71. In the case of all degree courses, each year shall be taken as a unit for purposes of calculating attendance; and a student shall be considered to have completed the attendance for the year, if he has attended not less than three-fourths of the number of working periods in each of the subjects comprised in the course and his progress and conduct have been satisfactory. The University Council shall have power to condone shortage of attendance on the recommendation of the heads of colleges.

Application for condonation of shortage of attendance shall be made to the Registrar in the month of February each year in respect of Arts, Science and Engineering Examinations and in the First week of December in respect of the Pre-Medical and M.B.B.S. Examinations.

72. (i) No candidate shall offer a subject at an examination for the Bachelor's Degree in Arts or Science unless he shall have passed the Intermediate Examination in the corresponding subject, if any; but the University Council shall have power to grant exemption from this rule in special cases.

(ii) Only candidates who have passed with Mathematics as an optional subject in the Intermediate Examination in Arts or in the Intermediate Examination in Science shall be allowed to take Economics or Experimental Psychology in the B.Sc. Degree course.

(iii) Only candidates who have passed with Mathematics and Physics as optional subjects in the Intermediate Examination in Arts or in the Intermediate Examination in Science shall be allowed to take the course in Experimental Psychology for the B.Sc. (Hons.) Degree.

73. No candidate who has been declared to have passed in a part or parts of a degree examination shall be permitted to appear again in the same part or parts at the same examination.

74. A candidate who has passed a degree examination with any group of optional subjects may be permitted to appear for a subsequent examination for the same degree with a different group of optional subjects under conditions to be prescribed.

75. A candidate who has passed the B.A. or B.Sc. Degree Examination may be admitted to the post-graduate Honours course in one of the optional subjects studied for the Degree Examination. Such a candidate shall be exempted from the Honours Preliminary Examination in Parts I and II, and in Part III except as provided hereunder, and shall be

permitted to appear for the final examination for the Honours Degree after a course of two years :—

(i) A candidate for Honours in English shall appear at the end of the first year for the Preliminary Examination in Outlines of English History.

(ii) A candidate for Honours in Kannada shall appear at the end of the first year for the Preliminary Examination in (1) Tamil or Telugu and (2) Cultural and Historical Studies relating to Karnataka.

(iii) A candidate for Honours in History shall appear at the end of the first year for the Preliminary Examination in the papers in the minor subject not already offered by him at the B.A. Degree Examination.

(iv) A candidate for Honours in a Science subject other than Experimental Psychology or Economics as major subject shall in the first year undergo a course in German and pass a college test in German.

(v) A candidate for Honours in Persian shall appear at the end of the first year for the Preliminary Examination in Drama and Fiction.

A candidate who has passed part of the B.A. or B.Sc. Degree Examination or the whole of that examination with optional subjects other than those proposed to be taken in the Honours Course may be admitted to the First Year Class of the Honours Course with such exemption as may be granted by the University Council in consideration of his having passed the equivalent examination in English, Second Language or minor subject at the degree examination.

B.A. DEGREE

76. The course of study leading to the degree of Bachelor of Arts shall extend over two years after the Intermediate Examination, and shall comprise English, a

Course of studies.

Second Language and three of the following subjects: English, Philosophy, a Classical Language, a Vernacular, Politics, Economics, Sociology, History, Education, Mathematics, Geography, Biology, Physics, Chemistry, Botany, Zoology—which shall be taken in combinations approved by the Academic Council, from time to time :*

* The following are the combinations approved by the Academic Council:	
English, Philosophy, Classical Language	English, Physics, Mathematics
Economics, Philosophy, Sociology	English, Botany, Zoology
Economics, Politics, Philosophy	English, History, Philosophy
History, Economics, Politics	English, History, Classical Language
History, Economics, English	English, Economics, Mathematics
History, Economics, Sociology	Economics, Politics, Geography
History, Politics, a Classical Language	Economics, Politics, Classical
English, Politics, Philosophy	Language
History, Politics, Philosophy	Economics, Sociology, Classical
Philosophy, Politics, Sociology	Language
English, History, Politics	Politics, Sociology, Classical Language
Mathematics, Economics, Politics	Philosophy, Sociology, Classical
English, History, Kannada	Language
History, Sociology, Persian	

Provided that not more than one of the last five subjects may be offered in any combination except when English is one of the optional subjects in the combination, in which case two may be offered.

77. The examination shall consist of two papers in English Composition, one paper in Second Language Composition and Translation from English to Second Language or Translation in respect of Classical Languages, and three papers in each of the three selected subjects.

Scheme of examination.

The papers on English Composition shall be based on the non-detailed study of prescribed text-books.

The paper on Second Language Composition or Translation shall be based on prescribed text-books.

78. The Second Language shall be selected from Kannda, Urdu, Tamil, Telugu, Hindi* and French for Composition; and Sanskrit, Persian, Arabic and Latin for Translation. The Classical Language shall be selected from Old and Middle Kannada, Sanskrit, Pali and Prakrit, Persian (Classical), Arabic, Avestan and Pahlavi.

Second Language and Classical Language.

B. SC. DEGREE

79. The course of study leading to the degree of Bachelor of Science shall extend over two years after the Intermediate Course of studies. Examination, and shall comprise English composition, a Second Language and one of the following groups :—

- (i) Mathematics, Physics, Chemistry ;
- (ii) Botany, Zoology, Geology ;
- (iii) Botany, Zoology, Chemistry ;
- (iv) Physics, Mathematics, Geology ;
- (v) Chemistry, Geology, Botany ;
- (vi) Chemistry, Geology, Zoology ;
- (vii) General Physiology, Chemistry, Zoology or Botany
- (viii) Economics, Geology, Chemistry ;
- (ix) Physics, Mathematics, Economics ;
- (x) Experimental Psychology, Mathematical Statistics, Child Psychology and Educational Psychology ;
- (xi) 1. Mathematics.
2. Mathematical Statistics and Mathematical Economics.

* Those whose mother tongue is a language allied to Hindi, such as Gujrathi, Mahrati and Bengali, will be permitted to offer Hindi as Second Language, and also those who are so circumstanced that they can take up Hindi more easily than Kannada or Urdu.

3. One of the following :—

- (a) Economics.
- (b) Sociology.
- (c) Psychology (General and Experimental).
- (xii) Economics, Geology, Geography ;
- (xiii) Mathematics, Economics, Geography ;
- (xiv) Geography, Economics, Chemistry ;
- (xv) Geography, Geology, Chemistry ;
- (xvi) Mathematics, Statistics, Geography ;
- (xvii) Mathematics, Sociology, Geography.

80. The examination shall consist of two papers in English Composition, one paper in Second Language Composition and Translation from English to Second Language or Translation in respect of Classical Languages and three papers in each of the three selected subjects.

The papers on English Composition shall be based on the non-detailed study of prescribed text-books.

The papers on Second Language Composition or Translation shall be based on prescribed text-books.

81. The Second Language shall be selected from Kannada, Urdu, Tamil, Telugu, Hindi* and French for Composition ; and Sanskrit, Persian, Arabic and Latin for Second Language. Translation.

BACHELOR'S DEGREE EXAMINATIONS IN ARTS AND SCIENCE

82. The examinations for the Bachelor's Degree in Arts and Science shall be held in three parts as under :—

- | | |
|---------------|---------------------------|
| Compartments. | (i) Compulsory English ; |
| | (ii) Second Language ; |
| | (iii) Optional Subjects ; |

Provided that candidates shall present themselves for the complete examination when appearing for the first time.

83. No candidate shall be declared to have passed in Part I unless he obtains not less than 35 per cent of the total marks in Compulsory English. No candidate shall be declared to have passed in Part II unless he obtains not less than 35 per cent of the marks in Second Language. No candidate shall be declared to have passed in

* Those whose mother tongue is a language allied to Hindi, such as Gujrathi, Mahrati and Bengali will be permitted to offer Hindi as Second Language, and also those who are so circumstanced that they can take up Hindi more easily than Kannada or Urdu.

Part III unless he obtains not less than 35 per cent of the total marks in each subject comprised in the part and 40 per cent of the aggregate of the three subjects.

84. The results in each part shall be declared in three classes as follows :—

Classification.

First Class	...	Those who obtain not less than 60 per cent of the aggregate marks in the part.
Second Class	...	Those who obtain less than 60 per cent but not less than 50 per cent.
Third Class	...	Other successful candidates.

The names of those who pass in the first or second class shall be published in the order of merit, and the names of those who pass in the third class shall be published in alphabetical order.

Note 1.—A candidate who fails in the B. A. or B.Sc. Degree Examination but obtains not less than 60 per cent of the total maximum marks in any of the optional subjects (Part III) shall be exempted from appearing in the subject or subjects at a subsequent examination held within two years of passing in the subject ; provided that the names of successful candidates who have been exempted in one or more subjects shall be published in a separate list in alphabetical order.

Note 2.—A candidate who has passed the B.A. or B.Sc. Degree Examination in the group of optional subjects and has obtained not less than 60 per cent of the marks in any subject of the group shall be declared to have secured distinction in that subject.

BACHELOR'S DEGREE EXAMINATION IN COMMERCE.

85. 1. The course of studies leading to the Degree of Bachelor of Commerce shall extend over four years.
2. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with one of the following groups of Optional subjects and shall have been declared eligible for admission to University Courses of Study :

S.S.L.C. of Mysore ... Group 'C' (v).
 S.S.L.C. of Mysore ... Group 'A' or 'B'

3. Graduates in Arts or Science of this University who have passed the Degree Examination with Economics as one of the Optional subjects shall be eligible for admission to the III Year B. Com. class. They shall, however, be required to pass the Intermediate Examination in Commerce in the following subjects at the end of the III year.

Accountancy and Commercial Arithmetic I and II.

A candidate who fails in the said subjects at the end of III Year may be allowed to proceed to the IV year class, in which case he shall take along with the B.Com. Degree Examination the examination in the said subjects. Until such candidate passes in the said subjects his results in the B. Com. Degree examination shall not be declared.

4. Candidates who have passed the L. Com. Examination of this University or the Intermediate Examination in Commerce of other Indian Universities recognised by the University Council as being equivalent to the I. Com. Examination of this University, shall be eligible for admission to III year B. Com. class.
5. Candidates for the B. Com. Degree shall be required to attend courses of study in the following subjects :
 - A. *In the First Two Years (Intermediate Course).*
 - (i) English (same as for Intermediate in Arts).
 - (ii) Economics: I. Modern Industry.
II. Economic History of England (same as for Intermediate in Arts).
 - (iii) Administration.
 - (iv) Commerce.
 - (v) Economic Geography.
 - (vi) Accountancy and Commercial Arithmetic I.
 - (vii) Accountancy and Commercial Arithmetic II.
 - (viii) Stenography.
 - B. *In the Third and Fourth Years (Final Course).*
 - (i) English.
 - (ii) Business Organisation.
 - (iii) Commercial Law.
 - (iv) Trade and Statistics.
 - (v) Modern Economic Development.
 - (vi) Organisation and Finance of Industry.
 - (vii) Banking and Money Market.
 - (viii) Any two of the following optional subjects :
 - (a) Advanced Accounting and Auditing.
 - (b) Advanced Banking and Banking Law.
 - (c) Insurance
 - (d) Public Administration.
 - (e) Economics of Transport.

Candidates shall be required to pass TWO examinations, viz., the Intermediate Examination in Commerce at the end of the Second Year and the Final (B. Com.) examination at the end of the Fourth year. Only those who are successful in the Intermediate Examination in Commerce shall be allowed to proceed to the Third year class except as provided for under 3 and 4 above.

The Intermediate Examination in Commerce shall be held twice a year in three Parts. No candidate shall be declared to have Passed the Intermediate Examination in Commerce unless he obtains not less than 35 per cent of the total number of marks in English, 30 per cent in each of the subjects included in parts II and III, and 35 per cent of the aggregate in part II and in part III. The division into parts shall be as follows :—

PART I

- (i) English : Poetry and Drama.
- (ii) English : Prose.
- (iii) English : General English.

PART II

- (i) Economics I : Modern Industry.
- (ii) Economics II : Economic History of England.
- (iii) Economic Geography.
- (iv) Stenography.

PART III

- (i) Accountancy and Commercial Arithmetic I.
- (ii) Accountancy and Commercial Arithmetic II.
- (iii) Administration.
- (iv) Commerce.

The Final (B. Com.) Examination shall be held once a year in TWO parts. No candidate shall be declared to have passed the B.Com. Degree examination unless he obtains not less than 35 per cent of the marks in each of the subjects included in Parts I and II and 40 per cent of the aggregate in each part. The division into parts shall be as follows :—

PART I

- (i) English.
- (ii) Business Organisation.
- (iii) Commercial Law.
- (iv) Trade and Statistics.
- (v) Modern Economic Development.
- (vi) Organisation and Finance of Industry.
- (vii) Banking and Money Market.

PART II

Any two of the following subject each having *two* papers :—

- (i) Advanced Accounting and Auditing.
- (ii) Advanced Banking and Banking Law.
- (iii) Insurance.
- (iv) Public Administration.
- (v) Economics of Transport.

B. A. HONOURS DEGREE

86. The course of study leading to the degree of Bachelor of Arts (Hons.) shall extend over three years after the Intermediate Examination in Arts, and shall comprise English, a Second Language and one of the following as the major subject with a suitable minor subject :—

English, Kannada, Sanskrit, Persian, Arabic, Urdu, Philosophy, History, Politics, Economics.

87. The Examination shall consist of two papers in English Composition, one paper on Second Language Composition and Translation from English to Second Language or Translation in respect of Classical Languages, eight papers in major subject and four papers in minor subject.

Provided that in the case of Sanskrit and English there shall be nine papers in the major subject and three papers in the minor subject.

The papers on English Composition shall be based on the non-detailed study of prescribed text-books.

The paper on Second Language Composition or Translation shall be based on prescribed text-books.

88. The Second Language shall be selected from Kannada, Urdu, Tamil, Telugu, Hindi* and French for Composition ; and Sanskrit, Persian, Arabic and Latin for Translation.

B.Sc. HONOURS DEGREE

89. The course of study leading to the degree of Bachelor of Science (Hons.) shall extend over three years after the Intermediate Examination in Science, and shall comprise one of the following optional groups of subjects consisting of a major subject and a minor subject, together with English and a Second Language :—

- (1) Mathematics (Major) with two out of a prescribed list of special subjects and Physics as Minor subject.
- (2) Statistics (Major) with two out of a prescribed list of special subjects and Economics or Experimental Psychology or Physics as Minor subject.
- (3) Physics (Major) including Mathematical Physics and Chemical Physics with Mathematics as Minor subject.

* Those whose mother tongue is a language allied to Hindi, such as Gujrathi, Mahrati and Bengali, will be permitted to offer Hindi as Second Language, and also those who are so circumstanced that they can take up Hindi more easily than Kannada or Urdu.

- (4) Chemistry (Major) including Plant Chemistry or Colloid and Capillary Chemistry with Physics as Minor subject.
- (5) Geology (Major) with Zoology or Botany or Chemistry as Minor subject.
- (6) Zoology (Major) with Botany or Geology or Chemistry as Minor subject.
- (7) Botany (Major) with Zoology or Geology or Chemistry as Minor subject.
- (8) Experimental Psychology (Major) with Child Psychology, Educational Psychology and Mathematical Statistics as Minor subject.
- (9) Economics (Major) with Advanced Statistics, Mathematical Economics and Social Measurements as Minor subject.

The course of study in the first year class shall, in groups (1) to (7), include in addition a course in German, which shall comprise elements of grammar and exercises in translation.

Note.—Consequent on the introduction of the Group—Geology, Botany and Zoology—for the Intermediate course in Science, the following is the revised scheme of examination for the B.Sc. Honours in Geology, Botany and Zoology.

GEOLOGY—

Palæobotany for students taking Botany Minor, Palæozoology for students taking Zoology Minor, Mineral Chemistry for students taking Chemistry Minor.

BOTANY—

Palæobotany for students taking Botany or Geology as Major and Geology or Botany as Minor.

ZOOLOGY—

Palæozoology for students taking Geology (Major) and Zoology (Minor) and also for students taking Geology (Minor) and Zoology (Major).

90. The examination shall consist of one paper in English Composition, one paper in Second Language Composition and Translation from English to Second Language or Translation in respect of Classical Languages and papers in the optional subjects as under :—

			Final (Major)	Preliminary (Minor)
(a)	Mathematics	...	9	3
	Statistics	...	9	
	Physics	...	9	
	Chemistry	...	9	
	Botany	...	9	
	Geology	...	9	
	Zoology	...	9	
(b)	Experimental Psychology	...	8	4
	Economics	...		

The paper on English Composition shall be based on the non-detailed study of prescribed text-books.

The paper on Second Language Composition or Translation shall be based on prescribed text-books.

91. The Second Language shall be selected from Kannada, Urdu, Tamil, Telugu, Hindi* and French for Composition; and Sanskrit, Persian, Arabic and Latin for Translation.

HONOURS DEGREE EXAMINATIONS

92. The Honours Degree Examinations shall be taken in two parts—(a) the Preliminary Examination at the end of the second year, (b) the Final Examination at the end of the third year.

Honours examination to be taken in two parts.

(a) The Preliminary Examination shall consist of the following three parts:—

(i) English Composition ... $\begin{cases} 2 \text{ papers for B.A. (Hons.).} \\ 1 \text{ paper for B.Sc. (Hons.).} \end{cases}$

(ii) **Second Language—**

Composition or Translation—1 paper.

(iii) Minor Subject—

(1) Kannada, Persian, Arabic, History, Philosophy, Economics (B.A. and B.Sc.), Experimental Psychology—4 papers in each case

(2) English, Sanskrit, Mathematics, Physics, Chemistry, Geology, Zoology, Botany—3 papers in each case.

Provided that candidates shall present themselves for the whole examination when appearing for the first time.

(b) The final examination shall consist of the Final Examination, remaining.

No candidate shall be admitted to the Final Examination for the B.Sc. Honours Degree in groups (1) to (7) of Ordinance 89 unless he is certified by the college authorities to have satisfied them in a test in translating simple scientific passages in German.

(c) A candidate for the Honours Degree shall not appear for either the Preliminary or the Final Examination later than five academic years after admission to the first year Honours class; nor shall he be permitted to undergo the complete Final Examination for Honours more than once.

Honours examination to be taken not later than five years after Intermediate.

* Those whose mother tongue is a language allied to Hindi, such as Gujrathi, Mahrati and Bengali, will be permitted to offer Hindi as Second Language, and also those who are so circumstanced that they can take up Hindi more easily than Kannada or Urdu.

93. A candidate who fails in the Preliminary Examination may be allowed to proceed to the Final Year course, in which case he shall take along with the Final Examination such part or parts of the Preliminary Examination as he may have failed in. Until such candidate passes in the Preliminary Examination his results in the Final Examination shall not be declared.

94. The classification in the Honours Examination shall be determined on the results of the Final Examination, only a pass being declared in the Preliminary Examination.

Classification i
Honours Exam-
nation.

95. No candidate shall be declared to have passed in any part of the Preliminary Examination unless he obtains not less than 35 per cent of the aggregate marks in that part

Minima for Prel-
iminary Exam-
nation.

96. No candidate shall be declared to have passed the Final Examination for the Honours degree in an Arts subject unless he obtains not less than 40 per cent of the total marks in the examination.

Minima for Final
Examination.

No candidate shall be declared to have passed the Final Examination for the Honours degree in a Science subject, unless he obtains not less than 35 per cent of the aggregate marks in each group* and 40 per cent of the total marks in the whole examination (including class work and class examination).

The results of the Final Examination shall be declared in three classes as follows :—

First Class	...	Those who obtain not less than 60 per cent of the total marks.
Second Class	...	Those who obtain less than 60 per cent but not less than 50 per cent.
Third Class	...	Other successful candidates.

The names of those who pass in the first or second class shall be published in order of merit, and the names of those who pass in the third class shall be published in alphabetical order.

Candidates failing to obtain the requisite minimum for an Honours degree but obtaining not less than 35 per cent of the aggregate marks in the Final Examination and passing in the Preliminary Examination may, at the discretion of the Board of Examiners in the major subject, be recommended for the Pass degree.

* For the specification of groups, *vide* detailed scheme of examination in Chapter II.

97. A candidate for the B.A. Honours degree or the B.Sc. Honours degree who, having undergone the entire course for the degree, fails to secure either the Honours degree or the Pass degree in accordance with the foregoing Ordinances shall be eligible for admission to the Senior B.A. or Senior B.Sc. class, as the case may be, and appear for the B.A. or B.Sc. degree examination under the following provisions :

(i) A candidate for B.A. Honours in English, Kannada, Sanskrit, Persian, Urdu, Politics, History or Philosophy shall undergo the course for, and be examined in, the B.A. degree examination in Compulsory English, Second Language and a combination of optional subjects, out of those approved under Ordinance 76, which shall include the subject of the B.A. degree Course corresponding to his major subject for Honours, subject to the conditions of Ordinance 72.

(ii) A candidate for B. A. Honours in Economics shall undergo the course for, and be examined in, the B.A. degree examination in Compulsory English, Second Language and a combination of optional subjects out of those approved under Ordinance 76, which shall include his minor subject for Honours and the subject of the B.A. Degree Course corresponding to his major subject for Honours, subject to the conditions of Ordinance 72.

(iii) A candidate for the B.Sc. Honours degree shall undergo the course for, and be examined in, the B.Sc. degree examination in Compulsory English, Second Language and a group of optional subjects prescribed in Ordinance 79, which shall include the two subjects of the B.Sc. Degree Course corresponding to his major and minor subjects for Honours, subject to the conditions of Ordinance 72.

(iv) (a) A candidate appearing for the B.A. or B.Sc. Degree Examination as above shall be granted exemption from attendance and examination in respect of the subject of the B.A. or B.Sc. Degree Course in which he shall have passed the Honours Degree Examination, Preliminary or Final, as the case may be, obtaining the following minimum percentage of marks :—

Compulsory English	... 35 per cent.
Second Language	... 35 per cent.
Minor Subject	... 60 per cent.
Major Subject	... 40 per cent, with the prescribed minima for groups, if any,

provided that a candidate for the B.Sc. degree examination shall be required to undergo the course for, and the examination in, the second paper of Compulsory English.

(b) A candidate appearing for the B.A. or B.Sc. Degree Examination as above shall be granted exemption from attendance

only (but not from examination) in respect of the subject of the B.A. or B.Sc. Degree Examination in which he shall have undergone the Honours course, but not passed in the examination as prescribed in the preceding clause (a), provided that a candidate who shall have secured in the Honours examination in the major subject less than 30 per cent of the marks, shall not be exempted from attendance in the corresponding subject.

(v) The classification of successful candidates shall be regulated according to Ordinance 84.

MASTER'S DEGREE

98. (a) Master of Arts.—A candidate for the Degree of Master of Arts shall pursue a course of study in *one* of the following subjects :—
 Course. English, Kannada, Sanskrit, Persian, Urdu, History, Politics, Economics, Philosophy.

(b) Master of Science.—A candidate for the Degree of Master of Science shall pursue a course of study in one of the following subjects :—

Mathematics, Statistics, Physics, Chemistry, Botany, Zoology, Geology, Psychology, Economics.

99. Honours graduates of this University and those of other Universities possessing qualifications considered equivalent by the University Council shall be eligible for admission to the course.
 Qualification for admission.

100. An Honours graduate shall pursue a course of studies in his major subject for not less than one academical year after passing the Bachelor's Degree Examination, at the end of which he will be permitted to present himself for the Master's Degree Examination in that subject.
 Course of Studies.

101. The examination for the Master's Degree shall consist of four papers and a *Viva Voce* examination, or a thesis and a *Viva Voce* examination. Each of the written papers and the *Viva Voce* shall carry a maximum of 100 marks.
 Scheme of Examination

No candidate shall be declared to have passed the Master's Degree Examination unless he obtains not less than 40 per cent of the marks in the aggregate of the written papers, 40 per cent of the marks in the *Viva Voce* examination and 50 per cent of the aggregate marks for the whole examination. Successful candidates who obtain 60 per cent of the total marks shall be placed in the first class in order of merit, and the other successful candidates in the second class in alphabetical order. In the case of examination by thesis and *Viva Voce*, no marks will be awarded. If after the *Viva Voce* the thesis is accepted the candidate shall be awarded the Master's Degree and if the thesis is of outstanding merit, Master's Degree with distinction shall be awarded.

B. T. DEGREE

102. A candidate for the Degree of Bachelor of Teaching shall have taken the Bachelor's Degree in Arts, Science or Commerce in this University or a corresponding Degree of any other University accepted by the University Council as equivalent thereto, and have attended for a year the prescribed course of study in this University after having passed the B.A., B.Sc. or B.Com. Degree Examination.

103. The course of study for the Degree of Bachelor of Teaching shall extend over one year at the conclusion of which there shall be an examination comprising the subjects mentioned below :—

GROUP A (THEORETICAL).

- (i) Principles.
- (ii). Educational Psychology, including Mental and Educational Measurements.
- (iii) General Methods and Methods of Teaching English (Compulsory).
- (iv) Methods of Teaching Special Subjects.
- (v) Comparative Study of Educational Systems, with special reference to problems of Indian Education.
- (vi) School Organisation and Management
- (vii) Class Records in Mental and Educational Measurements.

GROUP B (PRACTICE IN TEACHING).

Examination.

Class work.

Note 1.—No separate minimum will be required in respect of class marks in Mental and Educational Measurements, the marks in which will count towards the aggregate of Group A.

Note 2.—(a) The course in respect of Methods of Teaching Special Subjects under Group A shall comprise :

Methods of Teaching—one of the following subjects :

English (Optional), History, Geography, Mathematics, Science.

(b) The course in respect of 'Practice in Teaching' under Group B shall comprise :

(i) the teaching of English (Compulsory).

(ii) the teaching of *one* of the following subjects.

English (Optional), History, Geography, Mathematics, Science.

104. Candidates for the B.T. Degree Examination who have passed in Group A (Theoretical) and failed in Group B (Practice in Teaching) shall be permitted to appear again for Group B (Practice in Teaching).

105. No candidate shall be declared to have passed the B.T. Degree Examination, unless he obtains not less than 40 per cent of the total marks under A and B separately with a minimum of 30 per cent in each subject of Group A. Of passed candidates, those that obtain 60 per cent or more of the total marks shall be placed in order of merit in the first class, others obtaining not less than 50 per cent in the second class likewise in order of merit, and the rest in the third class in alphabetical order :

Provided that the names of candidates who pass in Groups A and B in different years shall be published in a separate list in alphabetical order.

B.E. DEGREE

106. Students who have passed the Intermediate Examination in Science of this University with Physics, Chemistry and Mathematics as optional subjects shall be eligible for admission to the course of studies leading to the Degree of Bachelor of Engineering. Students who have passed the B.Sc. Degree Examination with Physics, Chemistry and Mathematics as optional subjects, shall be eligible for admission to the second year of the course of studies leading to the Degree of Bachelor of Engineering, but by the end of the academic year such students shall have completed satisfactorily the class work in Drawing and Surveying prescribed for the first year and in addition shall appear for the First Examination in Engineering in Economics, Building Materials, Mechanical Engineering and Metallurgy, and Surveying Theory, and they shall not be declared to have passed the Second Examination in Engineering until they pass in the above subjects by obtaining the paper minima prescribed for them, *viz.*, 30 per cent in each paper, and also they shall be required to undergo practical training in workshops during the summer vacation at the end of the second year course.

Students who have passed the B.Sc. Honours with Physics or Chemistry or Mathematics as the major subjects shall be eligible for admission to the second year course of studies leading to the Degree of Bachelor of Engineering on the same basis as above, provided they have passed their Intermediate Examination in Science with Physics, Chemistry and Mathematics as optional subjects but shall, in addition, be required to appear for the First Examination in Engineering in Chemistry, or Mathematics, or Chemistry, respectively.

Admission for students from other Universities with similar qualifications shall be subject to the approval of the University Council in each case.

Note.—No student who has appeared for the First Examination in Engineering can be admitted to the second year class, except as in Ordinance 111.

107. The course shall extend over four years followed by a year's practical training. A student shall be considered to have completed a year's course at the College of Engineering, if he has attended not less than three-fourths of the number of working periods in each of the subjects comprised in the course during the said year and his conduct and progress have been satisfactory.

The first year course shall be common to all the branches.

108. Candidates for the B.E. Degree shall be required to attend courses of study in the following subjects :—

First Year

COMMON COURSE

(Civil, Mechanical, Electrical and Chemical Engineering).

1. Mathematics (Algebra, Trigonometry, Analytical Geometry, Elements of Differential and Integral Calculus Mensuration, Elements of Mechanics).
2. Engineering Physics—Theory and Practice.
3. Engineering Chemistry—Theory and Practice.
4. Economics.
5. Building Materials.
6. Metallurgy and Elementary Mechanical Engineering.
7. Freehand, Model and Geometrical Drawing.
8. Surveying—Theory and Practice.
9. Workshop—Practice.

Second Year

(i) CIVIL ENGINEERING

1. Mathematics.
2. Applied Mechanics.
3. Hydraulics.
4. Mechanical Engineering.
5. Electrical Engineering.
6. Machine Drawing.
7. Geology—Theory and Practice.
8. Workshop—Theory and Practice.
9. Applied Mechanics Laboratory.
10. Mechanical Laboratory.
11. Electrical Laboratory.
12. Survey Practice.

(ii) MECHANICAL ENGINEERING,

1. Mathematics.
2. Applied Mechanics.
3. Hydraulics.
4. Civil Engineering.
5. Electrical Technology
6. Machine Drawing.
7. Building Drawing.
8. Machine Design.
9. Applied Mechanics Laboratory.
10. Workshop—Theory and Practice.
11. Surveying—Theory and Practice.

(iii) ELECTRICAL ENGINEERING.

1. Mathematics.
2. Applied Mechanics.
3. Hydraulics.
4. Civil Engineering.
5. Electrical Technology.
6. Machine Drawing
7. Building Drawing.
8. Machine Design.
9. Applied Mechanics Laboratory.
10. Workshop—Theory and Practice.
11. Surveying—Theory and Practice.

(iv) CHEMICAL ENGINEERING

1. Mathematics. Same as for Civil, Mechanical and Electrical.
2. Applied Mechanics. Same as for Civil, Mechanical and Electrical.
3. Hydraulics. Same as for Civil, Mechanical and Electrical.
4. Theory and Design of Machine Parts as for Mechanical and Electrical.
5. Civil Engineering as for Mechanical and Electrical.
6. Electrical Technology as for Mechanical and Electrical
7. Machine Drawing.
8. Workshop and Laboratory.

Third Year

(i) CIVIL ENGINEERING.

1. Mathematics.
2. Applied Mechanics and Graphic Statics.
3. Building Construction.
4. Architecture.
5. Building Drawing and Estimating.
6. Irrigation.
7. Sanitary Engineering.
8. Surveying—Theory and Practice.

(ii) MECHANICAL ENGINEERING

1. Mathematics.
2. Applied Mechanics and Graphic Statics.
3. Theory of Direct Current Machinery.
4. Heat Engines.
5. Workshop Theory.
6. Machine Design.
7. Machine Drawing.
8. Workshop Practice.
9. Mechanical Laboratory.
10. Electrical Laboratory and Drawing.

(iii) ELECTRICAL ENGINEERING

1. Mathematics.
2. Applied Mechanics and Graphic Statics.
3. Heat Engines.
4. Theory of Direct Current Machinery.
5. Hydraulic Machinery.
6. Machine Drawing.
7. Electrical Drawing.
8. Workshop—Theory and Practice.
9. Mechanical Laboratory.
10. Electrical Laboratory.

(iv) CHEMICAL ENGINEERING

1. Applied Mechanics, Graphic Statics. Same as for Civil, Mechanical and Electrical.
2. Applied Thermodynamics.
3. D. C. Machines, as for Mechanical and Electrical.
4. Machine Drawing.
5. Advanced Chemistry.
6. Organic Chemistry.
7. Electrical Laboratory.
8. Mechanical Laboratory.
9. Chemical Laboratory.

Fourth Year**(i) CIVIL ENGINEERING**

1. Irrigation and Irrigation Drawing.
2. Railways, Tunnels and Harbours.
3. Roads and Bridges, and Bridge Drawing
4. Water Supply and Sanitary Engineering.
5. Structural Design and Drawing.
6. Testing of Materials Laboratory.
7. Hydraulics Laboratory.
8. Estimating, Specification and Engineering Economics.
9. Surveying—Theory and Practice.

(ii) MECHANICAL ENGINEERING

1. Heat Engines.
2. Hydraulic Engineering.
3. Power Plant Engineering and Drawing.
4. Mechanical Laboratory.
5. Workshop—Practice.
6. Theory and Design of Machines.
7. Estimating, Specification and Engineering Economics
8. Machine Drawing.
9. Theory of Alternating Current Machinery.
10. Electrical Laboratory.
11. Structural Design.

(iii) ELECTRICAL ENGINEERING

1. Theory of Alternating Current Machinery.
2. Generation and Hydro-Electric Engineering.
3. Transmission and Distribution.
4. Electrical Machine Design.
5. Estimating, Specifications and Engineering Economics.
6. Traction and (Utilisation) Communication.
7. Structural Design.
8. Mechanical Laboratory.
9. Electrical Laboratory.
10. Electrical Drawing.

(iv) CHEMICAL ENGINEERING

1. Hydraulic Machinery as for Mechanical, with special reference to pumping plant.
2. Structural Design. Same as for Mechanical and Electrical.
3. Mechanical Laboratory.
4. Applied Organic Chemistry.
5. Chemical Engineering.
6. Chemical Engineering Laboratory.
7. Construction and Design of Chemical Plants.
8. Economics of Chemical Industry.
9. Treatment of materials, grinding, evaporation, etc.

Note.—Instruction in Photography and Physical Culture will be given as part of the course.

109. Candidates shall be required to pass four examinations *vis.*, the First Examination in Engineering at the end of the first year, the Second Examination in Engineering at the end of the second year, the Third Examination in Engineering at the end of the third year and the Final Examination for the B.E. Degree at the end of the fourth year.

No candidate shall be permitted to appear for the First Examination in Engineering after having failed three times in the examination. This rule shall also be applicable to Graduates who are directly admitted to the Second Year B.E. class under Ordinance 106 and who have to appear for certain subjects of the First Examination.

Note 1.—The above rule does not apply to candidates who have been permitted to proceed to the Second Year Class under Ordinance 110.

Note 2.—A candidate not successful in the Second Examination in Engineering under the old scheme in 1941 or in any preceding year, shall be required in any subsequent year to appear for the Second and Third Examinations in Engineering under the new scheme, subject to the conditions of Ordinance 62 regarding break of continuity.

110. No candidate shall be declared to have passed any of the above examinations unless he obtains not less than 30 per cent of the marks in each paper of the written examination, 30 per cent of the marks in each oral or practical examination, 40 per cent of the marks in each group and 50 per cent of the total marks in the examination.

Minima.

Successful candidates who obtain not less than 70 per cent of the total marks shall be placed in the first class and their names shall be published in order of merit; the names of the other successful candidates shall be published in alphabetical order in the second class.

A candidate for any of the examinations failing to obtain the prescribed minimum in only one paper but obtaining all the other requisite minima (including 50 per cent in the aggregate), may be permitted to appear again for the examination in that paper only and that he be declared to have passed in the examination provided he obtains not less than 40 per cent of the marks in that paper at the subsequent appearance.

A candidate for the First, Second, or Third Examination in Engineering who fails in only one paper and is permitted under the preceding clause to appear only in that paper at a subsequent examination may be allowed to proceed to the second, third or fourth year class as the case may be, and take the examination in the paper failed in along with the Second or Third or Final Examination. His result in the Second, Third or Final Examination shall be declared only after he passes in the First, Second or Third Examination, as the case may be.

111. Candidates for the First Examination in Engineering shall be required to produce a certificate of having completed the first year's course in the College of Engineering. Only those who are successful in this examination shall be allowed to proceed to the second year's course, except as provided in Ordinance 110.

First Examination.

112. Candidates for the Second Examination in Engineering shall be required to produce a certificate of having completed the second year's course in the College of Engineering. Only those who are successful in this examination shall be allowed to proceed to the third year's course, except as provided in Ordinance 110.

Second Examination.

113. Candidates for the Third Examination in Engineering shall be required to produce a certificate of having completed the third year's course in the College of Engineering. Only those who are successful in this examination shall be allowed to proceed to the final year's course, except as provided in Ordinance 110.

114. Candidates for the Final Examination in Engineering shall be required to produce a certificate of having completed the fourth year's course in the College of Engineering. Only those who have passed in this examination and have also undergone at least a total of twenty-six weeks of approved practical training during the long vacations at the end of I, II, III and IV year of the course, each period being not less than six weeks' duration, and at least one of these periods of practical training being in the special branch, shall be eligible for the B.E. Degree.

Final Examination.

115. A candidate who has passed the Final Examination for the B.E. Degree in the Mechanical or Electrical Engineering branch may be permitted to qualify for the degree also in the Electrical or Mechanical Engineering branch, as the case may be, by attending the course of lectures for a period of not less than one academical year and passing an examination in the subjects studied as specified hereunder :—

Supplementary Course.

(i) Mechanical Engineering students qualifying for an additional degree in Electrical Engineering shall undergo a course of studies in the subjects comprised in items 7 and 10 of the III Year Electrical Engineering course and items 2 to 6, 9 and 10 of the IV Year Electrical Engineering course and take the papers comprised in item 9 of the Third Examination in Engineering (Electrical), and Groups I and II of the Final Examination in Engineering (Electrical) except items 5 and 10.

(ii) Electrical Engineering students qualifying for an additional degree in Mechanical Engineering shall undergo a course of studies in the subjects comprised in the IV Year Mechanical Engineering course except items 9, 10 and 11 and take the papers comprised in items 1, 2, 3, 6, 9, 10, 11, and 12 of Groups I and II of the Final Examination Engineering (Mechanical).

116. The minima for a pass in the examination shall be the same as those prescribed in Ordinance 110. Successful candidates securing not less than 70 per cent of the aggregate marks in the examination shall be considered to have obtained distinction in the additional branch.

117. Candidates who have passed in the examination as above shall, if they have not already taken their degree in the first branch, be required to undergo a year's practical training in approved engineering works specially suited for imparting practical training in both the branches, before they become eligible for the degree in Mechanical and Electrical Engineering. Successful candidates who have already taken the degree in the first branch shall each have an endorsement made upon his diploma setting forth the further examination passed by him with date and class, if any, under proper authority.

MASTER OF ENGINEERING

118. A candidate for the degree of Master of Engineering shall have qualified for the degree of Bachelor of Engineering.

He shall be permitted to present himself for the Master's Degree in Engineering provided that he has enrolled himself as a student of the College of Engineering for one academical year and worked as directed by the Professor in charge of the subject concerned.

The examination for the degree of Master of Engineering shall comprise a thesis and a *viva voce* examination. The thesis shall carry a maximum of 400 marks, and the *viva voce* a maximum of 100.

No candidate shall be declared to have passed the M. E. Degree Examination unless he obtains not less than 40 per cent of the marks in the thesis, 40 per cent of the marks in the *viva voce*, and 50 per cent of the aggregate marks for the whole examination. Successful candidates who obtain 60 per cent of the whole marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

Rules for submission of thesis.

Same as for M.A. and M.Sc.

THE PRE-MEDICAL COURSE

119. Before proceeding to the course of studies leading to the degree of Bachelor of Medicine and Bachelor of Surgery, a student shall be required to complete successfully the Pre-Medical course which shall extend over a period of six months and comprise the following subjects of study :—

Physics, Chemistry, Botany and Zoology.

120. Students who have passed the Intermediate Examination of this University with not fewer than two of the subjects comprised in the above course shall be eligible for admission to the course. Such of these as may have passed in Part III of the Bachelor's Degree Examination of this University with one or more of the subjects comprised in the course shall be exempted from study and examination in the subject or subjects in which they have already passed the degree examination.

Admission of students from other Universities with similar qualifications shall be subject to the approval of the University Council in each case.

Candidates who hold the L.M.P. Diploma of Mysore or a qualification considered equivalent thereto shall also be eligible for admission to the course.

121. There shall be a Pre-Medical Examination at the end of the course comprising a written paper and a practical examination in each subject of study.

The examination shall be held twice a year in December and in April. Candidates who fail in the examination shall not proceed to the First Year M.B.B.S. class, but shall undergo a refresher course in the following term before they sit for the next examination.

122. Candidates for the examination shall be required to produce certificates (i) of having undergone the prescribed course of study for 6 months in a University Science College or a College affiliated to the Mysore University in the subjects in which they appear, (ii) of being not less than 17 years of age on 1st January following the examination.

No candidate shall be permitted to appear for the Pre-Medical Examination after having failed four times in the Examination.

123. No candidate shall be declared to have passed the Examination unless he obtains in each subject 35 per cent of the marks in the written examination and 35 per cent of the marks in the practical examination in each of the subjects of study.

Successful candidates who obtain not less than 60 per cent of the maximum marks shall be placed in the first class and their names shall be published in order of merit. The names of other successful candidates shall be published in alphabetical order in the second class.

Candidates who fail in the examination but obtain 40 per cent in each of the written and practical examinations in any subject shall be exempted from re-examination in that subject.

Provided that the names of successful candidates who have been exempted in one or more subjects shall be published in a separate list in alphabetical order.

M.B.B.S. DEGREE

124 The course of studies leading to the degree of Bachelor of Medicine and Bachelor of Surgery shall extend over five years.

Length of course

125. (i) Candidates who have passed the Pre-Medical Examination of this University or who possess similar qualifications of other Universities which are accepted by the University Council as sufficient for this purpose, shall be eligible for admission to the course.

Qualification for admission.

(ii) A candidate for admission must be not less than 17 years of age on 1st January of the calendar year of admission.

126. Candidates for the degree shall be required to attend courses of study in the following subjects :—

Courses of study.

First Year

Organic Chemistry.—One course of lectures with practical work.
Anatomy including Elements of Embryology.—One course of lectures in Osteology, Anatomy Demonstrations and Dissections.
Physiology including Histology, Bio-Physics and Bio-Chemistry.—One course of lectures in Physiology with practical work in Histology and Experimental Physiology including Bio-Physics.

Second Year

Anatomy including Elements of Embryology.—One course of lectures and demonstrations in Anatomy including Embryology and Dissections.
Physiology including Histology, Bio-Physics and Bio-Chemistry.—One course of lectures in Physiology with practical work in Histology and Experimental Physiology. One course of lectures in Bio-Chemistry with practical work.

Third Year

Pathology and Bacteriology (including Immunology).—One course of lectures with practical work.
Minor Surgery.—One course of lectures and practical work.
Materia Medica and Pharmacology.—One course of lectures with a practical course of instruction in pharmacy.

Hygiene and Public Health.—One course of lectures with practical work.

Medicine.—One course of lectures.

Surgery.—One course of lectures.

Hospital and Clinical Work.—Fifty per cent of the number of post-mortem examinations conducted, out-patient department for three months, surgical wards for three months, medical wards for three months.

Fourth Year

Medicine.—One course of lectures.

Surgery and Surgical Pathology.—One course of lectures.

Venereal Diseases.—One course of lectures and practical work.

Midwifery, Gynæcology and Pædiatrics.—One course of lectures in Midwifery and diseases of women and new-born children.

Ophthalmology.—One course of lectures.

Forensic Medicine.—One course of lectures.

Pathology and Bacteriology (including Immunology).—One course of lectures with practical work.

Hygiene and Public Health.—One course of lectures and one course of practical work, excursions and study of preventive and social aspects of Medicine.

Hospital and Clinical Work.—Medical wards for 2½ months, surgical wards for 2½ months, maternity wards for 2 months, ophthalmic wards for 3 months.

Fifth Year

Operative Surgery.—One course of practical instruction.

Midwifery, Gynæcology and Pædiatrics.—A continuation course in Midwifery and diseases of women and new-born children.

Mental Diseases.—One course of lectures and demonstrations.

Hospital and Clinical Work.—Out-patient department for three months, surgical wards for three months, medical wards for three months, and maternity wards for two months.

Vaccination.—Ten demonstrations.

Fever Hospital.—One month.

Clinical and Dental Surgery.—One course of twelve lectures with necessary demonstrations.

Anæsthetics.—Instruction in anæsthetics consisting of attendance at three lectures and the personal administration of anæsthetics in six cases.

Oto-rhino-laryngology.—One course of lectures and demonstrations.

Medical Therapeutics and ... One course of 12 lectures in
Dietetics each.

Anæsthetics

... To administer anæsthetics to six cases and a course of lectures on anæsthesia while working in the Surgical wards.

Provided that in respect of candidates who have passed the Final Examination for the L.M.P. Diploma, the course shall extend over three years and shall comprise the following:—

First Year

Organic Chemistry.—One course of lectures with practical work.

Anatomy (including Embryology).—One course of lectures in Osteology—One course of Lectures and Demonstrations in Anatomy including Embryology and Dissections.

Physiology including Histology, Bio-Physics and Bio-Chemistry.—One course of lectures in Physiology with practical work in Histology and Experimental Physiology including Bio-Physics and Bio-Chemistry including practical work.

Second Year

Pathology and Bacteriology.—One course of lectures with practical work.

Hygiene and Public Health.—One course of lectures with practical work, excursions and study of preventive and social aspects of Medicine.

Ophthalmology.—One course of lectures.

Forensic Medicine.—One course of lectures.

Minor Surgery.—One course of lectures with practical work.

Materia Medica and Pharmacology—One course of lectures with a practical course of instruction in pharmacy and practical demonstrations in pharmacology.

Medicine—One course of lectures.

Surgery.—One course of lectures.

Oto-rhino-laryngology—One course of 12 lecture-demonstrations and attendance at E.N.T. Department once a week while attending Surgical Wards.

Venereology.—One course of 12 lecture-demonstrations and attendance at the venereal diseases clinic once a week while attending Surgical Wards.

Hospital and Clinical Work—Medical wards for three months, surgical wards for three months, out-patient department for one month, ophthalmic wards for two months and maternity wards for two months.

Third Year

Medicine	...	One course of lectures.
Surgery and Surgical Pathology.		One course of lectures.
Obstetrics, Gynaecology and Pædiatrics.		One course of lectures (along with the regular fourth and final M.B.B.S. students).
Operative Surgery	...	One course of practical instruction.
Anæsthetics	...	To administer anæsthetics to six cases and a course of lectures on anæsthesia while working in Surgical Wards.
Clinical Work	...	Medical Wards ... 3 months. Surgical Wards ... 3 months. (to attend out-patient department also while working in the Medical and Surgical Wards). Maternity Wards ... 3 months (one month as a resident student)
Infectious Diseases Hospital and T.B. Sanatorium.	...	One course of 12 lecture-demonstrations in each for one month on alternate days.
Dental Surgery	...	One course of 12 lectures with demonstrations at Bangalore.
Mental Diseases	...	One course of 12 lecture-demonstrations at the Mental Hospital at Bangalore.
Leprosy	...	One course of 5 lecture-demonstrations at the Isolation Hospital at Bangalore.
Vaccination	...	Ten lecture-demonstrations at Bangalore.
Orthopædics	...	Twelve lecture-demonstrations while working in the Surgical Wards.
Diseases of Children	...	One course of 12 lectures.
Medical Therapeutics and Dietetics.	...	One course of 12 lectures in each.
Radiology and Electro-therapeutics.		One course of 12 lecture-demonstrations.
Dermatology	...	One course of 12 lecture-demonstrations while working in the Medical Wards.

127. Candidates shall be required to pass three examinations, namely, the First Examination comprising two parts, Part I to be taken at the end of the first year and Part II at the end of the second year of the course, the Second Examination comprising three parts—Part I to be taken at the end of the third year, Part II to be taken at the end of the fourth year and Part III at the end of the fourth year or at any subsequent examination, and the Final Examination at the end of the fifth year, it being permissible for a candidate failing in Part I at the end of the third year, to proceed to the fourth year course and appear in Part I again at the succeeding examination after a further course of study in the subject.

A candidate who has already passed the Final Examination for the L.M.P. Diploma shall be permitted to appear for (a) the First M.B.B.S. Examination on production of a certificate of having passed the Pre-Medical Examination and a certificate of having undergone an approved course of studies of one academical year; (b) the Second M.B.B.S. Examination at the end of one academical year after passing the First M.B.B.S. Examination; and (c) the Final Examination at the end of a course of one academical year after passing the Second M.B.B.S. Examination.

The First M.B.B.S. (Parts I and II), the Second M.B.B.S. (Parts I, II and III), and the Final M.B.B.S. Examination shall be held twice a year in the months of December and April.

128. (a) Candidates for the First Examination shall be required to produce certificates of—

(i) having passed the Pre-Medical Examination;
 First M.B.B.S. Examination—Certificates required.
 (ii) having undergone an approved course of studies in the Medical College for a period of not less than one year in Organic Chemistry, and not less than two years in Anatomy and Physiology and not less than one year in Bio-Chemistry;

(iii) having undergone a course of dissections extending over not less than two academic years and having dissected the whole body at least once to the satisfaction of their teachers;

(iv) having undergone a practical course of Histology;

(v) having undergone a practical course in Experimental Physiology;

(vi) having undergone a practical course in Bio-Chemistry.

(b) Candidates shall be examined in the following subjects:—

First M.B.B.S. Examination—Part I—At the end of the First Year comprising Organic Chemistry.

Note.—Failure in Part I at the end of the First Year shall not disqualify a candidate for promotion to the Second Year class.

First M.B.B.S Examination—Part II.—At the end of the Second Year comprising Anatomy including elements of Embryology, and Physiology including Histology, Bio-Physics and Bio-Chemistry.

Candidates shall bring to the Practical Examination in Physiology their original laboratory note-books in Experimental Physiology, Histology and Practical Bio-Chemistry, duly certified by their teachers as *bona fide* records of the candidates for the inspection of the examiners.

(c) No candidate shall be declared to have passed the examination in Part I of the First Examination, unless he obtains not less than 35 per cent in the written and oral examination together in Organic Chemistry and 35 per cent in the practical and 50 per cent in the total for that subject.

No candidate shall be declared to have passed the examination in Part II of the First Examination unless he obtains not less than 50 per cent of the marks in the written and the oral examination together and 50 per cent in the practical. Successful candidates who obtain 70 per cent of the total number of marks in the First M.B.B.S. Examination (Parts I and II together) shall be placed in the First Class in order of merit. The other successful candidates shall be placed in the Second Class in alphabetical order.

A candidate who fails in the examination but obtains passing marks in any subject and also the minimum in each division of that subject, shall be exempted from re-examination in that subject at the two succeeding examinations.

Names of successful candidates who have thus been exempted in one or more subjects shall be published in a separate list in alphabetical order.

(d) A candidate who fails in the examination shall, while appearing for the examination in the subject or subjects in which he has not been exempted, be required to produce evidence of having attended a further course of studies in the second year class for a period of not less than *a term preceding the examination*.

29. (a) Candidates for the Second Examination shall be required to produce certificates of—

(i) having passed the First M.B.B.S. Examination;
 (ii) having been engaged in medical studies in the Medical College subsequent to passing the First M.B.B.S. Examination as under :—

Second M.B.B.S.
 Examination—Certificates required.

Pharmacology	...	...	1 year
Pathology including Bacteriology			2 years
Hygiene and Public Health	...	...	2 years

Ophthalmology ...	... 1 year
Forensic Medicine ...	... 1 year

the period being one year in respect of each subject in the case of L.M.P. Diploma holders ;

(iii) having undergone a course of lectures and demonstrations in Pathology and Bacteriology including Immunology ;

(iv) having undergone a course of Practical Pathology (Chemical and Histological) for three months ;

(v) having undergone a course of lectures, practical work, excursions and study of preventive and social aspects of Medicine in Hygiene and Public Health ;

(vi) having worked as a clinical clerk for four months in the medical wards of the Hospital or Hospitals attached to the Medical College ;

(vii) having worked as a clinical clerk for four months in the surgical wards of the Hospital or Hospitals attached to the Medical College ;

(viii) having worked as a clinical clerk for two months in the out-patient department of the Hospital or Hospitals attached to the Medical College ;

(ix) having acted as clerk for post-mortem examinations and of having learnt the method of post-mortem examinations ;

(x) having attended a course of Minor Surgery ;

(xi) having attended a course of Medicine ;

(xii) having undergone a course of Materia Medica and Pharmacology ;

(xiii) having undergone a course of Practical Pharmacy ;

(xiv) having attended a course of lectures in Forensic Medicine ;

(xv) having attended a course of lectures in Ophthalmology ;

(xvi) having worked as a clinical clerk in the Ophthalmic Department of the Krishnarajendra Hospital or in the Minto Ophthalmic Hospital for three months and of having learnt refraction work and the use of the ophthalmoscope ;

(xvii) having attended 12 lecture demonstrations in Oto-rhino-laryngology ;

(xviii) having attended 12 lecture demonstrations in Venereology.

**(b) The Second Examination shall be held in three parts :
Part I—at the end of the third year comprising
Pharmacology.**

**Part II—at the end of the fourth year comprising
Pathology including Bacteriology and Hygiene and
Public Health**

**Part III—at the end of the fourth year comprising
Ophthalmology and Forensic Medicine.**

Note.—Failure in Part I at the end of the third year shall not disqualify for promotion to the fourth year class.

Part III may be taken at the end of the fourth year or at any subsequent examination provided that failure in the part taken at the end of the fourth year shall not disqualify for promotion to the fifth year class.

Pass in Part I and Part II shall be compulsory before proceeding to the Fifth M.B.B.S. Class.

(c) No candidate shall be declared to have passed in Part I unless he obtains not less than 50 per cent of the aggregate marks in the subject. Successful candidates who obtain 70 per cent of the total marks shall be placed in the first class in order of merit and the other successful candidates in the second class in alphabetical order.

No candidate shall be declared to have passed in Part II unless he obtains in Pathology not less than 50 per cent of the maximum marks in the written examination and *viva voce* put together, and not less than 50 per cent of the maximum marks in the practical and in Hygiene not less than 50 per cent of the aggregate marks. Successful candidates who obtain 70 per cent of the total marks in the part shall be placed in the first class in order of merit and the other successful candidates in the second class in alphabetical order.

No candidate shall be declared to have passed in Part III of the examination unless he obtains not less than 50 per cent of the marks in each subject. Successful candidates who obtain 70 per cent of the total marks shall be placed in the first class in order of merit and the other successful candidates in the second class in alphabetical order.

A candidate who fails in Part II or Part III of the examination but obtains passing marks in any subject of the part shall be exempted from appearing in the subject again at the two succeeding examinations.

Names of successful candidates who have thus been exempted in a subject of a part shall be published in a separate list in alphabetical order.

(d) A candidate who fails in Part I of the examination shall, while appearing for the examination again, produce evidence of having attended a further course of study for a period of not less than one academical year, except that in respect of a candidate failing in Part I at the end of the third year and appearing for the part at the end of the fourth year together with Part II or Parts II and III, further attendance shall not be compulsory.

A candidate who fails in Part II and who has not been exempted from appearing again in Pathology, Hygiene and Public Health shall be required to produce evidence of having attended a further course of study in Pathology and Hygiene and Public

Health during the succeeding term, before appearing for the examination.

A candidate who fails in Part III and has not been exempted from appearing again in Ophthalmology shall be required to produce evidence of having attended a further course of study in Ophthalmology, further attendance in Forensic Medicine being optional, except that in respect of a candidate failing in Part III at the end of the fourth year and appearing for the part at the end of the fifth year together with the Final Examination, further attendance in respect of Part III shall not be compulsory.

130. (a) Candidates for the Final Examination shall be required to produce certificates of—

Final M.B.B.S. Examination--Certificates required. (i) having passed Parts I and II of the Second M.B.B.S. Examination ;

(ii) having been engaged in medical studies in the Medical College in the subjects of the examination for a period of not less than three years after passing the First M.B.B.S. Examination and not less than one year after passing Parts I and II of the Second M.B.B.S. Examination, and in the case of those who have passed the L.M.P. Diploma Examination for not less than one year after passing the Second M.B.B.S. Examination ;

(iii) having attended a complete course of lectures in Medicine including Therapeutics and Pædiatrics ;

(iv) having attended a complete course of lectures in Surgery and Surgical Pathology ;

(v) having attended a complete course of lectures in Obstetrics and Gynæcology ;

(vi) having worked as a clinical clerk in the Medical Wards of the Hospital or Hospitals attached to the Medical College for a period of six months and of having attended lectures and demonstrations in Clinical Medicine during that period ;

(vii) having worked as a clinical clerk in the Surgical Wards of the Hospital or Hospitals attached to the Medical College for a period of six months and of having attended lectures and demonstrations in Clinical Surgery during that period ;

(viii) having attended the Out-Patient Department of the Hospital for a period of eight months while working in Medical and Surgical Wards ;

(ix) having worked as a clinical clerk in the wards of a recognised Maternity Hospital for a period of five months and of having attended on 5 labour cases under supervision and having conducted 15 labours independently and of having attended the ante-natal clinic for 2 months. During this period the student shall be resident for one month in a Hostel attached to a Maternity Hospital or to the Maternity Wards of a General Hospital

(x) having attended 12 lecture-demonstrations in Orthopædics;

(xi) having attended a practical course of Operative Surgery;

(xii) having attended a course of lectures on Anæsthesia and of having administered anæsthetics in six cases;

(xiii) having attended a course of lectures and demonstrations on Mental Diseases;

(xiv) having attended a course of 10 lectures and demonstrations on Vaccination;

(xv) having attended an Infectious Diseases Hospital and a Tuberculosis Sanatorium for one month on alternate days;

(xvi) having attended a course of 12 lecture-demonstrations in Dermatology while attending the Medical Wards;

(xvii) having attended a course of 12 lectures each on Medical Therapeutics and Dietetics while attending the Medical Wards;

(xviii) having attended a course of 12 lectures on Diseases of Children while attending the Medical or Maternity Wards;

(xix) having attended a course of 12 lectures on Radiology and Electro-therapeutics.

(b) Candidates shall be examined in the following subjects :—

(i) Medicine including Therapeutics and Pædiatrics.

(ii) Surgery including Venereal Diseases.

(iii) Obstetrics, Gynæcology and Diseases of the new born.

(c) No candidate shall be declared to have passed the Final Examination unless he obtains not less than 50 per cent of the maximum marks in the written and oral examination put together and not less than 50 per cent of the maximum marks in the clinical and practical examinations taken together, in each subject. Successful candidates who obtain not less than 70 per cent of the total marks in the examination shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

A candidate who fails in the examination but obtains passing marks in any subject and also the minimum in each division of that subject shall be exempted from appearing for the examination in the subject again at the two succeeding examinations.

Names of successful candidates who have thus been exempted in one or more subjects shall be published in a separate list in alphabetical order.

(d) A candidate who fails in the examination shall be required at each subsequent appearance to produce evidence of further study in the subject or subjects in which he appears at a subsequent examination.

THE DOCTORATE DEGREE

131. (i) A candidate may present himself for a Doctorate Degree under the following conditions :--

DOCTOR OF LETTERS (D.LITT.)—

A Bachelor of Arts Honours of the University, five years after qualifying for the B.A. Honours Degree.

A Master of Arts of the University, four years after qualifying for the M.A. Degree.

DOCTOR OF SCIENCE (D.Sc.)—

A Bachelor of Science Honours of the University, five years after qualifying for the B.Sc. Honours Degree.

A Master of Science of the University, four years after qualifying for the M.Sc. Degree.

DOCTOR OF ENGINEERING (D.E.)—

A Bachelor of Engineering of the University, five years after qualifying for the B.E. Degree.

A Master of Engineering of the University, four years after qualifying for the M.E. Degree.

DOCTOR OF SCIENCE (D.Sc.)—ANATOMY, PHYSIOLOGY.

An M.B.B.S. of the University, five years after qualifying for the M.B.B.S. Degree.

(ii) The degree may be conferred either on the basis of published papers or on a thesis specifically prepared for the degree in conjunction with published papers.

(iii) The application for the degree must be sent on or before the 9th January in any year, after the lapse of the period prescribed in rule (i) *supra*.

(iv) The candidate shall state in his application the special subjects within the purview of the Ordinances pertaining to his previous qualifying degree, upon a knowledge of which he rests his qualification for the Doctorate, and shall with his application submit three copies, printed or typewritten, of the thesis, or three sets of published papers presented by him. The thesis or papers presented shall embody the results of research work carried out by the candidate and shall form an original contribution to learning, tending to the advancement of the knowledge in the subject concerned.

(v) The thesis or the papers shall be accompanied by a declaration signed by the candidate that they have been composed by himself and a certificate that they have not previously formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or other similar title.

The candidate shall not be precluded from producing work already submitted for a degree or diploma by way of proof that he has done other original work.

(vi) The candidate shall indicate generally in a preface to the thesis or the paper, as the case may be, and specially in notes the sources from which his information is taken, the extent to which he has availed himself of the work of others, and the portions of the thesis which he claims as original; he shall also state whether his research has been conducted independently, or in co-operation with others and in what respect his investigations appear to him to tend to the advancement of knowledge or otherwise form a valuable contribution to the literature of the subject dealt with. He shall also state the nature and extent of any guidance and advice that he may have received from any one during the progress of research with full particulars regarding the person from whom it has been received.

(vii) The University Council shall, in consultation with the Board of Studies concerned, appoint a board of three examiners, none of whom shall be a member of the teaching staff of this University, for valuing each thesis.

(viii) The Board of Examiners may hold a *viva voce* examination of any of the candidates whose thesis or publications are referred to them and shall report the result of the examination to the University Council. The University Council shall decide whether the candidate has qualified for the degree or not. The decision shall be notified in the *Mysore Gazette*.

(ix) The fee to be sent along with the application for the examination shall be Rs. 200.

(x) A successful candidate shall publish his thesis, unless it has been already published, before the award of the degree at a convocation and it shall bear the following inscription: "Thesis approved for the Degree of Doctor of in the University of Mysore."

DIPLOMA COURSES

DIPLOMA IN MEDICAL PRACTICE

132. The course of studies for the Diploma of Licensed Medical Practitioner shall extend over four years.
Length of course.

133. (a) Candidates who have passed the Mysore Secondary School Leaving Certificate Examination and been declared eligible for college courses of study or who have passed any other examination accepted by the University Council as sufficient for this purpose, shall be eligible for admission.
Qualification for admission.

(b) Candidates for admission should be not less than 16 years of age on the first July of the year of admission.

(c) Such of the candidates for any of the M.B.B.S. Degree Examinations of this University as secure not less than

40 per cent of the aggregate marks in each subject comprised in the examination may be admitted to the corresponding higher class of the L.M.P. Diploma course, the correspondence being as follows :—

First Examination for M.B.B.S. ... Third L.M.P. class,
Second Examination for M.B.B.S. ... Final L.M.P. class.

A candidate failing in the First M.B.B.S. or the Second M.B.B.S. Examination, and not eligible for admission to the Third or Final L.M.P. class in accordance with the above clause, may be admitted to the Second or the Third Year L.M.P. class, as the case may be, on the same conditions as a candidate failing in the Second or Third L.M.P. Examination.

(d) A candidate failing in the Final Examination for the M.B.B.S. Degree may be admitted to the Final Year L.M.P. class, on the same conditions as a candidate failing in the Final Examination for the L.M.P. Diploma.

134. Candidates for the Diploma of Licensed Medical Practitioner shall be required to attend the following courses of study :—

First Year

Physics.—One course of lectures with practical demonstrations.

Chemistry.—One course of lectures with practical demonstrations.

Elements of Biology.—One course of lectures with practical demonstrations.

Anatomy.—One course of lectures and dissections.

Physiology.—One course of lectures.

Such of the students admitted to the first year class as have passed in the optional group of a degree examination of this University comprising any of the above subjects or other examinations which may be accepted by the University Council as adequate for the purpose, may be exempted by the University Council from attendance and examination in such subject or subjects.

Second Year

Anatomy.—One course of lectures with dissections.

Physiology.—One course of lectures with demonstrations in Chemical Physiology and Histology.

Third Year

Medicine.—One course of lectures.

Surgery.—One course of lectures.

Pathology and Bacteriology.—One course of lectures with practical work.

Hygiene.—One course of lectures.

Materia Medica—One course of lectures and practical Pharmacy.

Mental Diseases.—One course of lectures.

Hospital Work.—(a) Clinical work in the medical wards of a recognised hospital for four months including post-mortem clerking during the same period.

(b) Clinical work in the surgical wards for four months.

(c) Out-patient hospital practice for two months.

(d) Clinical demonstrations at the Mental Hospital during the short term.

(e) A course of five clinical demonstrations at the Epidemic Diseases Hospital.

Fourth Year

Medicine.—One course of lectures.

Surgery.—One course of lectures.

Venerae Diseases.—One course of lectures and practical work.

Operative Surgery, Throat, Nose and Ear Diseases.—One course of lectures.

Midwifery.—One course of lectures.

Diseases of Women and Children.—One course of lectures.

Ophthalmology.—A course of lectures extending over four months.

Forensic Medicine.—One course of lectures and practical demonstrations in Toxicology.

Hospital Work.—(a) Clinical work in the medical wards of a recognised hospital for two months.

(b) Clinical work in the surgical wards for two months.

(c) Out-patient hospital practice for one month.

(d) Clinical work at the Ophthalmic Hospital for three months.

(e) Clinical work at the Maternity Hospital for three months.

(f) A course of five demonstrations in Vaccination.

135. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during two consecutive terms and his progress and conduct have been satisfactory.

136. A candidate who fails in any examination or having completed the course for any examination does not appear for

the examination immediately and appears for the examination in a subsequent year shall be considered to have undergone a further course for purposes of Ordinance 143, if he has attended not less than 80 per cent of the working periods in each of the subjects in which attendance is necessary, for at least one term immediately preceding the examination for which he appears.

137. Candidates shall be required to pass four examinations, viz., the first, the second, the third and the final. These examinations shall be held twice a year in April and in October. •

Examinations

No candidate shall be permitted to appear for the First Examination for the L.M.P. Diploma after having failed three times in the examination.

138. (a) Candidates for the First L. M. P. Examination shall be required to produce certificates of having undergone an approved course of instruction for one year in Physics, Chemistry, Elements of Biology, Anatomy, and Physiology.

First L. M. P.
Examination

(b) Candidates shall be examined in the following subjects :—

- (i) Physics.
- (ii) Chemistry.
- (iii) Elements of Biology.

139. (a) Candidates for the Second L. M. P. Examination shall be required to produce certificates of—

(i) having passed the First L. M. P. Examination ;

(ii) having subsequently been engaged in medical studies extending over one academical year ;

(iii) having undergone a further course of lectures in Human Anatomy ;

(iv) having undergone a course of dissections extending over not less than twelve months and having dissected the whole body at least once to the satisfaction of their teacher ;

(v) having undergone a further course of lectures in Physiology.

(b) Candidates shall be examined in the following subjects :—

- (i) Anatomy.
- (ii) Physiology.

140. (a) Candidates for the Third L.M.P. Examination shall be required to produce certificates of—

(i) having passed the Second L.M.P. Examination ;

(ii) having subsequently been engaged in medical studies extending over one academical year ;

(iii) having undergone a course of lectures and demonstrations in Pathology and Bacteriology;

(iv) having undergone a course of lectures and demonstrations in Hygiene;

(v) having undergone a course of lectures in *Materia Medica* and Pharmacology;

(vi) having undergone a course of Practical Pharmacy extending over a period of three months;

(vii) having attended a course of lectures in Medicine;

(viii) having attended a course of lectures in Surgery;

(ix) having attended a course of lectures in Mental Diseases;

(x) having worked as a clinical clerk in the medical wards of a recognised hospital for four months;

(xi) having worked as a clinical clerk in the surgical wards of a recognised hospital for four months;

(xii) having attended a course of clinical demonstrations at the Mental Hospital;

(xiii) having attended the out-patient hospital practice of a recognised hospital for two months;

(xiv) having worked as a clinical clerk in the post-mortem room.

(b) Candidates shall be examined in the following subjects :—

(i) Pathology and Bacteriology.

(ii) Hygiene.

(iii) *Materia Medica*.

141. (a) Candidates for the Final L.M.P. Examination shall be required to produce certificates of—

(i) having passed the Third L.M.P. Examination;

(ii) having been engaged subsequently in medical studies extending over one academical year;

(iii) having attended a further course of lectures in Medicine;

(iv) having attended a further course of lectures in Surgery;

(v) having attended a course of lectures in Operative Surgery, and Throat, Nose and Ear Diseases;

(vi) having attended a course of lectures in Midwifery and diseases of women and children;

(vii) having attended a course of lectures in Ophthalmology;

(viii) having undergone a course of lectures and demonstrations in Forensic Medicine;

(ix) having worked as a clinical clerk in the medical wards of a recognised hospital for two months;

(x) having worked as a clinical clerk in the surgical wards of a recognised hospital for two months ;

(xi) having worked in the out-patient department for one month ;

(xii) having worked as a clinical clerk at the Ophthalmic Hospital for three months ;

(xiii) having worked as a clinical clerk in the Maternity Hospital for three months and having conducted not less than six labour cases and witnessed not less than ten labour cases :

(xiv) having attended a course of demonstrations in Vaccination ;

(xv) having attended a course of clinical demonstrations at the Epidemic Diseases Hospital ;

(xvi) having attended a course of lectures with practical instructions for three months in venereal diseases and having satisfactorily undergone a test in the same.

(b) Candidates shall be examined in the following subjects :—

- (i) Surgery.
- (ii) Medicine.
- (iii) Midwifery.
- (iv) Forensic Medicine.

142. No candidate shall be declared to have passed in any of the above examinations unless he obtains not less than 40 per cent of the marks in each subject. Of those who pass, those who obtain not less than 70 per cent of the total marks shall be placed in the First Class in order of merit and the rest in the Second Class in alphabetical order.

Minimum for a pass.

Candidates who fail in the Final, L.M.P. Examination but obtain the passing marks in any subject shall be exempted from appearing for the examination in that subject during the succeeding two years.

Provided that the names of successful candidates who have been exempted in one or more subjects shall be published in a separate list in alphabetical order.

143. Candidates for the L.M.P. Examinations who fail shall be required to produce evidence of further study in the subjects in which they appear at a subsequent examination, a second course in Physics, Chemistry, Biology, Hygiene and Forensic Medicine being optional.

Further attendance required in case of failure.

AGRICULTURE

144. The course of study for the Diploma Course in Agriculture shall extend over three years.

Duration.

145. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with Agriculture or Mathematics and Science as an optional subject and been declared eligible for admission to University courses of studies.

146. The course of study shall comprise the following :—
Course.

First Year

Agricultural Geology	Elementary Botany
Climatology	Zoology
Physics	Engineering
Inorganic Chemistry	Drawing
Organic Chemistry	Veterinary Science

Second Year

Irrigation and Drainage	Economic Zoology
Farm Crops	Engineering
Live-stock and Dairying	Veterinary Science
Botany	Agricultural Chemistry
Mycology	

Third Year

Farm Crops	Agricultural Botany
Farm Economics	Agricultural Engineering
Live-stock	Veterinary Science

147. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

148. There shall be an examination at the end of each year in the following subjects :—
Examination.

First Examination

Physics
Chemistry
Elementary Botany—Theory Practical
Zoology—Theory Practical
Drawing
Agriculture—Theory Practical

Veterinary—Theory
 Practical
 Engineering
 Workshop— Practical

Second Examination

Entomology—Theory
 Practical
 Botany—Theory
 Practical
 Veterinary—Theory
 Practical
 Live-stock—Practical
 Mycology—Theory
 Practical
 Agriculture—Part I
 Part II
 Practical
 Engineering—Theory
 Practical
 Agricultural Chemistry

Final Examination

Agricultural Crops
 Agricultural Economics
 Live-stock—Theory
 Practical
 Agriculture—Practical
 Engineering - Theory
 Practical
 Agricultural Botany—Theory
 Practical
 Veterinary Science—Theory
 Practical

Only those who pass in the First and the Second Examinations shall be permitted to proceed to the second and the third year's course, respectively.

149. The minima for a pass shall be 40 per cent of the marks in each subject other than Agriculture comprising both the written paper and the practical and *viva voce* examination, 50 per cent in Agriculture and 50 per cent in the aggregate. Successful candidates in the Final Examination obtaining not less than 60 per cent of the aggregate marks in the examination shall be placed in the First Class in order of merit; the other successful candidates shall be placed in the Second Class in alphabetical order.

SERICULTURE

150. The course of study for the Diploma in Sericulture shall extend over three years.

Duration.

151 Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with Sericulture or Mathematics and Science as an optional subject and been declared eligible for admission to University courses of studies.

Admission

152. The course of study shall be theoretical and practical and shall comprise the following :—

Course

Mulberry Cultivation
Rearing of Silkworms
Seed Supply
Manufacture of Raw Silk
General Outline and Economics of Silk Industry.

Tours to important sericulture centres and farms and grainage shall form an integral part of the course.

153 Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

Attendance

154 There shall be two examinations—the Preliminary Examination at the end of the first year and the Final Examination at the end of the third year. Only those who pass in the Preliminary Examination shall be permitted to proceed to the second year's course.

Examination

The Preliminary Examination shall comprise four papers in theory only, namely :—

- (1) Mulberry Cultivation.
- (2) Rearing.
- (3) Seed Supply
- (4) General.

The Final Examination shall comprise four papers in theory, two papers in practice and a *viva voce* examination

Theory	...	...	I—Rearing.
			II—Seed Production.
			III—Reeling.
			IV—General.
Practical	...	...	I—Grainage work.
			II—Reeling work.

155. The minima for a pass shall be 40 per cent of the marks in each paper (theory or practical), 40 per cent in the *viva voce* examination and 50 per cent in the aggregate of each examination. Successful candidates in the examination obtaining not less than 60 per cent of the marks in the Final Examination shall be placed in the First Class in order of merit, and the other successful candidates in the Second Class in alphabetical order.

Minima.

VETERINARY SCIENCE

156. The course of study for the Diploma in Veterinary Science shall extend over three years.

Duration.

157 Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with Physics, Chemistry and Biology in the optional group and been declared eligible for admission to University courses of studies.

Admission

158. The course of study shall comprise the following :—

Course.

First Year

1. Elements of Chemistry.
2. Elements of Physics.
3. Elements of Botany with special reference to poisonous and medicinal plants.
4. Elements of Zoology.
5. Animal Husbandry, Part I :
Handling of animals.
Principles of shoeing normal feet.
Recognition of breeds.
Conformation, etc

Second Year

1. Anatomy of domestic animals and poultry.
2. Elementary physiology of domestic animals and poultry.
3. Pharmacology and Materia Medica.
4. Animal Husbandry, Part II :
General Hygiene.
Dietetics.
Dairy and Milk Hygiene.

Third Year

1. Minor surgery of domestic animals and birds.
2. Medicine, including contagious, communicable, deficiency and parasitic diseases—special therapeutics.

3. Milk and meat inspection.
4. Animal Husbandry, Part III :
Genetics.

Note.—Practical courses will be arranged in the Veterinary Hospital, the Serum Institute and Government Farms.

159. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

160. There shall be an examination at the end of each year of the course.

Examination

First Examination

- | | |
|---------------|------------------------|
| 1. Chemistry. | 4. Zoology. |
| 2. Physics. | 5. Animal Husbandry, I |
| 3. Botany. | |

Second Examination.

1. Anatomy.
2. Physiology.
3. Pharmacology and Materia Medica
4. Animal Husbandry, II.

Final Examination

- | | |
|--------------|---------------------------|
| 1. Surgery. | 3. Milk and Meat. |
| 2. Medicine. | 4. Animal Husbandry, III. |

Besides the written papers, there shall be a practical and oral examination in each subject. Only those who pass in the first and the second examination shall be permitted to proceed to the second and the third year's course, respectively.

161. The minima for a pass shall be 40 per cent in each subject (including both the written and the practical and the oral examinations) and 50 per cent in the aggregate of each examination. Successful candidates in the Final Examination obtaining not less than 60 per cent of the aggregate marks in the examination shall be placed in the First Class in order of merit, and the other successful candidates in the Second Class in alphabetical order.

CIVIL ENGINEERING

162. The course of study for the Diploma in Civil Engineering shall extend over three years followed by a year's practical training in a recognised workshop.

Duration.

163. Candidates for admission shall have passed the S.S.L.C Examination of Mysore or an equivalent examination with Mensuration, Surveying and Draughtsmanship as an optional subject and been declared eligible for admission to University courses of study, provided that those who have passed the S.S.L.C. Examination in the Mathematics and Science group shall be eligible for admission subject to the condition that they shall undergo a course in Survey Practice and Mensuration during the first year and Workshop Practice during the long vacation at the end of the first year.

Such of the candidates for the First or Second Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the second year of the Diploma Course and such of the candidates of the Third Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the final year of the Diploma Course.

164. The course of study shall comprise the following :—
Course.

First Year

1. Mathematics.
2. Physics.
3. Chemistry.
4. Materials of Construction.
5. Freehand and Geometrical Drawing.
6. Workshop Practice.
7. Surveying.

Second Year

1. Applied Mechanics.
2. Graphic Statics.
3. Building Construction.
4. Geology.
5. Surveying.
6. Building Drawing.
7. Hydraulics.
8. Estimating and Specification.

Third Year

1. Railways.
2. Irrigation.
3. Earthwork, Roads and Bridges.
4. Water Supply and Sanitary Engineering.
5. Reinforced Cement Concrete.
6. Surveying.
7. C. E. Drawing (Bridges and Irrigation).

8. Estimating and Specifications.
9. Civil Engineering Laboratory.

165. Each year shall be taken as the unit for purposes of calculating attendance and consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

166. There shall be an examination at the end of each year in the following subjects.---

Examination.

First Examination

1. Mathematics
2. Physics. *
3. Chemistry. *
4. Materials of Construction.
5. Freehand and Geometrical Drawing.
6. Surveying.

Second Examination

1. Applied Mechanics.
2. Graphic Statics
3. Building Construction
4. Geology.
5. Surveying.
6. Building Drawing
7. Hydraulics

Third Examination

1. Railways.
2. Irrigation.
3. Earthwork, Roads and Bridges.
4. Water Supply and Sanitary Engineering.
5. Reinforced Cement Concrete.
6. C. E. Drawing (Bridges and Irrigation).
7. Estimating and Specifications.
8. Surveying.
9. Civil Engineering Laboratory.

Only those successful in the First and the Second Examination shall be permitted to proceed to the second and the third year's course, respectively.

167. The minima for a pass in each examination shall be

Minima.

30 per cent of the marks in each paper of the written examination, 30 per cent of the aggregate marks in oral and practical examination and 50 per cent of the total including the marks for class examination and class records. Successful candidates in the Final Examination obtaining not less than 70 per cent of the aggregate marks in the examination shall be placed in the first class in order of merit and the other successful candidates in the second class in alphabetical order.

A candidate for any of the examinations failing to obtain the prescribed minimum in only one paper but obtaining all the other requisite minima (including 50 per cent in the aggregate) may appear again for the examination in that paper only and that he be declared to have passed in the examination provided he obtains not less than 40 per cent of the marks in that paper at the subsequent appearance.

A candidate for the First or Second Examination, who fails in only one paper and is permitted under the preceding clause to appear only in that paper at a subsequent examination, may be allowed to proceed to the second or third year class as the case may be and take the examination in the paper failed in along with the Second or Final Examination. His result in the Second or Final Examination shall be declared only after he passes in the First or Second Examination as the case may be.

The Diploma shall be awarded after a year's approved practical training in an approved workshop comprising 280 full working days after passing the Final Examination.

MECHANICAL ENGINEERING

168. The course of study for the Diploma in Mechanical

Duration

Engineering shall extend over three years followed by a year's practical training in a recognized firm or workshop.

169. Candidates for admission shall have passed the

Admission.

S.S.L.C. Examination of Mysore or an equivalent examination with one of the following optional subjects and shall have been declared

eligible for admission to University courses of study :—

Pattern making and Foundry work.

Woodwork.

Blacksmithy.

Mechanical Shop and Fitter's work.

Those who have passed the S.S.L.C. Examination in Mathematics and Science group shall be eligible for admission,

subject to the condition that they shall undergo workshop practice in either fitter's or machine shop during the vacation at the end of the first year.

Such of the candidates for the First or Second Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the second year of the Diploma Course and such of the candidates of the Third Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the final year of the Diploma Course.

170. The course of study shall comprise the following : -
Course,

First Year

1. Mathematics.
2. Physics.
3. Chemistry.
4. Materials of Construction.
5. Freehand and Geometrical Drawing.
6. Workshop Practice.
7. Survey Practice.

Second Year

1. Applied Mechanics.
2. Electrical Engineering.
3. Internal Combustion Engines and Compressed Air
Practice.
4. Workshop Theory.
5. Machine Construction.
6. Machine Drawing.
7. Workshop Practice.
8. Laboratory.

Third Year

1. Steam Engines and Refrigeration.
2. Hydraulics and Hydraulic Machinery.
3. Estimating, Specifications, etc.
4. Machine Construction.
5. Machine Drawing.
6. Workshop Practice.
7. Laboratory.

171. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year, and his progress and conduct have been satisfactory.

172. There shall be an examination at the end of each year in the following subjects :—
Examination

First Examination.

1. Mathematics.*
2. Physics.*
3. Chemistry.*
4. Materials of Construction †
5. Freehand and Geometrical Drawing.*
6. Workshop Practice.

Second Examination

1. Applied Mechanics.†
2. Electrical Engineering.‡
3. Internal Combustion Engines.‡
4. Workshop Theory.‡
5. Machine Construction.‡
6. Machine Drawing.‡
7. Workshop Practice.
8. Laboratory.

Final Examination

1. Steam Engine.
2. Hydraulics and Hydraulic Engineering.
3. Estimating.‡
4. Machine Construction.
5. Machine Drawing.
6. Workshop Practice.
7. Laboratory.

Only those successful in the First and the Second Examination shall be permitted to proceed to the second and the third year's course, respectively.

* Common to C.M.E. and Automobile branches.

† Common to M.E. and Automobile branches.

‡ Common to M. and Automobile branches.

173. The minima for a pass in each examination shall be 30 per cent of the marks in each paper of the written examination, 30 per cent of the aggregate marks of the oral and practical examination, and 50 per cent of the total including the marks for the class examination and class records. Successful candidates in the Final Examination obtaining not less than 70 per cent of the aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

A candidate for any of the examinations failing to obtain the prescribed minimum in only one paper but obtaining all the other requisite minima (including 50 per cent in the aggregate) may appear again for the examination in that paper only and that he be declared to have passed in the examination provided he obtains not less than 40 per cent of the marks in that paper at the subsequent appearance.

A candidate for the First or Second Examination who fails in only one paper and is permitted under the preceding clause to appear only in that paper at a subsequent examination, may be allowed to proceed to the second or third year class as the case may be and take the examination in the paper failed in along with the Second or Final Examination. His result in the Second or Final Examination shall be declared only after he passes in the First or Second Examination as the case may be.

The Diploma shall be awarded after a year's practical training in an approved firm or workshop, comprising 280 full working days after passing the Final Examination.

ELECTRICAL ENGINEERING

174. The course of study for the Diploma in Electrical Engineering shall extend over three years followed by a year's practical training in a recognized firm or workshop.

Duration.

175. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with one of the following optional subjects and shall have been declared eligible for admission to University courses of study :—

Admission.

Pattern making and Foundry work.
Woodwork.
Blacksmithy.
Electrical Wiring and Fitting.

Those who have passed the S. S. L. C. Examination in Mathematics and Science Group shall be eligible for admission,

subject to the condition that they shall undergo workshop practice in either fitter's or machine shop during the vacation at the end of the first year.

Such of the candidates for the First or Second Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the second year of the Diploma Course and such of the candidates of the Third Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the final year of the Diploma Course.

176. The course of study shall comprise the following :—
Course.

First Year

1. Mathematics.
2. Physics.
3. Chemistry
4. Materials of Construction.
5. Freehand and Geometrical Drawing
6. Workshop Practice.
7. Surveying Practice

Second Year

1. Applied Mechanics.
2. Electrical Engineering Materials.
3. Dynamo Electric Machinery.
4. Mechanical Engineering.
5. Hydraulics and Hydraulic Machinery.
6. Mechanical and Electrical Drawing and Sketching.
7. Workshop Appliances and Workshop Practice and Mechanical Laboratory.
8. Electrical Laboratory.

Third Year

1. Electrical Engineering.—A.C. Machines.
2. Electrical Technology.
3. Estimating.
4. Heat Engines.
5. Electrical Drawing and Sketching.
6. Workshop Practice and Mechanical Laboratory.
7. Electrical Laboratory.

177. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year, and his progress and conduct have been satisfactory.

178. There shall be an examination at the end of each year in the following subjects. —

First Examination

1. Mathematics.*
2. Physics.*
3. Chemistry.*
4. Materials of Construction.†
5. Freehand and Geometrical Drawing.
6. Workshop Practice.

Second Examination

1. Applied Mechanics.†
2. Electrical Engineering Materials.
3. Dynamo Electric Machines.
4. Mechanical Engineering.
5. Hydraulics and Hydraulic Machinery.
6. Machine Drawing.
7. Workshop Appliances and Workshop Practice and Mechanical Laboratory.
8. Electrical Laboratory.

Final Examination

1. Electrical Engineering—A.C. Machines.
2. Electrical Technology.
3. Estimating.
4. Heat Engines.
5. Electrical Drawing.
6. Workshop Practice and Mechanical Laboratory.
7. Electrical Laboratory.

Only those successful in the First and the Second Examination shall be permitted to proceed to the second and the third year's course, respectively.

Common to Civil, Mechanical, Electrical and Automobile Engineering.
 † Common to Mechanical, Electrical and Automobile Engineering.

179. The minima for a pass in each examination shall be 30 per cent of the aggregate marks in each paper of the written examination, 30 per cent of the aggregate marks in the oral and practical examination and 50 per cent of the total including the marks for class examination and class records. Successful candidates in the Final Examination obtaining not less than 70 per cent of the aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

A candidate for any of the examinations failing to obtain the prescribed minimum in only one paper but obtaining all the other requisite minima (including 50 per cent in the aggregate) may appear again for the examination in that paper only and that he be declared to have passed in the examination provided he obtains not less than 40 per cent of the marks in that paper at the subsequent appearance

A candidate for the First or Second Examination, who fails in only one paper and is permitted under the preceding clause to appear only in that paper at a subsequent examination, may be allowed to proceed to the second or third year class as the case may be and take the examination in the paper failed in along with the Second or Final Examination. His result in the Second or Final Examination shall be declared only after he passes in the First or Second Examination as the case may be.

The Diploma shall be awarded after a year's approved practical training in a recognized firm or workshop comprising 280 full working days after passing the Final Examination.

AUTOMOBILE ENGINEERING

180. The course of study for the Diploma in Automobile Engineering shall extend over three years followed by a year's practical training in a recognized firm or workshop.

Duration

181. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with one of the following optional subjects and shall have been declared eligible for admission to University courses of study :—

Admission.

Pattern making and Foundry work.

Woodwork.

Blacksmithy.

Mechanical Shop and Fitter's work.

Those who have passed the S.S.L.C. Examination in Mathematics and Science group shall be eligible for admission, subject to the condition that they shall undergo workshop practice

in either fitter's or machine shop during the vacation at the end of the first year.

Such of the candidates for the First or Second Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the second year of the Diploma Course and such of the candidates of the Third Examination in Engineering of the B.E. Degree as secure not less than 40 per cent of the aggregate marks in the examination may be admitted to the final year of the Diploma Course.

182. The course of study shall comprise the following :—
Course.

First Year

1. Mathematics.
2. Physics.
3. Chemistry.
4. Materials of Construction.
5. Freehand and Geometrical Drawing.
6. Workshop Practice.
7. Survey Practice.

Second Year

1. Applied Mechanics.
2. Electrical Engineering.
3. Internal Combustion Engines and Compressed Air Practice.
4. Workshop Theory.
5. Machine Construction.
6. Machine Drawing.
7. Workshop Practice.
8. Laboratory.

Third Year

1. Fuel and Carburation.
2. Machine Construction.
3. Body Construction, Painting and Varnishing.
4. Estimating.
5. Drawing.
6. Workshop Practice.
7. Laboratory.

183. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of

Attendance.

the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

184. There shall be an examination at the end of each year
in the following subjects :—
Examination.

First Examination

1. Mathematics.*
2. Physics.*
3. Chemistry.*
4. Materials of Construction.†
5. Freehand and Geometrical Drawing.*
6. Workshop Practice.

Second Examination

1. Applied Mechanics.†
2. Electrical Engineering.
3. Internal Combustion Engines.‡
4. Workshop Theory.‡
5. Machine Construction.‡
6. Machine Drawing.†
7. Workshop Practice.
8. Laboratory

Final Examination

1. Fuel and Carburation.
2. Machine Construction.
3. Body Construction, Painting and Varnishing.
4. Estimating.‡
5. Drawing.
6. Workshop Practice.
7. Laboratory.

Only those successful in the First and the Second Examination shall be permitted to proceed to the second and the third year's course, respectively.

185. The minima for a pass in each examination shall be 30 per cent of the marks in each paper of the written examination
30 per cent of the aggregate marks in the
Minima. oral and practical examination and 50 per
cent of the total including the marks for class
examination and class records. Successful candidates in the
Final Examination obtaining not less than 70 per cent of the

* Common to all branches.

† Common to Mechanical and Automobile branches.

‡ Common to Mechanical, Electrical and Automobile branches.

aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

A candidate for any of the examinations failing to obtain the prescribed minimum in only one paper but obtaining all the other requisite minima (including 50 per cent in the aggregate) may appear again for the examination in that paper only and that he be declared to have passed in the examination provided he obtains not less than 40 per cent of the marks in that paper at the subsequent appearance.

A candidate for the First or Second Examination, who fails in only one paper and is permitted under the preceding clause to appear only in that paper at a subsequent examination, may be allowed to proceed to the second or third year class as the case may be and take the examination in the paper failed in along with the Second or Final Examination. His result in the Second or Final Examination shall be declared only after he passes in the First or Second Examination as the case may be.

The Diploma shall be awarded after a year's approved practical training in an approved firm or workshop, comprising 280 full working days after passing the Final Examination.

TEACHING

- 186.** The course of study for the Diploma in Teaching shall extend over two years.

Duration.

- 187.** Candidates for admission shall have passed the S S.L.C Examination of Mysore or an equivalent examination with the Humanistic or the Mathematics and Science group and been declared eligible for admission to University courses of studies.

Admission.

- 188.** The course of study shall comprise the following :—

Course.

(i) GENERAL—

- (a) English, History, Geography, Civics and Rural Science or Domestic Science.

Or

- (b) English, Elementary Mathematics, Elementary Science, Hygiene and Rural Science or Domestic Science.

(ii) PROFESSIONAL, consisting of—

(a) Theory and (b) Practice in Teaching.

The theoretical course shall comprise :—

(1) Principles of Education.

(2) School Organisation, Management and Hygiene.

(3) Methods—

(a) General Principles of Method.

(b) Special Methods of Teaching—

English, History, Geography and Civics

Or

English, Elementary Mathematics, Elementary Science and Hygiene.

189. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

190. There shall be two examinations—the Preliminary Examination at the end of the first year and the Final Examination at the end of the second year. Only those who pass in the Preliminary Examination shall be permitted to proceed to the second year's course.

The Preliminary Examination shall* comprise two papers in the 'General' subjects and the Final Examination shall comprise four papers in the 'Professional' subjects and an examination in Practice in Teaching as under :—

Preliminary Examination

Two papers in each group, viz.,—

(i) (a) and (b) English and Rural Science or Domestic Science,

(ii) (a) History, Geography and Civics

Or

(b) Elementary Mathematics, Elementary Science and Hygiene.

Final Examination

(a) Theory

Four papers, viz.,—

(i) Principles.

(ii) School Organisation, etc.

- (iii) General Principles of Method and Methods of Teaching English.
- (iv) Methods of Teaching History, Geography and Civics.

Or

Elementary Mathematics. Elementary Science and Hygiene.

(b) Practical

Three lesson-tests, one in English and two in any two of the other subjects in either of the two groups, *i.e.*, History, Geography and Civics or Elementary Mathematics, Elementary Science and Hygiene.

191. The minima for a pass in the Preliminary Examination shall be 35 per cent of the marks in each paper and 50 per cent of the aggregate marks for the examination.

Minima.

The minima for a pass in the Final Examination shall be 35 per cent of the marks in each paper, 40 per cent of the marks in theory, 40 per cent of the marks for practical and 50 per cent of the aggregate marks. Successful candidates obtaining not less than 60 per cent of the aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

Candidates failing in the Final Examination who shall have passed in theory obtaining not less than 50 per cent of the marks in the aggregate, shall be permitted to appear again for the practical examination only.

COMMERCE

192 The course of study for the Diploma in Commerce shall extend over three years followed by six months' practical training.

Duration

193. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with commercial arts C (v) as the optional group, and been declared eligible for admission to University courses. Candidates who shall have passed the S.S.L.C. Examination with Group A or B will also be eligible.

Admission

194. The course of study shall comprise the following :—

Course.

PART I—COMPULSORY

1. English.
2. Economics and Statistics.

3. Commercial Geography.
4. Book-keeping and Commercial Arithmetic.
5. Secretarial Practice and Procedure.
6. Stenography.—
 - Part A [I (a) and (b) of the syllabus]
 - Part B (II of the syllabus).
 - Part C (III of the syllabus).

PART II—OPTIONAL.

1. ACCOUNTANCY.—
 - (a) English Composition and Texts.
 - (b) Indian Mercantile Law.
 - (c) Advanced Accounts—Part I.
 - (d) Advanced Accounts—Part II.
 - (e) Auditing.
2. BANKING.—
 - (a) English Composition and Texts
 - (b) Indian Mercantile Law.
 - (c) Money.
 - (d) Banking—A Special Subject.
 - (e) Banking Law and Practice.
3. INSURANCE.—
 - (a) English Composition and Texts.
 - (b) Indian Mercantile Law.
 - (c) Principles of Insurance.
 - (d) Insurance Organisation and Management.
 - (e) Insurance Law and Assessment.
4. OFFICE MANAGEMENT.—
 - (a) English Composition and Texts.
 - (b) Indian Mercantile Law.
 - (c) Business Methods and Office Routine.
 - (d) Accountancy and Government Accounts in Outline.
 - (e) Salesmanship and Publicity.

195. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

196. There shall be two examinations—the Preliminary Examination in Part I (compulsory subjects) at the end of the second year comprising six papers, one in each subject, and the Final Examination in Part II (optional subjects) at the end of the third year comprising five papers in each optional group.

A candidate for the Preliminary Examination who fails to obtain the prescribed minimum in only one paper but obtains all the other requisite minima (including 50 per cent in the aggregate), may appear again for the examination in that paper only. He shall be declared to have passed in the Preliminary Examination provided he obtains not less than 40 per cent of the marks in that paper at the subsequent appearance.

A candidate who fails in only one paper in the Preliminary Examination and is permitted under the preceding clause to appear only in that paper at the subsequent examination, may be allowed to the third year L. Com. class and to take the examination in the paper in which he has failed, along with the Final L. Com. Examination. His result in the Final Examination shall be declared only after he passes the Preliminary Examination.

197. The minima for a pass in each examination shall be 35 per cent of the marks in each paper together with a minimum of 15 marks in Part A, under Stenography of the Preliminary Examination and 50 per cent of the aggregate marks of the examination. Successful candidates in the Final Examination obtaining not less than 60 per cent of the aggregate marks in the Final Examination shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

A candidate qualified for the Diploma in any one subject of Part II may proceed to take the Diploma in another subject after a further year's study under instruction in the latter subject.

The Diploma shall be awarded after six months' approved practical training in a recognized office after passing the Final Examination.

PRINTS AND ENGRAVING

198. The course of study for the Diploma in Prints and Engraving shall extend over three years.

Duration.

199. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with Prints and Engraving or Drawing and Painting or Mathematics and Science as the optional subject and been declared eligible for admission to University courses.

Admission.

200. The course of study shall comprise the following :—

Course.

First Year

Drawing Materials, Engraving on Copper Plates, Engraving on Lines.

Second Year

Drawing, Engraving on Copper, Etching Tools, various methods of placing the design on the prepared ground, Etching the Copper Plate and Printing.

Third Year

Drawing, Engraving and Etching on Copper Plates, Die-stamping, Die-sinking and Relief Printing.

201. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

202. There shall be an examination at the end of the third year comprising seven papers as under :—

Examination.

Engraving on copper plates :—

I Theory.

II Practical.

Etching—

I Theory.

II Practical.

Die-sinking and Die-stamping.

Relief Printing (preparation of dies as well as printing).

Drawing.

203. The minima for a pass shall be 35 per cent of the marks in each theory paper, 35 per cent of the marks in each practical paper and 50 per cent of the aggregate marks for the examination. Successful candidates obtaining not less than 60 per cent of the aggregate marks shall be placed in the First Class in order of merit, and the other successful candidates in the Second Class in alphabetical order.

Minima

PRINTING AND BINDING

204. The course of study for the Diploma in Printing and Binding shall extend over three years.

Duration.

205. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with the Mathematics and Science Group (Group B) or with Composing, Printing and Binding [Group C (iv) (i)] for the optional subject, and been declared eligible for admission to University courses.

Admission.

206. The course of study shall comprise the following :—
Course.

- I. Compositor's work.
- II. Press and Machine work (including Departmental Management).
- III. Binding comprising Letterpress Forwarding, Vellum or Stationery Binding, Finishing and Design.

207. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year, and his progress and conduct have been satisfactory.

Attendance

208. There shall be an examination at the end of the course consisting of six papers as under :—
Examination.

Composing	...	...	Theory	1
			Practical	1
Machine	...	...	Theory	1
			Practical	1
Binding	...	...	Theory	1
			Practical	1

209. The minima for a pass shall be 35 per cent of the marks in theory, and 35 per cent of the marks in the practical in each subject and 50 per cent of the aggregate marks for the examination. Successful candidates obtaining not less than 60 per cent of the aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

Minima.

PHARMACY

210. The course of study for the Diploma in Pharmacy shall extend over three years, of which six months shall be spent in intensive practical training in a recognized pharmaceutical laboratory.

Duration.

211. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with the Mathematics and Science Group (Group B) as the optional subject and been declared eligible for admission to University courses

Admission

212. The course of study shall comprise the following :—

Course

First Year

Elements of Physics, Chemistry, Botany and Zoology—
Lectures with practical work

Second Year

Pharmaceutical Chemistry, Pharmacognosy, Pharmaceutics—Lectures with practical work.

Elements of Physiology with important demonstrations.

Third Year

Pharmaceutical Chemistry, Pharmaceutics—Lectures with practical work.

Demonstrations in Experimental Physiology and Pharmacology.

Intensive practical training, including training in a pharmaceutical laboratory.

213. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year and his progress and conduct have been satisfactory.

Attendance.

214. There shall be two examinations—the Preliminary Examination at the end of the first year and the Final Examination at the end of the third year, according to the following scheme :—

Examination.

Preliminary Examination

Physics	...	...	Theory Practical <i>Viva voce</i>
Chemistry	...	...	Theory Practical <i>Viva voce</i>

Botany	...	...	Theory Practical <i>Viva voce</i>
Zoology	...	...	Theory Practical <i>Viva voce</i>

Final Examination

Pharmaceutical Chemistry	...	...	Theory Practical <i>Viva voce</i>
Pharmaceutics	...	...	Theory Practical <i>Viva voce</i>

Only those who pass in the Preliminary Examination shall be permitted to proceed to the second year's course. A candidate for the Final Examination shall produce a certificate of having obtained in the class examination at the end of the second year, not less than 35 per cent of the marks each in Elements of Physiology and in Pharmacognosy.

215. The minima for a pass in each examination shall be 35 per cent of the marks in each subject (including Theory, Practical and *viva voce*) and 50 per cent of the aggregate marks for the examination. Successful candidates in the Final Examination obtaining not less than 60 per cent of the aggregate marks in the examination shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

Minima.

MUSIC

216. The course of study for the Diploma in Music shall extend over three years.

Duration.

217. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with Music as the optional subject and been declared eligible for admission to University courses.

Admission.

218. The course of study shall comprise the following :—

Course.

1. A Selected Language.
2. The Practice of Music.
3. The Theory of Music.

COURSE OF STUDY

First Year

(a) 5 Ordinary Geethas, 3 Lakshana Geethas, 3 Svarajathis, 7 Varnas, 25 Keerthanes, 2 Thillanas, 2 Javalis and 2 Devaranamas.

(b) In the portion of the Theory of Music, the subjects (a), (f), (h) and (i) should be dealt with.

Second Year

(a) The remaining 6 Geethas and 3 Svarajathis, 10 Varnas, 25 Keerthanes, 4 Devaranamas, 2 Kshethraya padas, 1 Sooladi, 1 Ragamalika, 3 Thillanas, 1 Prabhandha and 3 Javalis.

(b) Exercises in Ragalapana and Svara improvisations.

(c) The theory aspects (b), (d), (e) and (g).

Third Year

The remainder of the syllabus.

The selected language shall be *one* of the following, provided that it shall not be the same as the language offered by the candidate for the S.S.L.C. Examination :—

Sanskrit, Kannada, Telugu, Tamil, Urdu.

219. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered

Attendance. to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year, and his progress and conduct have been satisfactory.

220. There shall be an examination at the end of the third year comprising a paper each on the selected language and the theory of music and two practical tests each

Examination. of forty-five minutes' duration per candidate.

221. The minima for a pass shall be 35 per cent of the marks in each paper, 50 per cent of the marks in each practical test and 50 per cent of the marks in the aggregate. Successful candidates obtaining not less than 60 per cent of the aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

Minima.

HOME SCIENCE

222. The course of study for the Diploma in Home Science shall extend over three years for the Teachers' Diploma in Home Science and over two years for others (Homemaker's Diploma).
 Duration

223. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore or an equivalent examination with Domestic Arts [C (i)] as the optional subject and been declared eligible for admission to University courses of studies.
 Admission

224. The course of study shall comprise the following :—
 Course.

First Year

(Common to Homemaker's Diploma and Teacher's Diploma)

Physiology	Economic Biology
Bacteriology	First Aid
Hygiene	Home Nursing.
Biology	

Second Year

(Common to Homemaker's Diploma and Teacher's Diploma)

Home Economics and Civics
 Business Affairs and Book-keeping
 Household Subjects and Gardening
 Needle work.

Third Year

(Teacher's Diploma only)

Physics
 Chemistry,
 Bio chemistry
 Institutional Management
 Psychology and Principles of Education

225. Each year shall be taken as the unit for purposes of calculating attendance, and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of studies for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year, and his progress and conduct have been satisfactory.
 Attendance.

226. There shall be an examination at the end of each year as follows :—

Examination.

First Year

Preliminary Examination

I.	Physiology : Theory	...	1 Paper
	Practice		
II.	Hygiene and Bacteriology : Theory	1 Paper	
III.	Biology	...	1 Paper
IV.	First Aid and Home Nursing :		
	Theory	...	1 Paper
	Practice		

Second Year

Final Examination for the Homemaker's Diploma and Part I of the Final Examination for the Teacher's Diploma :—

I.	Home Economics and Civics	...	1 Paper	2 hours
II.	Business Affairs & Book-keeping...	1 Paper		2 "
III.	Household Subjects and Gardening	...	Paper I	3 "
			Paper II	3 "
	Practical I (Cooking)	...		3 "
	Practical II (Housewifery and Laundry)	...		3 "
IV.	Needle work	...	Paper I	3 "
			Paper II	3 "

Third Year

Part II of the Final Examination for the Teacher's Diploma:

I.	Physics, Chemistry and Bio-Chemistry : Theory	...	3 hours
	Practice	...	3 "
II.	Institutional Management	...	1 Paper 2 "
III.	Psychology and Principles of Education : Theory	...	1 Paper 3 "
	Practical (Teaching)		

227. The minima for a pass shall be 35 per cent of the marks in each paper, 35 per cent of the marks in each practical examination and 50 per cent of the aggregate marks for the examination. Successful candidates obtaining not less than 60 per cent of the aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in alphabetical order.

PAINTING AND DRAWING

228. The course of study for the Diploma in Fine Arts (Painting and Drawing) shall extend over three years.

Duration

229. Candidates for admission shall have passed the S.S.L.C. Examination of Mysore with Drawing and Painting as optional subjects and been declared eligible for admission to a University course, or possess an equivalent qualification.

Admission.

230. The course of study shall comprise the following :—

Course.

First Year

(1) Sketches and finished drawings of groups of articles with general masses of shades and lights in black, white or colour.

(2) Sketches from nature, flowers, plants, trees, etc., suitable for use in decorative designs for art and commercial purposes.

(3) Sketches from plaster models of flowers, fruits, animals, heads and busts of human figures on white or tinted papers in crayon and chalk.

(4) Still-life painting in oils and water colours.

(5) Decorative designs.

(6) Memory Drawing—insects, birds, plants, etc.

(7) Theory—pigments—their nature and use.

(8) Theory—materials and medium.

Second Year

(1) Sketches from plaster models—full figure.

(2) Sketches from living models in various poses.

(3) Still-life painting in oil or water

(4) Finished drawings of human figure in crayon or pastels.

(5) Painting from head from life (living models) in oil or water colour.

(6) Figure composition in Indian as well as Western styles of painting.

(7) Outdoor work such as landscapes, street scenes and architectural subjects.

(8) Perspective and Anatomy.

(9) Memory Drawing—animals, etc.

(10) Theory—principles of design.

Third Year

- (1) Portrait painting in oil or water colours.
- (2) Painting from life in different lights.
- (3) Sketches and drawings from living models in chalk or pastels and time sketches.
- (4) Mythological and Historic compositions in Western or Indian style of Painting and Mural Painting.
- (5) Decorative designs of human and animal figures.
- (6) Landscapes—atmospheric effects such as fog, mist, rain, sunshine, sunrise, sunset, nocturne.
- (7) Commercial Art—posters, calendars, show-card designs, cartoons, etc.
- (8) Theoretical instruction will also be given along with practical work and arrangements will be made for popular lectures on art.
- (9) Excursions for art study.

231. Each year shall be taken as the unit for purposes of calculating attendance and shall consist of two terms as in Ordinance 54. A candidate shall be considered to have completed the course of study for any examination if he has attended not less than 80 per cent of the number of working periods in each of the subjects of the course during the year, and his progress and conduct have been satisfactory.

232. There shall be an examination at the end of the course, comprising the following :—

- Examination.*
- (1) Portrait painting from life—bust or full figure.
 - (2) Time drawing from life—bust or life figure.
 - (3) Anatomy of human figure.
 - (4) Figure composition from life (realistic).
 - (5) Mythological or historic composition in Indian or Western style of painting (Decorative).
 - (6) Commercial Art—posters, cartoons, etc.

233. The minimum for a pass shall be 35 per cent of the marks in each paper, 35 per cent of the marks in the practical examination and 50 per cent of the aggregate marks for the examination. Successful candidates obtaining not less than 60 per cent of the aggregate marks shall be placed in the First Class in order of merit and the other successful candidates in the Second Class in the alphabetical order.

TUBERCULOSIS.

234. The course of study for the Diploma in Tuberculosis shall extend over nine months commencing on the second Monday in July of every year.

Duration.

235. Candidates for admission shall have passed the examination for the M.B.B.S. Degree of the University or an examination recognised as equivalent to it, at least two years before the date of commencement of the course.

COURSES OF STUDY

236. The courses of study shall comprise the following subjects :—

- (a) Pathology and Bacteriology of Tuberculosis.
- (b) Orthopædics.
- (c) Radiology.
- (d) Diseases of Ear, Nose and Throat.
- (e) Tuberculosis in relation to Public Health.
- (f) Tuberculosis of Lungs and other Organs.

Clinical work extends throughout the entire course.

237. A student shall be considered to have completed the attendance for the course if he has attended not less than three-fourths of the number of working periods in each of the subjects comprised in the course.

238. There shall be an examination held usually at the end of the course in April every year.

239. No candidate shall be declared to have passed unless he obtains not less than 50 per cent in written and *viva voce* examinations put together and 50 per cent in clinical and practical examinations put together.

Candidates who obtain 70 per cent for the aggregate marks or more shall be declared to have passed with distinction.

A candidate who fails in the examination shall be required at a subsequent appearance to produce evidence of having done clinical work in an approved sanatorium for a period of at least two months.

DETAILED COURSES OF STUDIES

240. Details of courses of study for the following shall be as given in Chapter II :—

- (a) Intermediate Examinations.
- (b) B.A. Degree Examination (Pass and Honours).
- (c) B.Sc. Degree Examination (Pass and Honours).
- (d) M.A. Degree Examination.
- (e) M.Sc. Degree Examination.

- (f) B.T. Degree Examination.
- (g) B.E. Degree Examination.
- (h) Pre-Medical Examination.
- (i) M.B.B.S. Degree Examinations
- (j) Diploma Examinations.
- (k) Tuberculosis.

DETAILED SCHEMES OF EXAMINATIONS

241. The schemes of examinations for the following shall be as given in Chapter II:—

- (a) Intermediate Examinations.
- (b) B.A. and B.Sc. Degree Examinations.
- (c) B.A. (Hons.) and B.Sc. (Hons.) Degree Examinations
- (d) M.A. Degree Examination.
- (e) M.Sc. Degree Examination.
- (f) B.T. Degree Examination.
- (g) (i) First Examination for the B.E. Degree.
- (ii) Second Examination for the B.E. Degree.
- (iii) Third Examination for the B.E. Degree.
- (iv) Final Examination for the B.E. Degree.
- (h) Pre-Medical Examination.
- (i) First Examination for the Degree of M.B.B.S.
- Second Examination for the Degree of M.B.B.S.
- Final Examination for the Degree of M.B.B.S.
- (j) Diploma Examinations.—
 - (1) First Examination for the Diploma of L.M.P.
 - Second Examination for the Diploma of L.M.P.
 - Third Examination for the Diploma of L.M.P.
 - Final Examination for the Diploma of L.M.P.
 - (ii) Agriculture.
 - (iii) Sericulture.
 - (iv) Veterinary Science
 - (v) Civil Engineering.
 - (vi) Mechanical Engineering
 - (vii) Electrical Engineering.
 - (viii) Automobile Engineering.
 - (ix) Teaching.
 - (x) Commerce.
 - (xi) Prints and Engraving.
 - (xii) Printing and Binding.
 - (xiii) Pharmacy.
 - (xiv) Music.
 - (xv) Home Science.
 - (xvi) Painting and Drawing.
 - (xvii) Tuberculosis.

Transitory Ordinances

B.A. and B.Sc.

A. The following are the Transitory Ordinances respecting the provision for candidates for the B.A. or B.Sc. Degree under the old rules who have not been able to complete the Degree:

(i) Candidates for either degree shall put in further attendance in the senior class for not less than one academical year before they are permitted to appear for the examination.

B.A.

- (ii) (a) Candidates having English to complete shall take Compulsory English and Optional English under the new rules.
- (b) Candidates having Second Language to complete shall take Second Language Composition or Translation under the new rules.
- (c) Candidates having the Optional Group to complete shall take two subjects under the new scheme corresponding to the subjects formerly taken by them.

(iii) The fee for tuition shall be as follows :—

Whole examination	...	Rs. 96 a year
	(plus Rs. 12 for Science subjects)	
(a) English	...	Rs. 40
(b) Second Language	...	,, 20
(c) Optionals	...	,, 40
	(plus Rs. 12 for Science subjects)	

(iv) The examination shall be held in three compartments as under :—

PART I—English (Compulsory and Optional).	5 papers
PART II—Second Language Composition or Translation).	1 paper
PART III—Two optional subjects in the new scheme (corresponding to those which had already been offered).	3 papers in each.

The minimum for a pass shall be as follows :—

PART I	... 35 per cent in the aggregate
PART II	... 35 per cent
PART III	... 35 per cent in each division 40 per cent in the aggregate.

Of the successful candidates, those obtaining not less than 60 per cent in any part will be placed in the first class in that part, those obtaining not less than 50 per cent in the second class and the rest in the third class.

(v) The fee for admission to the examination shall be as follows :—

Whole examination	... Rs. 40
	(plus Rs. 5 for Science subjects)
English	... Rs. 20
Second Language	... „ 6
Optional subjects	... „ 20
	(plus Rs. 5 for Science subjects)

(vi) The following shall be the correspondence of optional subjects as between the old scheme and the new in Arts subjects in regard to the B.A. Degree Examination:—

Subjects in the old Scheme	Corresponding subjects in the new scheme
1. History.— (i) Indian History (ii) European History from 1789 (iii) Indian Political Institutions	(i) Indian History (ii) European History after 1789 (iii) Indian Political Institutions <i>Note.</i> —Candidates who failed in the examination in 1922 taking History as one of the optional subjects will be examined in the paper on Indian Political Institutions in place of European History 476—1789.
2. (a) Economics and Political Science— (i) General Economics (ii) Political Science (iii) Economics and Political Science with special reference to Indian conditions after 1850 (b) Economics and Statistics (i) Economics (ii) Statistics (iii) Economics and Political Science with reference to Indian conditions after 1860	(i) Economics—General I (ii) Economics—General II (iii) Comparative Politics (i) General Economics I (ii) General Economics II (iii) Elements of Statistics
3. Philosophy I— (i) Psychology (ii) Logic and Theory of Knowledge (iii) Indian Philosophy	(i) General Psychology (ii) Logic (iii) Indian Philosophy
4. Philosophy II— (i) Ethics (ii) Political Philosophy (iii) Sociology or Educational Psychology	(i) Ethics (ii) Political Philosophy (iii) Principles of Sociology I or Educational Psychology
5. Philosophy III— (i) General Psychology (ii) Experimental Psychology (iii) Educational Psychology	(i) General Psychology (ii) Experimental Psychology (Theory) (iii) Experimental Psychology (Practical)

Subjects in the old scheme	Corresponding subjects in the new scheme
6. (a) Mathematics— (i) Trigonometry and Geometry (ii) Algebra and Calculus (iii) Astronomy (iv) Dynamics	(i) Pure Mathematics I (ii) Pure Mathematics II (iii) Applied Mathematics, Dynamics, Statics and Astronomy
(b) Mathematics— (i) Trigonometry and Geometry (ii) Algebra and Calculus (iii) General Statistics (iv) Applied Mathematics (Economics)	(i) Pure Mathematics I (ii) Pure Mathematics II (iii) Applied Mathematics—General Statics and application of Mathematics to Economics and Mental and Social Measurements

In the case of other subjects, the whole examination in the corresponding Subject under the new rules shall be taken.

Note.—In the third paper in Mathematics (b) alternative questions will be set in respect of those relating to Mental and Social Measurements.

B. Sc.

- (vii) Candidates having English to complete shall take Compulsory English under the new rules.
 The tuition fee shall be Rs. 30 per year.
 The examination fee shall be Rs. 10.
 The minimum for a pass shall be 35 per cent in the aggregate.

(viii) Candidates having the optional group to complete shall undergo the entire course of two years for the B.Sc. under the new rules with exemption in Part I only.

Intermediate Examination.

B. (i) Candidates for the Intermediate Examination unsuccessful in the Examination of 1938 or any preceding year who appear at a subsequent examination without further attendance in accordance with Ordinance 62, shall be exempted from the requirement regarding class records and class examinations.

(ii) As a transitory measure candidates successful in the S.S.L.C. Examination with optional subjects selected from the C or D groups will be permitted to join the Intermediate course in Arts up to the year 1950.

M. B. B. S.

C. (i) Consequent upon the revision of the scheme for the Second and Final M.B.B.S. Degree Examinations, published in

Notification No. 16090, dated 7th January 1939, and coming into effect from the third year class of 1939, candidates for the Second Examination held in 1938 not successful in the examination may be allowed to proceed to the fourth year class and appear on the completion of the fourth year's course for the Second Examination under the old scheme, as well as for Part I of the Final Examination under the old scheme. The results of the Second Examination so held shall be declared in two parts, Part I comprising Pharmacology and Part II comprising Pathology including Bacteriology and Hygiene. Pass in both the parts shall be compulsory before a candidate can proceed to the fifth year class.

(ii) The following is the scheme of the Second and the Final M.B.B.S. Examinations during the transitory period:—

1939 June	...	Old Final Examination Parts I and II, for failed candidates.
1939 December,	III Year Class	New Second Examination, Part I.
	IV Year Class	Old Second Examination for failed candidates of 1938 (results to be declared in parts).
		Old Final Examination, Pt. I.
	V Year Class	Old Final Examination, Part II.
		Old Final Examination, Part I for failed candidates
1940 June	...	Old Final Examination, Parts I and II for failed candidates.
1940 December,	III Year Class	New Second Examination, Part I.
	IV Year Class	New Second Examination, Pt. II. New Second Examination, Part III.
		(Old Second Examination Parts I and II for failed candidates—papers to be common with the corresponding papers for the new examination).
	V Year Class	Old Final Examination, Pt. II (and Old Final Examination Pt. I for failed candidates).

1941 June	...	Old Final Examination, Parts I and II for failed candidates.
1941 December	III Year Class...	New Second Examination, Pt. I.
	IV Year Class...	New Second Examination, Pt. II.
		New Second Examination, Pt. III (Old Second Examination for failed candidates, if any).
	V Year Class...	New Final Examination (and Old Final Examination, Parts I and II for failed candidates).

PART IV—RULES OF BUSINESS AND PROCEDURE

A.—Rules of Business of the Senate

1. The Registrar shall, under the direction of the Vice-Chancellor, give to members not less than 45 clear days' notice of the date of an ordinary meeting.

Notice of ordinary
meetings.

2. (i) Fifteen clear days' notice shall ordinarily be given of a special meeting convened by the Vice-Chancellor under Statute 8 (i), but in case of urgency the Vice-Chancellor may convene a special meeting at shorter notice. Along with the notice of the meeting, the Registrar shall send to each member a statement of the business to be transacted at the meeting.

Notice of special
meetings.

(ii) Fifteen clear days' notice shall be given to members of a special meeting convened by the Vice-Chancellor on a requisition under Statute 8 (ii). Along with the notice the Registrar shall send to each member a copy of the resolution or resolutions, with the name of the mover of each resolution to be moved at the meeting.

3. (i) Any member who wishes to move a resolution at an ordinary meeting shall forward a copy of the resolution to the Registrar so as to reach him not less than 35 clear days before the date of the meeting provided that in respect of resolutions relating to amendments of an existing law the form in which the law would stand as revised shall also be stated.

Notice of resolutions.

(ii) A member who has forwarded a resolution may, by giving written notice which shall reach the Registrar not less than seven clear days before the date fixed for the despatch of the agenda paper, withdraw the resolution.

(iii) It shall be competent for the Vice-Chancellor to disallow any resolution which in his opinion does not fall within the purview of the Senate, or otherwise contravenes the provisions of the Act, the Statutes or the Ordinances, or in his opinion is likely to be injurious to the interests of the University.

(iv) The Registrar shall include in the agenda paper all resolutions of which due notice has been given and which have not been withdrawn or disallowed under the preceding clauses.

4. (i) At a special meeting of the Senate convened by the Vice-Chancellor under Statute 8 (i), no business other than that brought forward by the University Council or the Vice Chancellor, shall be transacted.

Business of special meetings.

(ii) At a special meeting of the Senate convened by the Vice-Chancellor on a requisition by members under Statute 8 (ii) only the resolutions given notice of by the requisitionists and amendments thereto, and such urgent business as may be brought forward by the University Council or the Vice-Chancellor, shall be transacted.

5. (1) Notwithstanding the notice for resolutions prescribed in Rule 3, any member who wishes to move a resolution on any report or statement by the Council included in the agenda paper, or on any Statute placed before the Senate and included in the agenda paper, may do so on giving notice of the resolution, which shall reach the Registrar not less than fifteen clear days before the date of the meeting :

Resolutions on Ordinances and Council reports

Provided that no such notice shall be necessary in the case of resolutions relating to urgent business brought forward by the University Council or the Vice-Chancellor and not included in the agenda

(ii) Resolutions of which due notice has been received by the Registrar shall be included in the amended agenda paper.

6 Not less than 21 clear days before the date of an ordinary meeting and not less than 15 clear days before the date of a special meeting, the Registrar shall, under the direction of the Vice-Chancellor, issue to every member an agenda paper specifying the day and the hour of the meeting and the business to be brought before the meeting, but non-receipt of the agenda paper by any member shall not invalidate the proceedings of the meeting :

Date for despatch of agenda paper.

Provided that the University Council or the Vice-Chancellor may bring forward any business which in its or his opinion is urgent before any ordinary or special meeting convened under Statute 8 (i) with shorter notice and without placing the same on the agenda paper.

7. Any member who wishes to move an amendment to a resolution on the agenda paper of any meeting of the Senate shall forward a copy of the same to the Registrar so that it reaches him not less than fifteen clear days previously in the case

Notice of amendments.

of an ordinary meeting and ten days previously in the case of a special meeting convened under Statutes 8 (i) and 8 (ii) with not less than fifteen clear days' notice.

8. The Registrar shall, under the direction of the Vice-Chancellor, prepare a complete agenda paper showing all the resolutions and amendments to be moved and shall post a copy of it to each member of the Senate not less than five clear days before the date of any meeting :

Amended agenda paper.

Provided that in the case of a special meeting convened under Statute 8, the amended agenda paper may be sent at a shorter interval before the meeting or may be placed before the members at the meeting.

9. Unless the Senate otherwise resolve, the Senate shall ordinarily meet at 12 noon on each day appointed for the meeting, and the Chairman shall adjourn the meeting at 6 p.m. or earlier if the business on the agenda is finished. There shall be half an hour's adjournment in the afternoon :

Hours of meeting. Provided that if, at the time prescribed for either adjournment, proceedings under closure motion are in progress, the Chairman shall not adjourn the meeting until the questions consequent thereon have been decided :

Provided also that, if any voting is in progress, the voting and the proceedings consequent thereon shall be completed before the meeting is adjourned :

Provided, further, that on occasions of emergency the Chairman shall have the power to suspend or adjourn the meeting at any time

10. Subject to the provisions of other laws in this behalf, no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place :

Business at adjourned meetings.

Provided that the University Council or the Vice-Chancellor may bring any urgent business before an adjourned meeting with or without notice.

When a meeting is adjourned for fifteen days or more, not less than ten clear days' notice of the adjourned meeting and of the business to be transacted at it shall be given. Save as aforesaid, it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.

11. Save as permitted by the rules herein contained, no Resolutions or amendments not on agenda paper. resolution or amendment which is not placed on the agenda paper shall be moved at a meeting.

12. In the absence of the Vice-Chancellor from a meeting of the Senate, the members present shall elect a Chairman from among their number.

13. The business to be transacted at a meeting of the Senate shall be placed on the agenda paper in the following order:—

(i) The answering of questions.

(ii) Business brought forward by the University Council.

(iii) Business brought forward by members of the Senate.

At any meeting it shall be open to any member to move for a change in the order of business as stated in the agenda paper.

If the motion for a change in the order of business as stated in the agenda paper is agreed to by the Senate, the business shall be transacted in the changed order.

14. At any meeting the Chairman may, without any formal motion made, permit the correction of clerical or typographical mistakes in notices or motions or in reports or statements or other business placed before the meeting

Correction of mistakes.

15. At any meeting of the Senate, motions of a complimentary character may, without previous notice, be moved from the Chair or by any member with the previous permission of the Chair.

Complimentary motions.

16. At any meeting of the Senate, any member may, with the permission of the Senate, move any amendment to any resolution brought forward by the University Council or the Vice-Chancellor under the proviso contained in Rule 6; or by a member under Rule 5 or to a resolution included in the agenda paper of a special meeting convened on less than fifteen clear days' notice under Rule 2 (i).

Amendments to resolutions with short notice.

17. At any meeting of the Senate, the following resolutions may be moved without previous notice:—

(i) A resolution relating to business not included in the agenda but brought forward by the Council or the Vice-Chancellor under Rule 6.

(ii) A motion for a change in the order of business as stated on the agenda paper.

(iii) A motion directing the Council, the Academic Council, a Faculty, a Board of Studies or any committee to review or reconsider its decision or recommendation and to report at a subsequent meeting of the Senate.

Motions without previous notice.

(iv) A motion for the appointment of a committee to consider and report on any matter before the Senate at the time.

(v) A motion remitting any matter before the Senate at the time to the Council or the Academic Council or a Faculty or a Board of Studies for consideration and report.

(vi) A motion for the adjournment of the meeting or of the debate on any question to a specified time

(vii) A motion that the Senate do resolve into a committee to consider any matter before the Senate at the time.

(viii) A motion that the meeting be dissolved.

(ix) A motion that the meeting pass to the next item on the agenda paper.

(x) A motion that the question be now put.

18. Every motion shall be affirmative in form and shall begin with the word "That."
Form of motions.

19. When a motion has been seconded, it shall be stated from the Chair unless it be ruled out of order.

20. When the motion has thus been stated, it may be discussed as a question to be resolved either in the affirmative or in the negative or to be altered by amendment.
Discussion
When no member of the Senate rises to speak to the motion, the Chairman shall proceed to put the question to the vote in the manner hereinafter mentioned.

21. Not more than one motion and one amendment thereto shall be placed before the meeting at the same time.
Only one motion and one amendment at a time.

22. A motion substantially identical with one already moved and disposed of at a meeting shall not be moved at the same meeting or at a subsequent meeting until after a lapse of eleven months from the date of such meeting. A motion substantially identical in part with one already disposed of may be brought forward again with the omission of such part:
Reconsideration of propositions once disposed of.

Provided however that it shall be open to the University Council to bring forward any subject for reconsideration at a meeting before the expiry of the eleven months aforesaid, if in its opinion such reconsideration has been rendered necessary.

23. Any proposal before the meeting may be amended by the omission or addition of a word or words or by both.
Amendments.

24. No amendment shall be proposed which would in effect constitute a direct negative to the original motion, and every

amendment must be relevant to the motion upon which it is moved.

25. No amendment shall be proposed which substantially raises a question already disposed of by the meeting, or which is inconsistent with any resolution already passed by it.

26. An amendment, the substance of which has been disposed of in part, may be modified by its proposer so as to retain only the part not so disposed of.

27. The order in which amendments of which previous notice has been given are to be brought forward shall be determined by the Chairman.

28. When an amendment has been moved and seconded, it shall, unless ruled out of order, be stated from the Chair, and the debate may then proceed on the original motion and the amendment together.

29. If an amendment is negatived, the original motion shall again be stated from the Chair, and, subject to the foregoing rules, any other amendment thereto which is in order may then be proposed.

30. If an amendment is carried, the motion as amended shall be stated from the Chair, and may then be debated as a substantive question, to which the further amendments to the original motion which are in order and so far as they shall be applicable, may be proposed, subject to the foregoing rules, and such further amendments shall be disposed of in the same manner as the original amendment.

31. Any member desiring to speak shall rise in his place and address himself to the Chair.

Rules of debate.

32. When two or more members rise to speak, the member who first catches the eye of the Chairman shall be entitled to speak first.

33. No member may speak twice to a question before the Senate, except in explanation or (in the case of a mover) in reply.

34. Any motion or amendment standing in the name of a member who is absent from the meeting, or who declines to move it, may be moved by any other member.

35. No speech shall ordinarily exceed ten minutes in duration, provided that the mover of a resolution, when moving the same, may speak for twenty minutes.

36. Any motion or amendment not seconded shall not be discussed further, and no entry thereof shall be made in the minutes.

37. Any motion or amendment may be withdrawn by leave of the Senate.

38. Any matter before the Senate may be referred for consideration and report to one or more of the following bodies :—

Reference to other authorities. The University Council, the Academic Council, the Faculties, the Boards of Studies.

39. When the Chairman has ascertained that no other member, entitled to address the meeting, desires to speak, the mover of the original motion may reply upon the whole debate.

Right of reply.

40. A debate may be closed by the motion "That the question be now put," being proposed, seconded, and considered and the question shall be put forthwith without further amendment or debate. The mover shall, however, be given a right of reply after a closure motion is passed.

Closure.

41. The Chairman may, at any stage in the proceedings, at his own discretion or at the request of a member, explain the scope and effect of the motion or amendment which is before the meeting. He may also, at the conclusion of a debate, sum up the debate if he so desires.

Explanation by Chairman.

42. If the Chairman desires to take an active part in a debate he shall vacate the Chair until the vote on that debate shall have been taken. During such time the Chair shall be taken by any member to whom the work is delegated by the Chairman and who has not already taken part in the debate and waives his right to do so. The acting Chairman shall, during the debate in question, exercise all the ordinary rights of the Chairman.

Acting Chairman

43. Any member may, with the permission of the Chairman, rise, even while another is speaking, to explain any expressions used by himself which may have been misunderstood by the speaker, but he shall confine himself strictly to such explanation.

Intervention during speech.

44. Any member may call the Chairman's attention to a point of order, even while another member is addressing the meeting, but no speech shall be made on such point of order.

Point of order.

45. The Chairman may direct any member, whose conduct is in his opinion grossly disorderly, to withdraw immediately from the Senate, and any member so ordered to withdraw shall do so forthwith and shall remain absent during the rest of the day's meeting.

Power of Chairman in case of disorder

46. The Chairman may, in the case of grave disorder arising in the Senate, suspend any sitting for a time to be specified by him.

47. No member shall be entitled to vote in any division unless he is present when the question is put.
Voting.

48. As soon as a debate upon a question is concluded, the Chairman shall put the question to the Senate.

49. On putting any question to the vote, the Chairman shall call for an indication of the opinion of the Senate by a show of hands in the affirmative and in the negative, and shall declare the result as so indicated. The Chairman shall have a vote, and in the case of an equality of votes he shall have a casting vote in addition.

50. Any six members may then demand a division except on a motion for which, under Rules 14, 15 and 17, previous notice is not required.

51. The Chairman shall thereupon give such direction for effecting the division as he shall consider expedient. The names of the members who vote, for or against the motion or decline to vote, shall be recorded.

52. If no division is demanded, any member shall have the right to dissent and to have the fact of his dissent recorded, provided such dissent be announced as soon as the Chairman shall have declared the result of the voting.

53. While the Senate is dividing, members can speak only to raise a point of order.

54. Questions touching the affairs of the University may be put to the Chairman, and shall be sent in writing to the Registrar so as to reach him thirty clear days before the meeting.
Questions.

55. The Vice-Chancellor may disallow any question which in his opinion ought not to be put in the public interests or in the interests of the University or as contravening the provisions or spirit of the laws, or for other material reasons, and may alter and amend any question which is not in accordance with the Standing Orders, or which is in his opinion injudiciously worded.

56. The Chairman may, at his discretion, postpone the reply to a question to a subsequent meeting.

57. By permission of the Senate, a member may amend in writing a question of which he has given notice and put it as amended.

58. In putting any question no argument or opinion shall be offered, nor shall any facts be stated except so far as may be necessary to explain such question.

59. Replies to such of the questions as are to be answered shall be issued to all the members five clear days before the day of meeting, and shall be recorded in the minutes of the meeting.

60. It shall not be necessary to read the questions and answers at the meeting of the Senate. But at the meeting the questions answered shall be called in the serial order in which they appear in the agenda paper, when any member may, before the next question is called, put any supplementary question arising directly out of the answer given. Thereupon the Vice-Chancellor may disallow the supplementary question under rule 55 or decline to answer the same without notice, or the Vice-Chancellor or at his request a member of the University Council or the Registrar or the Head of an institution or a Professor of the University may answer it.

61. (i) A committee of the whole Senate may be appointed by a resolution, "That the Senate do now resolve itself into a Committee of the Whole."

Committee of the Senate. (ii) The Vice-Chancellor shall be Chairman of such Committee, unless he is unwilling to act, in which case any other member may be voted to the Chair.

(iii) A member may speak more than once on any question

(iv) A motion need not be seconded.

(v) The Chairman shall have a vote, and in the case of an equality of votes, a second or casting vote.

(vi) When the matters referred to the Committee have been disposed of, the report of the Committee shall at once be proposed to the Senate for adoption.

(vii) When the matters so referred have not been disposed of, the Senate, having resumed and having received a report of the Committee to the effect that the matters have not been fully disposed of, may appoint a future day for the Committee to resume its sitting.

62. (i) The Senate may refer any matter to a Select Committee consisting of five or more members, of whom one shall be appointed Chairman.

Select Committees. (ii) The Chairman shall have a vote, and in the case of an equality of votes, a casting vote.

(iii) The report of a Select Committee shall be in writing signed by the Chairman and by all the members of the Committee or a majority of them, but any member of a Select Committee may record his views in a separate minute.

(iv) A Select Committee may, for the purpose of obtaining information, invite any person to be present at its sitting.

63. (i) All elections under Section 20 (c) of the Act shall be by ballot except those which are specially governed by other rules in this behalf. In all cases of election, other than those specifically provided for, the candidates shall be nominated in writing and the nomination paper handed to the Chairman. If no more candidates are nominated than there are vacancies to be filled,

Election.

the Chairman shall declare those candidates to be elected. If the number of candidates exceeds the number of vacancies, a vote shall be taken by ballot.

(ii) In the case of a single appointment, a ballot shall be taken, in which each member shall only be entitled to give one vote, and the candidate or candidates receiving the smallest number of votes shall be withdrawn. Another ballot between the remaining candidates shall then be taken, and this procedure shall continue until the number of candidates is reduced to two. There shall be then a final ballot, and the candidate receiving the higher number of votes shall be considered to be duly elected: provided that if at any stage of the ballot a candidate obtains an absolute majority of votes, the ballot shall cease.

If in any ballot, owing to an equality of votes, all the candidates but one would be eliminated by this procedure, a fresh ballot shall be taken, and if a similar equality again occurs, the Chairman shall give a casting vote.

If in any ballot there is an equality of votes among all the candidates a fresh ballot shall be taken. If the equality be not removed the Chairman shall give a casting vote, and the candidate receiving this vote shall be regarded as duly elected; with this exception, it shall be a necessary and sufficient condition for election that a candidate obtains an absolute majority of votes, and should this occur at any stage, the ballot shall cease.

(iii) In all cases of contested election for two or more appointments each member shall be entitled to give as many votes as there are appointments to be filled, but shall not give more than one vote for one person. The candidates who obtain the largest number of votes shall be elected, except when by reason of equality of votes the number of such candidates is in excess of the number of appointments to be filled; in this case a fresh ballot shall be taken among those whose equality of votes has caused such excess. If the result of this ballot leaves the matter still undecided as to one or more of the appointments, the Chairman may decide who among the candidates found to have equal votes on the second ballot shall be appointed; or the Chairman may, at his discretion, give such directions for further ballot as the circumstances of the case may justify.

64. Any of these rules may be suspended for the time being on motion being made, with or without notice, provided that a quorum shall be present, and that such motion shall have the concurrence of at least two-thirds of the members present.

65. Persons desirous of admission to the Senate Hall during the sittings of the Senate shall make application to the Registrar

Suspension of
rules.

Admittance of
Strangers.

66. The Chairman may, at any time during the sitting of the Senate, direct that all strangers withdraw.

67. (i) A journal shall be kept containing a brief abstract of the proceedings of the Senate. This journal shall be submitted as soon as possible after each meeting to the Chairman for his confirmation and signature.

Record of proceedings.

(ii) Within a month after a meeting of the Senate the Registrar shall, under the direction of the Council, post a printed copy of the minutes of such meeting, attested by the Chairman, to the address of each member.

(iii) In the event of no exception being taken by any member who was present at the meeting to the correctness of the minutes within ten days of the posting by the Registrar, the same shall be deemed to be correct.

(iv) If exception be taken within the time aforesaid to any portion of the minutes, such portion shall be brought forward at the next meeting of the Senate for confirmation by such of the members as were present when the business to which the minutes refer was transacted.

(v) If in any such recorded minutes, speeches of members are quoted or the substance of such speeches is given, a proof copy of such record shall be sent to the members concerned, who shall thereupon return it within five days with their corrections, if any.

(vi) A copy of the abstract proceedings shall be published in the official Gazette as soon as possible after the meeting.

B.—Rules of Business of the University Council

1. A statement of important communications received (including all orders of Government) and of important orders and communications issued from the office shall be prepared for each month before the tenth day of the succeeding month, and circulated to members of Council.

Circulation of communications.

2. Members may call for and inspect such official papers as they may desire by notice to the Registrar.

Power to inspect papers.

3. (i) The ordinary meeting of the Council shall be held on the second Saturday of each month, unless for any unavoidable reason the Vice-Chancellor fixes any other day.

Day of meeting.

(ii) No meeting shall continue beyond 6 P.M. each day. The subjects left over, if any, shall be taken up at the meeting to be convened for the purpose on the next day or the day following it, or postponed to the next monthly meeting according as the majority of the members present at the meeting shall decide. No subject shall, however, remain undisposed of beyond two months.

4. (i) A preliminary statement of business to be transacted at a meeting shall be sent to the members six clear days before the meeting.

Agenda of meetings.

(ii) The subjects to be included in the agenda shall be arranged in chronological order according to the dates of their origin or receipt in the University Office and their sequence shall not be changed in case they are postponed to another meeting, provided that the Chairman shall have the discretion to change the order in urgent cases.

5. Notice by members of subjects to be included in the agenda shall be sent so as to reach the Registrar not later than eight clear days before the meeting.

Notice of propositions by members.

6. Any proposition of which notice has not been given may be moved by any member, if permission is granted by the Council.

Propositions without notice.

7. Amendments, if any, relating to subjects mentioned in the agenda shall be sent to the Registrar within three days after the receipt of the agenda.

Notice of Amendments.

8. A supplementary list of such amendments and other urgent subjects arising after the issue of the first list of subjects shall be supplied to each member before the meeting.

Supplementary agenda.

9. The Chairman shall be the sole judge of any point of order arising.

Point of order.

10. Every question shall be decided by a majority of the votes of the members present. In the case of an equality of votes, the Chairman shall have a casting vote in addition to his vote as a member.

Voting.

11. (i) No member shall have a right to speak more than once in the course of the discussion of a motion or of an amendment except the proposer of the motion
Rules of debate. who shall have a right to reply at the close of the discussion of the motion.

(ii) But if, at the close of the discussion and before the mover begins to reply, a member wishes to make any observations in the light of the discussion that has taken place, he shall do so without taking more than five minutes.

12. No speech shall exceed ten minutes in duration except with the permission of the Chairman who may, at his discretion in any case, allow more time.

13. The Chairman shall regulate the order of speeches.

14. A motion for adjournment of the discussion or closure may be made at any time as a distinct question, but not in the form of an amendment, nor while a member is speaking.
Motions for adjournment or closure.

15. If a motion for adjournment of the discussion is carried, such discussion shall stand postponed to the next meeting. If a motion for closure is carried, the substantive proposal or the amendment thereto, as the case may be, shall be put to vote immediately after the mover's reply.

16. A member may withdraw his motion or amendment with the consent of the majority of the members present at the meeting.

17. Any member may, by way of personal explanation, with the permission of the Chairman, try to remove any misconception of fact, but in doing so, he shall strictly confine himself to a statement of the fact and his speech shall not exceed five minutes in duration.
Intervention during speech.

18. Any member may, at any time in the course of a discussion, rise and call the attention of the Chairman to a point of order.

Point of order.

19. If a point of order is raised by one member in the course of a speech by another, the speaker shall forthwith resume his seat until the Chairman has decided it.

20. The decision reached on any subject at a meeting shall be recorded immediately and read over to the Council for approval.

Record of proceedings.

21. (i) Any member who dissents from a decision of the Council and expresses a desire to send a note of dissent may send up a note of dissent within five days after the meeting. Such note shall always be brief and be confined to the main point at issue.

Notes of dissent
by members.

Personal references of any kind as also attributing of motives shall invariably be avoided. If the Chairman considers that a dissenting note does not satisfy the above conditions he may briefly indicate the same and return the note to the member concerned for revision, fixing a suitable time limit. The dissenting note or the revised note, as the case may be, on receipt within the specified time shall, with the remarks, if any, of the Chairman thereon, be circulated with the proceedings of the meeting or as soon as possible and convenient. The remarks of the Chairman shall also conform to the conditions indicated above in respect of the dissenting note.

(ii) All dissenting notes shall be sent to Government with the remarks of the Chairman explaining the opinion of the majority.

22 (i) The proceedings of each meeting of the Council shall be drawn up and circulated to members within twelve days after the meeting. The salient points indicating the trend of the discussions that have taken place on the motions put to vote shall be noted briefly in the proceedings of the meeting when necessary. If any member desires to suggest any correction as to what actually was decided at the meeting, a note shall be sent by him to the Registrar within five days of the receipt of the proceedings. Such resolutions as have thus been objected to shall be placed before the next meeting for confirmation, and other matters shall be taken to be passed finally, provided that action may be taken in anticipation of confirmation in urgent cases.

Proceedings of
meetings.

(ii) After confirmation, the proceedings shall be printed and copies sent to Government and to members of the Senate.

(iii) The proceedings of all the meetings shall be filed, indexed and bound along with printed copies thereof.

23. A note of questions decided by circulation shall be recorded in the minutes book of the Council.

Resolutions by
circulation.

24. On a requisition signed by any seven members of the Council to convene a special meeting thereof, the Registrar shall convene a special meeting on a date to be fixed by the Chairman. At such a meeting only such subjects as the signatories to the requisition have set forth in the requisition shall be brought forward and disposed of.

Special meetings.

25. Subjects once disposed of may be brought up again with reasons which appear adequate to the Vice-Chancellor.

Reconsideration of subjects once disposed of.

26. Subjects sent by members will be ordinarily be included in the agenda of the University Council. It shall, however, be open to the Vice-Chancellor to disallow any subject being so included, if he considers that it does not properly fall within the purview of the Council or that it contravenes the provisions of the Act, the Statutes, or the Ordinances or that it is not expedient to discuss such subject either in public interests or the interests of the University.

Propositions by members.

C.—Rules of Business of the Academic Council

1. Any member who wishes to move a resolution at a meeting shall forward a copy of the resolution to the Registrar so that it reaches him not less than thirty-five clear days before the date of the meeting. A member who has forwarded a resolution may, by giving written notice which shall reach the Registrar not less than seven clear days before the date fixed for the despatch of the agenda paper, withdraw the resolution.

Notice of resolution.

2. The Registrar shall cause each resolution of which notice has been given and which has not since been withdrawn under Rule 1 to be placed on the agenda paper.

Agenda of meetings.

3. Not less than twenty-one clear days before the date of every meeting, the Registrar shall issue to every member an agenda paper specifying the day and hour of the meeting and the business to be brought before the meeting :

Provided that non-receipt of the agenda paper by any member shall not invalidate the proceedings of the meeting :

Provided also that the Vice-Chancellor may bring any business which in his opinion is urgent before any meeting with shorter notice or without placing the same on the agenda paper.

4. Any member wishing to move an amendment to a resolution on the agenda paper of any meeting shall forward a copy of the same to the Registrar so that it reaches him not less than fifteen clear days before the day of the meeting at which the resolution is to be moved.

Amendments.

5. The Registrar shall, on the receipt of amendments given in accordance with Rule 4, prepare a completed agenda paper showing all the resolutions and amendments and shall forward a copy of it to each member not less than five clear days before the meeting.

6. In the absence of the Vice-Chancellor from a meeting of the Academic Council, the members present shall elect a Chairman from amongst their number.

Chairman.

7. At a meeting of the Academic Council, the following shall be the order of business :—

Business at meetings. (1) Any motion for a change in the order of business as stated in the agenda paper.

(2) Official business.

(3) Business brought forward by members of the Academic Council.

8. The procedure at meetings of the Academic Council as to matters not herein specifically provided for shall be regulated generally by the Rules of Business of the

Procedure at meetings. Senate in so far as they may be applicable.

D.—Rules of Business of the Faculties

1. Meetings of a Faculty shall be convened by the Dean with the previous permission of the Vice-Chancellor, or on the written requisition of any eight members of the Faculty.

Convening of meetings.

2. Not less than a fortnight's notice shall be given of each meeting. A member of a Faculty may bring before a meeting of the Faculty (except a special meeting convened on requisition) any matter within its purview by giving not less than a week's notice to the Dean. The agenda paper shall be sent to the members of the Faculty not less than three days prior to the meeting. Notices of amendments, if any, shall reach the Dean at least a day prior to the meeting.

Notice of meeting.

3. The conduct of business at a meeting of a Faculty shall be regulated according to the Rules of Business of the Senate and the Academic Council in so far as they

Conduct of business. may be applicable.

4. In regard to any point of order or question of procedure, the decision of the Chairman shall be final.

Point of order.

E.—Rules of Procedure at Convocation

A Convocation for the purpose of conferring degrees, presided over by the Chancellor or the Pro-Chancellor or in the absence of both by the Vice-Chancellor, shall be held annually at Mysore on such date as may be fixed by the Chancellor. The following shall be the rules of procedure :

1. All those whose names appear in the list of successful candidates for any of the degrees of the University shall receive their respective degrees *in person* or *in absentia* at any Convocation held after the publication of such lists.

2. No candidate who has already been admitted to a degree and has been awarded his diploma shall be admitted at Convocation a second time to the same degree notwithstanding that he may have become qualified in an additional group or branch or in an additional language. An endorsement shall be made upon his diploma setting forth the further examination passed by him with dates and class, if any.

3. (i) A candidate for a degree *in person* must submit to the Registrar his application for admission to the degree in the prescribed form so that it may reach him thirty clear days before the date fixed for the Convocation. No person shall be admitted to the Convocation who has not thus applied.

(ii) A candidate who, having sent in his application for a degree *in person* fails to appear at the Convocation, shall be charged a fee of Rs. 5 on admission to a subsequent Convocation, which will be an addition to the special fee prescribed in the following clause if admission to the degree *in absentia* is applied for.

(iii) A candidate for a degree *in absentia* must apply for a degree at a Convocation and submit his application in the prescribed form so that it may reach the Registrar Thirty clear days before the date fixed for the Convocation. The fee for admission to the degree *in absentia* is Rs. 10 which shall be remitted with the application or paid into a Mysore Government Treasury and the Treasury receipt attached to the application.*

(iv) A woman candidate for a degree who is precluded by custom from appearing in public may, by order of the University Council, be admitted to a degree *in absentia* without any fee, provided that she applies to the Registrar in the prescribed form

* The same fee as for one degree, *viz.*, Rs. 10, shall be levied for two degrees.

so that the application may reach him Thirty clear days before the date of the Convocation.

(v) It shall, however, be competent for the Vice-Chancellor for satisfactory reasons shown to grant prior to the Convocation a provisional certificate to a candidate who is eligible for a degree, subject to such candidate being admitted to the degree.

4. Candidates for degrees shall sign a declaration in the following form, before they are admitted to the several degrees for which they may have been recom-

Declaration to be signed. mended:—

“We hereby solemnly declare and promise that, if admitted to the degree of Bachelor of Arts, Bachelor of Science, Bachelor of Commerce, Bachelor of Teaching, Bachelor of Engineering, Bachelor of Medicine and Bachelor of Surgery, Master of Arts, Master of Science, for which we have been recommended, we shall, in our daily life and conversation, conduct ourselves as befits members of this University; that we shall to the utmost of our capacity and opportunity support the cause of morality and sound learning; and that as far as in us lies, we shall uphold and advance the social order and the well-being of our fellow-men.”

In the case of professional degrees, the following shall be added to the declaration:—

“That we shall faithfully and carefully fulfil the duties of the professions to which we may be admitted by virtue of our degrees, that we shall on all occasions maintain their purity and reputation and that we shall never deviate from the straight path of their honourable exercise by making our knowledge subservient to unworthy ends.”

5. The candidates shall wear such costume as may be prescribed, as well as the gowns and hoods pertaining to their Attendance of respective degrees, and shall occupy their candidates. respective seats before the proceedings begin.

6. There shall be a meeting of the Senate preliminary to the Convocation at which the Registrar shall read the report of the Council containing lists of candidates Preliminary meeting of Senate. recommended for admission to the various degrees.

7. The Dean of each Faculty, or in his absence the senior member present, shall then move that the persons so recommended for the degrees related to his Faculty be admitted to the several degrees for which they have been recommended.

8. On the passing of these motions, the Chancellor, the Pro-Chancellor, the Vice-Chancellor and the members of the Senate shall pass in procession to the place Convocation procession. where the Convocation is to be held, the candidates and others in the hall remaining tanding till they have taken their seats.

9. After the Chancellor, the Pro-Chancellor, the Vice-Chancellor and the members of the Senate have taken their places, the
Conferment of Chancellor, or if authorised by him, the
degrees. Vice-Chancellor, shall say :—

“ This Convocation of the University of Mysore has been called to confer degrees upon the candidates who, in the examinations held for the purpose, have been certified to be worthy of the same. Let the candidates now stand forward.”

10. Then, the candidates standing, the Chancellor, or if authorised by him the Vice-Chancellor, shall put to them the following questions :—

Question.—Do you sincerely promise and declare that, if admitted to the degrees for which you are severally candidates, and for which you have been recommended, you will, in your daily life and conversation, conduct yourselves as becomes members of this University ?

Answer.—I do promise.

Question.—Do you promise that to the utmost of your opportunity and ability you will support and promote the cause of morality and sound learning ?

Answer.—I do promise.

Question.—Do you promise that you will, as far as in you lies, uphold and advance the social order and the well-being of your fellow-men ?

Answer.—I do promise.

In the case of candidates for professional degrees, the following additional question shall be put :—

Question.—Do you promise that you will faithfully and carefully fulfil the duties of the Teaching, Medical and Engineering professions, that you will on all occasions maintain their purity and reputation, and that you will never deviate from the straight path of their honourable exercise by making your knowledge subservient to unworthy ends ?

Answer.—I do promise.

11. Then the Chancellor shall say : “ Let the candidates be now presented.”

12. Then the candidates shall be presented to the Chancellor by such Deans of the Faculties or Heads of Colleges or other members of the Senate as may be nominated for this purpose by the Vice-Chancellor, the candidates having previously received their diplomas from the Registrar. When all the candidates have been presented, the Chancellor shall say to the candidates :—

“ By virtue of the authority vested in me as Chancellor of the University of Mysore, I admit you to the degree (degrees) . . . in this University ; and in token thereof you have been presented with this (these) diploma (diplomas), and I authorise you to wear the hood (hoods) ordained as the insignia of the said degree (degrees).”

13. When all the candidates have been presented, the Chancellor shall sign the record of the degrees which have been conferred.

14. An address suitable to the occasion will then be delivered by some member of the Senate or other person nominated by the Chancellor.

15. The Chancellor shall then dissolve the Convocation, and the Chancellor, the Pro-Chancellor and the members of the Senate shall retire in procession in the same order in which they entered.

16. The following shall be the gowns and hoods prescribed for members of the Senate and for the different degrees of the Mysore University:—

Degree	Gown	Hood
Members of Senate.	Black silk or alpaca: shape similar to Oxford M. A., three-inch gold coloured border of braid or silk from each shoulder to the bottom in front.*	...
B.A.	Black, similar to Oxford B.A. or Cambridge B.A.	Black with yellow lining.
B.Sc.	Do do	Yellow with black lining.
B.Com.	Do do	Black with emerald green lining.
M.A.	Black, similar to Oxford or Cambridge M.A.	Black with yellow lining and yellow border.
M.Sc.	Do do	Yellow with black lining and black border.
B.T.	Similar to B A. do	Black with blue lining.
B.E.	Do do	Black with terra cotta lining.
M.B.B S.	Black, similar to Oxford or Cambridge B.A.	Black with crimson lining.
D.Litt.	White silk with sky-blue border.	Sky blue.
D.Sc.	Crimson silk with dark blue border.	Dark red.
LL.D.	Crimson silk with old gold facing.	Scarlet silk with old gold lining.

* The academical gown and hood of other Universities will be recognised for this purpose.

The Barrister's wig and gown is not considered as coming within the description of "academic costume" for purposes of attendance at a Convocation or other academic functions.

CHAPTER II

DEGREES, COURSES OF STUDY AND SCHEMES OF EXAMINATIONS

DEGREES AND DIPLOMAS

THE University now confers the following Degrees and Diplomas :-

Degrees

Bachelor of Arts (B.A.)—Pass and Honours.
Bachelor of Science (B.Sc.)—Pass and Honours.
Bachelor of Commerce—(B.Com.)
Bachelor of Engineering (B.E.)
Bachelor of Medicine and Surgery (M.B.B.S.).
Bachelor of Teaching (B.T.).
Master of Arts (M.A.).
Master of Science (M.Sc.).
Master of Engineering (M.E.)
Doctor of Letters (D.LITT.).
Doctor of Science (D.Sc.).
Doctor of Engineering (D.E.).
Doctor of Laws (LL.D.), *Honoris causa*.

Diplomas

Diploma in Medical Practice (L.M.P.).
Diploma in Agriculture (L.Ag.).
Diploma in Sericulture (L.S.).
Diploma in Veterinary Science (L.V.Sc.).
Diploma in Engineering (Civil) (L.E. Civil).
Diploma in Engineering (Mechanical) (L.E. Mech.).
Diploma in Engineering (Electrical) (L.E. Elec.).
Diploma in Engineering (Automobile) (L.E. Auto.).
Diploma in Teaching (L.Ed.).
Diploma in Commerce (L.Com.).
Diploma in Prints and Engraving (L.P.E.).
Diploma in Printing and Binding (L.P.B.).
Diploma in Pharmacy (L.Ph.).
Diploma in Music (L.Mus.).
Diploma in Home Science (L.H.Sc.)
Diploma in Painting and Drawing (L.P.D.)

COURSES OF STUDY AND SCHEMES OF EXAMINATIONS

INTERMEDIATE EXAMINATION

CONDITIONS OF ADMISSION

(*Vide* Ordinance 9)

COURSES OF STUDY (GENERAL)

(*Vide* Ordinances 63 to 67)

COURSES OF STUDY (DETAILED)

[*Vide* Ordinance 240 (a)]

(a) Intermediate Examination in Arts.

I. English

The texts for non-detailed study shall be two in number and none set for any one examination shall be repeated within three years.

Certain of the set books which have to be studied in detail may be retained from year to year.

The books for detailed study shall include one play of Shakespeare, and texts in prose and poetry.

General English shall comprise *Precis*, *Expansion*, *Paraphrase of Poetry*, *Idiomatic Usage*, *Parsing* and *Analysis* and other grammatical tests.

The scope of the syllabus in General English shall be that indicated by the following standard text-books on Composition:—

G. Chettur, M.A. : *College Composition* (Longmans).

Glover : *Practical Course of English Composition* (Parts I and II) (Longmans).

In all the three papers set in the examination, the number of questions set shall be larger than the number the candidate is required to answer.

All papers in the examination shall be so set that candidates shall be able to obtain full marks without answering questions relating to purely literary criticism or scholarship.

* No one will be allowed to enter for the Intermediate Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

II. Second Language

(1) KANNADA

The course of study shall consist of poetry and prose both ancient and modern, and drama with grammar for detailed study and prescribed modern prose books for non-detailed study.

(2) TELUGU

The books to be set under this head shall include the following :—

(a) One selection from the *Mahabharata* or other early classic.

(b) One selection from the mediæval poets or a drama.

(c) One modern prose work.

The candidates are expected to show an acquaintance with the elements of grammar, including the elements of prosody and rhetoric of the language.

(3) TAMIL

(a) Poetry—about 300 stanzas.

(b) Prose—about 120 pages of classical prose.

(c) Grammar.

(d) Composition—about 200 pages for prose for non-detailed study.

(4) URDU

(a) Text and Grammar.

(b) Composition (Essay writing)

(5) HINDI

PAPER I—

(a) Text-books for non-detailed study.

(b) Translation from English into Hindi.

PAPER II—

(a) Text-books for detailed study.

(b) Grammar.

NOTE.—(1) Candidates are expected to express their ideas in clear and grammatical Hindi.

(2) Answers shall be written in Devanagari script.

(6) FRENCH

The course of study shall consist of—

(a) One prose work, one drama and a selection of verse for non-detailed study.

(b) Translation from English into French and from French to English.

(c) One book of prose and one of verse for detailed study

(d) Grammar.

(7) SANSKRIT

- (a) Detailed study of books prescribed from time to time.
 (b) Grammar and Prosody as in Macdonell's *Sanskrit Grammar for Beginners*, or Kale's *Smaller Sanskrit Grammar*.
 (c) Translation of unseen passages from Sanskrit into English and *vice versa*.

The following is the syllabus in Sanskrit Grammar (Second and Selected Language) for the Intermediate Examination :—

Classification of Sounds—The Alphabet; Devanagari and Roman Scripts; Vowels, short and long; simple and diphthongs. Guna, Vridhhi and Samprasarana. Consonants. The five classes according to the place of origin; hard and soft; aspirate and unaspirate; nasals, semi-vowels, sibilants, and the aspirate.

Sandhi.—External: Vowel, Consonantal and Visarga sandhis. Internal: change of n to n and s to s—*An elementary knowledge also of other forms.

Declension.—Vowel and Consonantal stems: general types only. * General principles of consonantal declension. Declension of the following special stems: pati, sakhi, stri, yuvan, maghavan, pathin and ahan. Pronouns. Formation of prominent feminine stems. Numerals. Degrees of comparison.

Conjugation.—Primary and derivative roots. The scheme of the ten lakaras: Sarvadhātuka and Ardhadhātuka. Parasmaipada and Atmanepada. The three voices. The ten classes of roots. Formation of the Present, the Imperfect and the Simple Future tenses and the Imperative and the Potential Moods. *An elementary knowledge of the Perfect and the Aorist. Prominent causal forms. * An elementary knowledge of other derivative forms also. The Passive and the Impersonal. Participles: Present and Future, Past and Perfect; participles in ya, tavya and aniya. The Gerund and Infinitive.

Compounds.—A knowledge of the main types only.

Krudanta.—Use of the following affixes: a, ana, ti, aka and tr.

Taddhita.—Use of the following affixes: a, ya, tva, and ta, mat and vat, in, vin and min, ita, maya, matra and vat.

PRACTICAL EXERCISES

Sandhi.

Declension.

Conjugation of the following roots in the five lakaras mentioned above:

I. Bhvadi, Parasmaipada: bhu, krs, gam, ghra, ji, jiv, tr, dams, dru, nam, pac, path, pa, drs, has, raks, vad, sad, stha, and smr.

Atmanepada: ram, kas, klp, sev, labh, vrt, vrddh, mud, sah, iks and gah.

* The sections marked with an asterisk (*) are for Arts students only.

Ubhayapada: gai, yac, ni, hr, hve, ghus, kram, khan and guh.

II. Adadi P. ad, as, stu, bru, rud, duh, jagr, mrj, svap, han, vid, sas, i and ya.

A. as, si, caks and adhi i.

U. dvis.

III. Juhotyadi. P, hu, ha and bhi.

U. da. and bhr.

IV. Divadi. P. div, nrt, trp, nah, vyadh, nas, sam, sas, as, jr and bhram

A. vid, yudh, ksubh and jan.

V. Svadi. P. ap, ksi, sru and sak.

U. vr. su and ci.

VI. Tudadi. P. tud, is. sprs, krt, kr and pracch.

A. mr.

U. vid, muc and ksip.

VII. Rudhadi. U. rudh, bhuj, yuj and chid.

VIII. Tandh. U. tan and kr.

IX. Kryadi. P. mus and bandh.

U. kri. grah and jna.

X. Curadi. U. cur. cint. tad, kath and bhaks.

Conjugation in the other lakaras of verbal forms occurring in the prescribed texts.

Formation of participles and their declension.

Uses of participles.

Uses of cases.

Parsing of words.

Analysis of sentences into clauses.

Resolution of Compounds.

Change of Voice.

Change of Tense.

NOTE.—Simple technical terms and sutras of Paninean Grammar may be used as far as possible.

Books Recommended for Consultation

1. M. R. Kale : *Smaller Sanskrit Grammar* (Gopal Narayan & Co., Bombay).
2. Kielhorn : *A Grammar of the Sanskrit Language* (N. S. Press, Bombay).
3. Macdonell : *A Sanskrit Grammar for Students* (Clarendon Press).
4. V. S. Apte : *A Guide to Sanskrit Composition* (Gopal Narayan & Co., Bombay).

(8) PERSIAN

(a) Detailed study of books prescribed from time to time.

(b) Grammar and Prosody.

(c) Translation of unseen passages from Persian into English and *vice versa*.

(9) LATIN

Detailed study of prescribed Texts, Grammar, Translation from English into Latin. Unseen translation from Latin into English.

III. Optional Subjects

(1) SELECTED LANGUAGE

(a) Old and Middle Kannada

Same as for Kannada taken as Second Language

(b) Modern Kannada

Same as for Kannada taken as Second Language.

(c) Telugu

Same as for Telugu taken as Second Language.

(d) Tamil

Same as for Tamil taken as Second Language.

(e) Urdu

Same as for Urdu taken as Second Language

(f) Sanskrit

Same as for Sanskrit taken as Second Language.

(g) Persian

Same as for Persian taken as Second Language

(h) Arabic

1. Detailed study of books prescribed from time to time.
2. Grammar and Prosody.
3. Translation of unseen passages from Arabic into English and *vice versa*.

NOTE.—The standard for any language taken as a selected language shall be the same as the standard for the same language taken as second language in respect of syllabus, text-books and examination.

(i) Hindi

Same as for Hindi taken as Second Language.

(2) HISTORY

The course of study shall comprise :

- (1) *History of Greece and Rome* :—History of Greece to the death of Alexander the Great and History of Rome to the death of Augustus.

Books for Study

1. Bury : *History of Greece for Beginners*.
2. Edmonds : *Greek History for Schools*.
3. Wells : *Short History of Rome*.
4. Shuckburgh : *History of Rome for Beginners*.

Books for Reference.

1. Greenidge : *Handbook of Greek Constitutional History*
 2. Pelham : *Outlines of Roman History*.
 3. Warde Fowler : *The City—State of the Greeks and the Romans*.
 4. Buchan : *Julius Cæsar*.
- (2) *History of Britain* :—General outlines of Political and Constitutional History from the earliest times to the present day.

Books for Study

1. Warner and Martin : *The Groundwork of British History*.
2. Ramsay Muir : *British History*.

Books for Reference

1. Carter and Mears : *History of Britain*.
2. Trevelyan : *History of England*.

(3) GEOGRAPHY

The course of study shall comprise :—

I. PHYSICAL BASIS OF GEOGRAPHY.

The Atmosphere.—Weather and climate, temperature, pressure, winds and rainfall—distribution of temperature (horizontal and vertical) and pressure—planetary winds—weather types—climatic types and their distribution.

The Hydrosphere.—The distribution of water and land—the Oceans, their area and depths—configuration and character of ocean floors—the continental shelf—composition of sea water, its salinity and temperature—movements of sea water. Waves, tides and ocean currents, ocean deposits.

The Lithosphere.—The earth's crust and its composition ; the forces that shape the earth's crust—agencies of disintegration and integration. Earth movements, denudation, transportation and deposition. Deltas and estuaries. Volcanoes and earthquakes. Factors affecting formation of soils.

II. REGIONAL GEOGRAPHY OF THE WORLD.

(a) General features of distribution of land, sea, mountains, plateaus, plains, riversystems, climates, vegetation, animals and man—major natural regions of the world and their characteristics. Influence of geographical factors upon human life.

(b) Agricultural, pastoral and mineral resources—trade and transport (with special reference to India).

(c) Continents, countries and peoples.

III. PRACTICAL WORK.

(a) Simple meteorological observations—maximum and minimum thermometers and measurement of atmospheric

temperature. Hygrometer and measurement of humidity—Barometer, measurement of air pressure and determination of heights—Rain gauge and measurement of rainfall.

(b) Latitude and Longitude. Greenwich Time and Local Time.

(c) Interpretation of Topographic maps—Survey of India Maps; weather maps.

(d) Excursions to places of geographical interest.

Books for Study

1. Fox : *Physical Geography for Indian Students* (Macmillan).
2. Preece and Wood : *Foundations of Modern Geography*, Vol. I (University Tutorial Press, London).

Books for Reference

Willis : *Systematic Geography*, Part I (Philip).

L. D. Stamp : *Intermediate Geography* (Longmans)

Bartholomew : *Advanced Atlas* (Oxford, University Press).

(4) LOGIC AND SCIENTIFIC METHOD.

(1) Deductive Logic.

(2) Scientific Method.

Books for Study

Latta and Macbeath : *Elements of Logic*.

Jepson : *How to Think Clearly*.

Or

Mander : *Clear Thinking*.

Wolf : *Essentials of Scientific Method*.

(5) ECONOMICS

(1) Modern Industry.

(2) Economic History of England.

The following is the detailed course of study in Economics :—

(1) *Modern Industry*

I Fundamental Ideas.—

Wants, efforts, wealth, production, exchange, money, price, income, earning and spending, saving and capital, competition and monopoly.

II Stages in the Evolution of Modern Industry.

III Common Commodities.—

(1) Circumstances affecting their production and carriage.

(2) Their chief places of production.

- (3) Food Supply : wheat, rice, meat, coffee, tea and sugar.
- (4) Raw materials : cotton, wool, jute, iron, silk, hides and skins.
- (5) Sources of power : coal, oil and electricity.
- IV. Economic Organisation.—
 - (a) Farming, (b) Mining, (c) Manufacturing,
 - (d) Transport, (e) Commerce, (f) Finance (Money and Banking).
- V. Forms of Business.—
 - (a) Capitalistic—Proprietary ; Partnership ; Joint Stock ; (b) Co-operative ; (c) Socialistic.
- VI. Characteristics of Modern Industry.—
 - (a) Division of Labour, (b) Localisation, (c) Mass production, (d) Combinations, (e) Risk-bearing, (f) Organised Markets, (g) Advertising, (h) Labour Problems.
- VII Government and Industry—
 - (a) Forms of State Aid, (b) Commercial Policy, (c) National Finance, (d) Economic Legislation.

Books for Study

- 1. Marshall and Lyon : *Our Economic Organisation* (Macmillan).
- 2. Leffeldt : *Descriptive Economics* (Oxford University Press).
- 3. Banerji : *Indian Economics* (Macmillan).
- (2) *Economic History of England*.

Introductory—

I. Character of Economic History, its importance, Stages of economic development : Topical divisions.

II. Pre-Norman England.—

- (1) England before Roman Occupation.
- (2) Economic Organisation of England during Roman Occupation.
- (3) Economic life during Anglo-Saxon Occupation.

III. The Norman Conquest. Its economic aspects.

Period I :—From the Norman Conquest to the close of the 13th century : Village Economy—

- (1) Agriculture—The Manorial System.
- (2) Industry—Beginnings of the Town System.
- (3) Trade—Organisation : the State and Trade.
- (4) Money.
- (5) The State and Economic Life.

Period II :—From the close of the 13th century to early 16th century : Town Economy—

- (1) Agriculture—The Black Death and its effects ; Solutions for the acuteness of the labour problem

- (2) Industry and Towns—Merchant and Craft Guilds.
- (3) Trade—The Staple and merchants of the Staple.
- (4) Money and Credit.
- (5) State and Economic Life—Edward III's Legislation ; Richard II's Mercantile Measures.

Period III :—From the early years of the 16th Century to the close of the 18th Century : Era of Mercantilism and Nation Economy—

Mercantilism and its character : Measures and results.

- (1) Agriculture.
- (2) Industries.
- (3) Trade.
- (4) Money and Banking.
- (5) State in relation to Economic Life.

Period IV :—From the close of the 18th Century to the outbreak of the Great War : The Era of the Industrial Revolution —

(a) Economic conditions in England on the eve of the Industrial Revolution.—

(b) The Economic Revolution : the Industrial Revolution ; the Agrarian Revolution : the Revolution in Transport.—

(i) Industry :—

- (1) Main industries of the country.
- (2) Changes in structure and organisation : Joint Stock Companies ; Division into processes ; concentration.
- (3) Formation of working class organisations : Trade Unions ; Friendly Societies ; Co-operative Societies.

(ii) Agriculture :—

Abolition of Corn Laws ; Depression and revival ; Importation of foreign corn ; Revival of small scale farming.

(iii) Transport and Commerce :—

- (1) Improved means of communication ; Roads and canals ; Railways ; Steam navigation ; Air Transport.
- (2) Wider markets and changes in the character of exports and imports.
- (3) Free Trade ; Abolition of navigation laws

(c) Currency and Banking :—(1) State of British Currency at the close of the 18th Century. (2) The Bank of England : Suspension of Cash Payments. The Bank Charter Act. Use of Cheques and Currency.

(d) The State in relation to the economic life of the people :

- (1) National Finance. (2) Factory Legislation.
(3) Poor Relief. (4) Commercial Policy.

Period V :—Brief review of the post-war developments.

Books for Study

1. Townsend Warner: *Landmarks in English Industrial History* (Blackie & Sons).
2. Worts: *Modern Industrial History* (Hodder and Stoughton).

(6) MATHEMATICS.

1. Algebra.
2. Calculus.
3. Trigonometry.
4. Geometry.

The following is the detailed course of study in Mathematics :—

1. ALGEBRA :

Ratio and Proportion. Variation. Theory of Indices. Logarithms and their application to arithmetical computation. Simple surds. Quadratic equations. Theory of Quadratic Functions. Series in A.P., G.P and H.P. Notion of convergence with illustrations from G.P. Summations involving Σn , Σn^2 , Σn^3 . Arithmetico-Geometric Series. Partial Fractions (elementary). Interest and Annuities. Permutations and Combinations. Binomial Theorem for a positive integral index and easy application of the theorem for any rational index. Easy Graphs. Solution of simultaneous quadratic equations. Indeterminate equations of the first degree.

2. CALCULUS :

Graphical representation of a function. Gradient of a curve at a point. Differentiation of elementary functions. Rules of differentiating the sum, difference, product and quotient of functions, and of a function of a function. Second derivatives. Applications to simple problems in Geometry and Mechanics including maxima and minima. Integration as the inverse of differentiation. Integration by substitution and by parts. The definite integral. Applications to find areas and volumes in simple cases.

3. TRIGONOMETRY :

Measurement of angles. Trigonometric Functions and their relations to one another. Simple Equations. Solution of Triangles. Heights and Distances in one plane. Use of Trigonometric Tables. Sine and Cosine Graphs. Addition and Multiplication Formulæ. Properties of Triangles and Circles connected

with them. Inverse Trigonometric Functions. Limits and Approximations. Heights and Distances in different planes Application of Logarithms to Trigonometric computation.

4. GEOMETRY (THEORETICAL AND PRACTICAL):

(i) *Theorems in Plane Geometry—*

1. The rectangle contained by the diagonals of a cyclic quadrilateral is equal to the sum of the rectangles contained by its opposite sides.

2. The perpendiculars from the vertices of a triangle on the opposite sides meet in a point called the orthocentre, and the distance of each vertex from the orthocentre is twice the perpendicular distance of the circumcentre from the side opposite the vertex.

3. The three medians of a triangle meet in a point and this point is a point of trisection of each median and also of the line joining the circumcentre to the orthocentre.

4. The circle through the middle point of the sides of a triangle passes also through the feet of the perpendiculars of the triangle and through the middle points of the three straight lines joining the orthocentre to the vertices of the triangle.

5. If a perpendicular drawn from the vertex of a triangle is produced to meet the circumcircle, the distance of this point of intersection from the base is equal to the distance of the orthocentre of the triangle from the base.

6. The feet of the perpendiculars drawn on the sides of a triangle from any point on the circumcircle of the triangle are collinear.

7. Geometrical theorems corresponding to the following identities :—

$$K(a+b+c \dots) = Ka + Kb + Kc \dots$$

$$(a \pm b)^2 = a^2 \pm 2ab + b^2.$$

$$a^2 - b^2 = (a+b)(a-b)$$

$$(a+b)^2 - (a-b)^2 = 4ab.$$

$$(a+b)^2 + (a-b)^2 = 2(a^2 + b^2).$$

8. The square on a side of a triangle is greater than, equal to, or less than the sum of the squares on the other two sides, according as the angle contained by these two sides is obtuse, right, or acute. The difference in the case of inequality is twice the rectangle contained by one of the two sides and the projection of it on the other.

9. If D is a point in the side BC of a triangle such that

$$BD = \frac{1}{n} BC,$$

$$\text{then } (n-1) AB^2 + AC^2 = n \cdot AD^2 + \left(1 - \frac{1}{n}\right) BC^2$$

10. If two chords of a circle cut one another, the rectangle contained by the segments of the one is equal to the rectangle contained by the segments of the other; and conversely, if two straight lines cut one another so that the rectangle contained by the segments of the one is equal to the rectangle contained by the segments of the other, the four extremities of the straight lines are concyclic.

11. If from a point without a circle a secant and a tangent are drawn to the circle, the rectangle contained by the whole secant and its segment external to the circle is equal to the square on the tangent.

12. If from any point without a circle two straight lines are drawn one of which cuts the circle and the other meets it, and if the rectangle contained by the whole secant and its parts external to the circle equals the square on the line which meets the circle, this line is a tangent to the circle.

13. Definition and elementary theorems connecting antecedents and consequents.

14. A given straight line can be divided internally or externally in a given ratio at one and only one point.

15. A straight line drawn parallel to one side of a triangle cuts the other two sides produced (if necessary) proportionally; and the converse.

16. If the vertical angle of a triangle is bisected internally or externally, the bisector divides the base internally or externally into segments which have the same ratio as the other sides of the triangle; and the converse.

17. In equal circles, angles whether at the centres or at the circumferences, have the same ratio as the arcs on which they stand.

18. Triangles and parallelograms having equal altitudes are as their bases.

19. If two triangles are equiangular, their corresponding sides are proportional; and the converse.

20. If two triangles have one angle of the one equal to one angle of the other and the sides about the equal angles proportional, the triangles are similar.

21. Two triangles are similar, if the sides of the one are respectively parallel or perpendicular to the sides of the other.

22. If two triangles have two sides of the one proportional to two sides of the other and an angle in each opposite to one corresponding pair of these sides equal, the angles opposite to the other pair are either equal or supplementary.

23. If from the right angle A of a right-angled triangle ABC, AD is drawn perpendicular to BC, then (i) AD is the mean proportional between BD and DC; (ii) BA is the mean proportional between BD and BC; (iii) CA is the mean proportional between CD and CB.

24. If two triangles are similar, their corresponding lines (such as medians, altitudes, inradii, circumradii, etc.) are proportional.

25. If two triangles have one angle of the one equal to one angle of the other, their areas are proportional to the rectangles contained by the sides about these equal angles. Similarly for parallelograms having one angle of the one equal to one angle of the other.

26. Similar triangles are to one another as the squares on their corresponding sides.

27. Two similar polygons can be divided into the same number of similar triangles similarly placed; and the converse.

28. The perimeters of two similar polygons are to each other as their corresponding sides and their areas are proportional to the squares on corresponding sides.

29. In a right-angled triangle, any rectilineal figure described on the hypotenuse is equal to the sum of the similar and similarly described figures on the other two sides.

30. If four straight lines are proportional and a pair of similar rectilineal figures are similarly described on the first and the second and also a pair of similar rectilineal figures are similarly described on the third and the fourth, the figures are proportional.

31. If the vertical angle of a triangle is bisected internally by a straight line which cuts the base, the rectangle contained by the sides of the triangle equals the rectangle contained by the segments of the base together with the square on the straight line which bisects the angle.

32. If from the vertical angle of a triangle a straight line is drawn perpendicular to the base, the rectangle contained by the sides of the triangle equals the rectangle contained by the perpendicular and the diameter of its circumcircle.

(ii) *Solid Geometry*—

1. Any two straight lines which intersect each other, or are parallel, lie in a plane.

2. If a straight line is perpendicular to each of two intersecting straight lines at their point of intersection, it is perpendicular to the plane containing them.

3. If a straight line is perpendicular to each of three concurrent straight lines at their point of intersection, the three straight lines are in one plane.

4. Two straight lines perpendicular to the same plane are parallel; and the converse.

5. If two parallel planes are cut by a third plane, the lines of intersection are parallel.

6. If two straight lines are cut by parallel planes, they are cut proportionally.

7. If two intersecting planes are both perpendicular to a third plane, the common section of the first two is perpendicular to the third plane.

8. A straight line can be drawn perpendicular to each of two straight lines in space which do not intersect and are not parallel, and this straight line is the shortest distance between them.

9. If a solid angle is contained by three plane angles, any two of them are together greater than the third.

10. The plane angles which contain a solid angle are together less than four right angles.

(iii) *Practical Geometry*—

Construction of the circumscribed, inscribed and escribed circles of a triangle. Medial section. Construction of regular polygons. Division of finite straight lines in a given ratio and construction of similar figures.

Construction of triangles from given data, and division of triangles, quadrilaterals and polygons in a given ratio. Areas of polygons and problems relating thereto. Simple calculations relating to regular solids.

(iv) *Analytical Geometry*—

Co-ordinates. Point dividing in a given ratio the join of two points. Centroid of the triangle in terms of the co-ordinates of the vertices. Distance between two points. Area of triangle in terms of the co-ordinates of the vertices. Loci and equations. The standard forms of the equation of the straight line. Angle between two given lines. Change of origin. Length of perpendicular from a given point on a given line. Bisectors of angles between two given lines. Simple locus problems on the straight line. Equation of the circle (Standard Forms).

(Rectangular axes are assumed throughout.)

Books for Study

1. ALGEBRA: (i) V. B. Naik and V. A. Apte: *Higher Algebra* (Arya Bhushan Press, Poona).
(ii) N. M. Shah and Desai: *College Algebra* (Karsondas Narandas & Sons, Surat).
2. TRIGONOMETRY: (i) B. B. Bagi: *Plane Trigonometry* (Published by B. B. Bagi, Reddy Housing Society, Dharwar).
(ii) K. S. Patrachari and S. A. Mani: *Junior Trigonometry for Colleges* (Longmans).
(iii) Godbole and Shintre: *Elementary Plane Trigonometry* (Fergusson College, Poona).
(iv) N. K. Narasimha Murthy: *A Manual of Trigonometry* (Prabhakar Book Depot, Bangalore City).
3. PLANE GEOMETRY: G. A. Srinivasan and C. Krishnamachari: *Junior Geometry for Colleges* (Longmans).

4. **SOLID GEOMETRY** : Hall and Stevens : *School Geometry*, Part IV only.
5. **ANALYTICAL GEOMETRY** : (i) B. C. Maloney : *Analytical Geometry*.
(ii) M. P. Ramasastry : *Analytical Geometry for Beginners* (Ottrumai Office, Saidapet).
6. **CALCULUS** : (i) V. M. Gaitonde : *Introduction to Calculus* (Bombay Book Depot, Girgaom, Bombay).
(ii) R. C. Fawdry and C. V. Durell : *Calculus for Schools* (Arnold & Co.).
(iii) D. Ferroli and Krishnamurthy Rao : *Co-ordinate Geometry and Calculus* (Bangalore Press).
(iv) G. W. Caunt : *Elementary Calculus* (Oxford University Press).

Books for Reference

1. K. R. Gunjkar : *An Introduction to the Calculus*, Parts I and II (Oxford University Press).
2. D. C. Pavate and Bhagawat : *The Elements of Calculus* (Third Edition, Tutorial Press, Bombay).

(7) PHYSICS

Same as for the Intermediate Examination in Science (see page 170).

(8) CHEMISTRY

Same as for the Intermediate Examination in Science (see page 172).

(9) BIOLOGY

Same as for the Intermediate Examination in Science (see page 174).

(b) Intermediate Examination in Science.

I. English

Same as for the Intermediate Examination in Arts.

II. Second Language

(1) KANNADA

Composition and texts prescribed for non-detailed study as for the Intermediate Examination in Arts.

(2) TELUGU

Composition and texts prescribed for non-detailed study as for the Intermediate Examination in Arts.

(3) TAMIL

Composition and texts prescribed for non-detailed study as for the Intermediate Examination in Arts.

(4) URDU

Composition and texts prescribed for non-detailed study as for the Intermediate Examination in Arts.

(5) HINDI

(a) Text-Books for non-detailed study (Same as for paper I for I.A.)

(b) Translation from English into Hindi.

NOTE.—(1) Candidates are expected to express their ideas in clear and grammatical Hindi.

(2) Answers shall be written in Devanagari Script.

(6) FRENCH

The course of study shall consist of—

1. One prose work, one drama and a selection of verse for non-detailed study.

2. Translation from English into French and from French to English.

(7) SANSKRIT

Translation and texts as for the Intermediate Examination in Arts.

(8) PERSIAN

Translation and Texts as for the Intermediate Examination in Arts.

(9) LATIN

Detailed study of prescribed Texts, Grammar, Translation from English into Latin

III. Optional Subjects

(1) MATHEMATICS

- | | |
|-----------------|---|
| 1. Algebra | } Same as for the Intermediate Examination in Arts. |
| 2. Calculus | |
| 3. Trigonometry | |
| 4. Geometry | |

(2) PHYSICS

The course will include a more detailed study of the matter relating to Physics included in the S. S. L. C. syllabus for Elementary Science and the following :—

Mechanics.—Fundamental units of length, mass and time and their measurement. Units of velocity and acceleration. Relations between displacement, velocity and acceleration of a particle moving in a straight line with constant acceleration. Resolution and composition of velocities and acceleration; motion down an inclined plane. Laws of motion: momentum, force, energy, work, power. Atwood's machine. The parallelogram of forces: resolution and composition of forces in a plane. Systems of parallel forces. Moment of force. Moment of a couple: condition of equilibrium of a body under the action of two couples in a plane. Centre of gravity. Simple machines. The simple pendulum treated experimentally; the measurement of " g ". Measurement of time by the pendulum clock. Comparison of masses by balances, including the common steel-yard. Hooke's Law. Spring balances.

Hydrostatics.—Nature of fluid pressure: pressure at a point in a fluid. Principle of Archimedes: its experimental verification. Floating bodies. Measurement of specific gravity and comparison of densities by weighing: by the hydrometer; and in the case of liquids, by balanced columns. The pressure of a gas: Boyle's Law, Barometers, Manometers: pressure gauges. Hydraulic Press. Air Pumps. Water Pumps.

Sound.—Production and Propagation. Wave motion. Reflection and refraction of sound waves. Velocity of sound in air and its determination. Musical notes: pitch, quality and intensity. Vibration of strings and air columns treated experimentally.

Heat.—Temperature and quantity of heat distinguished. Variation of sizes of bodies with change of temperature: common examples. Thermometers employing thermal expansion of solids, liquids and gases. Measurement of thermal expansion. Thermal expansion of gases: Charles' Law. Measurement of quantity of heat: units: specific heat. Simple thermal laws relating to change of state, latent heat. Calorimetry: practical measurement of specific heat and latent heat. Vapour pressure and its measure-

ment. Boiling point and its measurement, melting points and boiling points of solutions: simple facts. Convection of heat: common examples. Conduction of heat; simple laws and measurements. Definition of conductivity. Radiation treated simply and experimentally: absorption and reflection of heat: effect of quality of surface on emission, absorption and reflection: practical applications of these facts. Newton's Law of Cooling. Comparison of specific heats by the method of cooling. Heat, a form of energy: dynamical equivalent of heat: conservation of energy. Conversion of heat into work: the working of the steam engine and the internal combustion engine simply explained.

Light.—Rectilinear propagation of light. Shadows; Eclipses. Pin-hole camera. Simple photometry. Inverse square law of illumination. Laws of reflection and refraction: total reflection. Applications of laws of reflection and refraction to plane and spherical surfaces. Lenses. Derivation and applications of formulæ connecting the positions of object and image in the cases of mirrors and lenses. Real and virtual images. Magnification. Applications to the following optical instruments: Photographic camera; projection lantern; simple magnifier; spectacles; microscopes; telescope. Dispersion; variation of refractive index with colour; the spectroscope, emission and absorption spectra; solar spectrum

Magnetism.—Properties of magnets; magnetic fields: shape of field surrounding straight bar magnets and bent magnets. Suspended magnet; compass needle. Earth's magnetic field. Uniform magnetic fields; field strength; action of magnetic field on magnet in the field. Definition of unit pole and of unit intensity of magnetic field. Definition of magnetic moment of a magnet; comparison of magnetic moments and of intensities of magnetic fields; magnetometers (deflection and vibration). Simple magnetic properties of iron and steel; permanent magnets; magnetic induction. Magnetic property of electric current.

Electricity.—Electric currents; existence of electric currents recognised by their magnetic effects. Definition of unit current strength in terms of magnetic intensity. The electro-magnet. Galvanometers (moving needle); tangent galvanometer. Conductors and non-conductors. The idea of electromotive force; the relation of electromotive force in a conductor to current strength; resistance; Ohm's Law. Comparison of resistances and electromotive forces; Wheatstone's Bridge; the potentiometer. Heating effects of current: work done by current flowing under electromotive force. Practical units of electric measurement of current strength, electromotive force, resistance, work and power. Mutual action between magnets and electric current: suspended coil galvanometer, ammeters and voltmeters. Faraday's experiments on induced currents. Simple qualitative laws of

electromagnetic induction. Simple description of action of dynamo. Description of action of electric bells, telegraph sounder, microphone and telephone. Direct current motor. Incandescent filament lamp. Electrolysis and Faraday's Laws of Electrolysis.

Books for Reference

Glazebrook's *Cambridge Physical Science Series*, so far as they relate to the subject-matter of the syllabus

Note.—(i) There will be no practical examination in Physics.

(ii) Candidates for the examination should be required to produce a certificate of having satisfactorily completed a course of practical laboratory work in the subject, signed by the Superintendent of the Intermediate College.

(iii) The course in Physics should consist of two lectures per week of one hour each and one practical lesson per week of two and a half hours.

(3) CHEMISTRY

Air, Boyle's Law, Charles' Law.

Hydrogen, oxygen, water. Laws of chemical combination.

Gay Lussac's Law of Combining Volumes.

Atoms and Molecules. Avogadro's Hypothesis.

Symbols and formulæ, valency, radicles, chemical equations and calculations.

Hydrogen peroxide and ozone.

Halogens and their hydracids. Electrolysis. Sodium hypochlorite, potassium chlorate.

Elementary knowledge of oxidation and reduction.

Sulphur: Rhombic and monoclinic varieties. Effect of heat on sulphur. Sulphuretted hydrogen, sulphur dioxide, sulphur trioxide, sulphuryl chloride, sulphurous and sulphuric acids sodium thiosulphate.

Solubility of solids and gases in water. Solubility curves. Henry's Law of Gas Solubility.

Nitrogen, magnesium nitride, ammonia, oxides of nitrogen, nitrosyl chloride, nitrous and nitric acids.

Endothermic and exothermic compounds. Thermal dissociation. Reversible reactions.

Phosphorus: red and white varieties; phosphine, oxides of phosphorus, chlorides of phosphorus, phosphorous oxychloride, phosphorus and phosphoric acids, structural formulæ.

Neutralisation. Equivalent weight of acids, bases and salts. Normal solutions. Acid, basic and normal salts. Water of crystallisation.

Boron: Boric acid, borax.

Silicon: Silica, silicon tetrafluoride, sodium silicate, glass.

Carbon: Allotropy, elementary knowledge of the distillation of wood and coal, carbon monoxide and dioxide, carbon disulphide, calcium carbide, cyanogen, hydrocyanic acid, potassium cyanide, ferro-cyanide.

An elementary course in Organic Chemistry, methane, ethane, (Homologous series) petroleum, ethylene, acetylene, methyl chloride, chloroform, carbon, tetrachloride, methyl alcohol, ethyl alcohol, glycerol, ether, formaldehyde, cane sugar, starch, cellulose, formic acid, acetic acid, acetone, ethyl acetate; oils and fats, proteins (egg albumin and casein), benzene, naphthalene, phenol, benzaldehyde, benzoic acid and salicylic acid.

Combustion, elements of gas analysis

General methods of determining equivalent weights, atomic weights and molecular weights.

Chief sources, preparation, properties, and use of the following metals :—

Sodium, potassium, copper, silver, gold, magnesium, calcium, strontium, barium, zinc, mercury, aluminium, tin, lead, arsenic, chromium, manganese and iron.

The preparation and properties of the more important compounds of the above metals.

Elementary knowledge of the periodic classification of elements

Students are expected to have a knowledge of the process of manufacture of the following :—

Hydrochloric, nitric and sulphuric acids, aluminium, gold, iron, lead, zinc, sodium hydroxide, sodium carbonate.

Practical.—Cutting, bending and drawing out glass tubing.

Preparation and study of the properties of hydrogen, oxygen, chlorine, hydrogen chloride, ammonia, nitrous and nitric oxides, nitric acid, sulphur dioxide, boric acid, alum, and ferrous ammonium sulphate. Composition by volume of air, ammonia and sulphur dioxide.

Density of carbon dioxide.

Solubility of solids in water. Solubility curves.

Equivalent weight of a metal (magnesium, iron, lead or aluminium).

Acidimetry and alkalimetry—estimation of acids, sodium hydroxide, sodium carbonate.

Simple exercises on the use of standard solutions of permanganate, thiosulphate and iodine. Volumetric analysis.

Qualitative analysis of simple salts.

Books for Study

Holmyard : *Inorganic Chemistry* (Arnold).

Mitra, L. M. : *Text-Book of Inorganic Chemistry* (Mondal Bros., Calcutta).

Albuquerque : *Intermediate Practical Chemistry* (Basel Mission Press, Mangalore).

Sharma, R. V. : *Intermediate Practical Chemistry* (Jupiter Publishing Co., Madras).

Note.—(i) The course in practical work should closely follow the study of the theoretical portions in the lecture classes.

(ii) The course in Chemistry should consist of two lectures per week of one hour each and one practical lesson per week of two and a half hours.

(4) BIOLOGY

(a) *Elementary Botany*—

A study of the parts of a flowering plant. Root and shoot systems.

Work of the roots, stem and leaves. Form and structure of the parts as suited to function. An elementary knowledge of transpiration, photosynthesis, respiration. Behaviour of parts of plants to gravity and light.

Flowers.—Arrangement, parts and their functions, pollen and ovule, cross and self-pollination, fertilisation and dispersal of fruits and seeds.

Life-history of the following plants :—

Chlamydomonas, Ulothrix, Spirogyra, Bacteria, Cystopus, Mucor, Agaricus, Riccia, Marchantia, Moss, Adiantum, Selaginella and Cycas.

(b) *Elementary Zoology*—

A study of the important features in the structure, functions and development of the following forms :—

(1) Amœba, (2) Polystomella, (3) Lithocircus, (4) Euglena, (5) Compromonas, (6) Volvox, (7) Monocystis, (8) Paramœcium, (9) Vorticella, (10) Stylonychia, (11) Opalina, (12) Hydra, (13) Obelia, (14) Earthworm, (15) Starfish, (16) Fresh water Mussel, (17) Prawn, (18) Cockroach, (19) Amphioxos, (20) Dog Fish, (21) Frog, (22) Rabbit.

The practical work will include a thorough examination of the microscopical preparations of the organisms, and their complete dissections and preparations of slides. A knowledge of the skeleton will be required.

(c) *General*—

Minute structure and division of cells and nuclei. Spermatogenesis and oogenesis in frog and earthworm. Reduction, division and formation of micro and megaspores in onion.

Food—

(1) Of plants—ordinary plant ; beans, cuscuta, sandal.

(2) Of animals—solid, liquid. Derived from plants or animals ; consequent adaptations in animals, mouth with teeth or sucking apparatus, weapons for attack, etc.

Defence and attack—

(1) Plants—Acacia thorns, nettles, hairs, insectivorous plants.

(2) Animals—Claws, tusks, shields, poison, etc.

Interdependence of organism collectively and individually.

Carbon dioxide from animals used by plants ; insects pollinating flowers, and animals dispersing fruits and seeds. Animals depending on plants for food.

Plants depending on plants, leguminous nodules, nostoc, lichens, sandal.

Animals depending on animals.

Hermit crab, sea anemone and crab. Head louse, Flea, Tape worm.

Symbiosis, parasitism.

Adaptation to environments—

(1) Plants—Xerophytic, Hydrophytic, Littoral vegetation, Lithophytic.

(2) Animals—Tadpole and frog, web foot in swimming, birds, fins, bats, whale, etc. Colour in animals and plants.

Sex—

Hermaphrodite

Unisexual	{	Monœcious	} Examples from animals and plants.
		Diœcious	

Polygamous.

Reproduction—

Vegetative, parthenogenesis, sexual (examples from plants and animals). Alternation of generation. Races. Varieties. Species. Basis of classification. Simple examples of cross breeding—Pea, fowl. Mendelism—Simple. 1 : 2 : 1 or 3 : 1 ratio. Geographical distribution. Multiplication of individuals. Checks. Struggle for existence. Natural selection. Mutation—*Oenothera*. Evolution. Evidence in support. Usefulness of a knowledge of Biology.

Books for Study

1. James G. Needham : *General Biology*.
2. T. J. Parkar : *Lessons in Elementary Biology*.
3. J. A. Thompson : *The Science of Life*.
4. R. E. Lloyd : *An Introduction to Biology*.
5. T. J. Parker and W. A. Haswell : *A Manual of Zoology*.

(5) BOTANY

1. Living and non-living things and their main features organic and inorganic substances.

Plants and animals : differences and resemblances ; similarity of vital functions such as feeding, respiration, movement, response to stimuli and reproduction.

2. The green leaf : its external and internal structure ; photo-synthesis ; transpiration ; leaf form and internal structure as well suited to carry on the above two functions. Adaptations to facilitate and check transpiration, leaf adjustments to light, phototropism. Arrangement of the leaves on the plant. Struggle for light among plants. Climbing plants and epiphytes. General leaf forms. Stipules and their work. Modifications of leaves and stipules.

3. Root : its external form, internal structure ; work of roots—absorption and fixation—root cap, root hairs, region of root hairs ; work of root hairs ; osmosis. Root pressure. Study of the soil. Its structure and nature of the soil in relation to the water contents. Branching of the roots, elongation and growth of roots in thickness. Different kinds of roots ; modification of roots ; response of roots to gravity, light and water.

4. Stem : internal structure ; work of the stem—supporting and conducting. Path of the sap current ; intercellular spaces, lenticels ; increase of stem in thickness ; cork formation, sap wood and heart wood ; modification of stems, response of the stem to gravity and light. Stems of water plants

5. Flowers : parts of a flower ; functions of different parts ; pollen grains ; pollen tube, ovule ; egg cell ; fertilisation. Seed formation. Parts of a seed. Arrangements of the parts of a flower ; insect visitors ; cross and self-pollination. Advantages of cross pollination : adaptations for cross pollination ; wind pollination and inconspicuous flowers. Inflorescences. Seeds ; fruits ; kinds of fruits, seed and fruit dispersal and its advantages : struggle for existence. Survival of the fittest ; variety, species, heredity and evolution.

Study of the following families : Anonaceæ, Magnoliaceæ, Mælvaceæ, Leguminosæ, Myrtaceæ, Rubiaceæ, Compositæ, Convolvulaceæ, Solanaceæ, Acanthaceæ, Labiateæ, Euphorbiaceæ, Liliaceæ, Amaryllidæ, Palmæ.

Some plant products—Starch, oils, sugars, alkaloids, gums, resins, coutchouc, fibres, the plants and the parts of the plant producing them.

6. Apex of the stem and the root. Meristem, cell structure cell division ; changes seen in the cell contents and the nature of the cell wall.

Life-history : Chlamydomonas ; structure locomotion, all the life functions carried out by the single cell. A brief account of volvocales : origin of sex, increase in plant body and division of labour. Origin of Soma. Ulothrix. Spiragrya, Fucus. Simplest land plants such as Liverworts, Mosses, Ferns, Lycopods, Selaginella and Cyas. Seed plants.

7. Bacteria: structure and life-history, fermentation, enzymes, symbiosis, pathogenic bacteria, fungi—saprophytes, parasites, mucor, phytophthora, yeast plants. Fermentations, parasitic flowering plants, insectivorous plants.

Practical Work.—Students are expected to examine with hand lens the external features of all the plants and to be able to refer the plants to their families. They should be able to prepare free-hand sections of the various parts of the plant body for microscopic examination and identify the prepared slides of the forms mentioned in paras 6 and 7. Special attention must be given to the class experimental demonstrations of the various physiological functions of the plant organs.

Books for Study

1. Strasburger: *A Text-Book of Botany*.
2. Transley: *Elements of Plant Biology*.
3. Ganoug: *Text-Book of Botany*, Parts I and II.
4. K. Rangachari: *A Hand-Book of Botany for India*.
5. Fritch and Salisbury: *Botany for Students of Medicine and Pharmacy*.

Note.—The course of study in Botany shall consist of two lectures per week of one hour each and a practical lesson of two and a half hours per week.

(6) ZOOLOGY

The chief characteristics of living organisms; plants and animals—their resemblances and differences. Elementary knowledge of cell structure and cell division. Elementary facts about different kinds of animal tissues (epithelia, blood, connective tissue, cartilage, bone, glandular tissue, muscle and nervous tissue). Fossils and their significance. Theory of evolution treated in an elementary manner.

A study of the important features in the structure, habits, life-history and mutual relations of the leading types included in the following phyla: Protozoa, Coelenterata, Platyhelminthes, Nematoda, Annelida, Echinodermata, Arthropoda, Mollusca and Chordata. Animals of economic importance will receive greater attention.

The practical work includes a microscopical examination of the organisms, specially prepared slides to illustrate parts or entire structures of the types; dissections of the earthworm, cockroach, fish, frog, lizard, pigeon and rabbit so as to illustrate the principal anatomical characters. A complete examination of the external characteristics of the jelly fish, sea anemone, corals, tape and round worms, a marine worm, centipede, scorpion, house fly, flea, bee, bed bug, butterfly, crab, prawn, fresh-water mussel,

pond snail, sepia, specimens of echinodermata together with a general acquaintance with the more important skeletal features of the vertebrate types, is included.

Books for Study

1. Parker and Haswell : *Manual of Zoology*.
2. Parker and Bhatia : *An Elementary Text-Book of Zoology for Indian Students*.

Books for Reference

1. G. C. Bourne : *Comparative Anatomy of Animals*, 2 volumes.
2. Alexander Meek : *Essentials of Zoology*.
3. J. Graham Kerr : *Zoology for Medical Students*.
4. H. Osborn : *Economic Zoology*.
5. Borradaile : *The Animal and its Environment*.

Note.—The course of study in Zoology shall consist of two lectures per week of one hour each and a practical lesson of two and a half hours per week

(7) GEOLOGY

(a) *Physiography*—

An elementary course of lectures on the following:—

The Earth as a planet ; its general relations to the other members of the Solar system ; hypothesis as to the origin of the Earth ; form, size, and density of the Earth ; its movements and effects.

The atmosphere and the hydrosphere : general considerations such as their composition, temperature and movements. The lithosphere—the chief constituents of the Earth's crust. Condition of the interior of the Earth.

Agents of geological change : the hypogene and epigene agents, manner and results of their action especially as influencing earth sculpture.

Climate : their causes and distribution ; glacial epochs.

(b) *Crystallography and Mineralogy*—

Symmetry : planes and axes of symmetry ; laws of crystallography ; the common holohedral crystal forms and combinations ; Weiss and Naumann's notations.

The chief characteristics of the most important rock-forming minerals ; occurrence and alteration products.

(c) *Petrology*—

Origin and classification of all the more important types of rocks ; their composition and alteration ; general principles of metamorphism.

Mode of occurrence and distribution of rock types in Mysore.

(d) Structural and Field Geology—

Elementary knowledge of structural features exhibited by rock masses such as bedding, dip, strike, folds, faults, cleavage, foliation and joints; construction and interpretation of simple geological maps and sections: relation between geological structure and scenery; water supply.

(e) Stratigraphy and Palæontology—

Stratigraphical classification; the meaning of unconformity and overlay; imperfection of the geological record: fossils, their mode of formation and value in Geology and also in the Biological sciences; the general characteristics of the great systems of stratigraphy in Europe: elementary knowledge of the Geology of India with special reference to the geological history of Mysore; the order of succession of animal and plant life on the surface of the globe.

Practical Work.—Preparation and interpretation of physical and geological maps; and the drawing of sections across them. Identification and description of minerals, rocks and fossils.

Books for Study

1. A. Geike : *A Class Book of Geology*.
2. Rutley : *Mineralogy Revised by Read*.
3. Harker : *Petrology for Students*.
4. Dr. Smeeth : *Geological History of Mysore*.

Note.—The course of study in Geology shall consist of two lectures per week of one hour each and a practical lesson of two and a half hours per week.

(8) GEOGRAPHY

Same as for the Intermediate Examination in Arts.

SCHEME OF EXAMINATION

[*Vide Ordinance 241 (a)*]

(a) Intermediate Examination in Arts**I. English**

				Max. Marks
1.	Poetry and Drama	...	3 hours	70
2.	Prose: Detailed and Non-Detailed	...	"	70
3.	General English	...	"	60

II. Second Language

(1) KANNADA

			Max. Marks
1.	Composition, Non-Detailed Text-Books, and Translation*	3 hours	100
2.	Text-Books for Detailed Study and Grammar	„	100

(2) TELUGU

1.	Composition, Non-Detailed Text-Books and Translation*	3 hours	100
2.	Text-Books for Detailed Study and Grammar	„	100

(3) TAMIL

1.	Composition, Non-Detailed Text-Books and Translation*	3 hours	100
2.	Text-Books for Detailed Study and Grammar	„	100

(4) URDU

1.	Composition, Non-Detailed Text-Books and Translation*	3 hours	100
2.	Text-Books for Detailed Study and Grammar	„	100

(5) HINDI

1.	Non-Detailed Text-Books and Transla- tion†	3 hours	100
2.	Detailed Text-Books and Grammar	„	100

(6) FRENCH

1.	Texts, Grammar and Translation	3 hours	100
2.	Texts and Grammar	„	100

	Max. Marks
* Composition and non-detailed Text-Books	75
Translation from English to the Second Language	25
† Composition on non-detailed Text-Books	75
Translation from English into Hindi	75

(7) SANSKRIT

				Max. Marks
1.	Translation and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(8) PERSIAN

1.	Translation and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(9) LATIN

1.	Texts, Grammar and Translation from English into Latin	... ..	3 hours	100
2.	Texts and Grammar	... ..	„	100

III. Optional Subjects

(1) SELECTED LANGUAGE

(a) Old and Middle Kannada

1.	Composition and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(b) Modern Kannada

1.	Composition and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(c) Telugu

1.	Composition and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(d) Tamil

				Max. Marks
1.	Composition and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(e) Urdu

1.	Composition and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(f) Sanskrit

1.	Translation and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(g) Persian

1.	Translation and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(h) Arabic

1.	Translation and Non-Detailed Text-Books	... ..	3 hours	100
2.	Text-Books for Detailed Study and Grammar	... ..	„	100

(i) Hindi

1.	Non-Detailed Text-Books and Translation	... ..	3 hours	100
2.	Detailed Text-Books and Grammar	... ..	„	100

(2) HISTORY

1.	First Paper—History of Greece and Rome.	3 hours	100
2.	Second Paper—History of Britain	„	100

(3) GEOGRAPHY

				Max. Marks
1.	Paper I—The Physical Basis of Geography	... ..	3 hours	100
2.	Paper II—Regional Geography of the World	... ..	3 hours	100

(4) LOGIC AND SCIENTIFIC METHOD

1.	First Paper (Deductive Logic)	... ..	3 hours	100
2.	Second Paper (Scientific Method)	... ..	„	100

(5) ECONOMICS

1.	First Paper (Modern Industry)	... ..	3 hours	100
2.	Second Paper (Economic History of England)	... ..	„	100

(6) MATHEMATICS

1.	Algebra and Calculus	... ..	3 hours	100
2.	Trigonometry and Geometry	... ..	„	100

(7) PHYSICS

1.	First Paper	... ..	3 hours	100
2.	Second Paper	... ..	„	100

(8) CHEMISTRY

1.	First Paper	... ..	3 hours	100
2.	Second Paper	... ..	„	100

(9) BIOLOGY

1.	First Paper	... ..	3 hours	100
2.	Second Paper	... ..	„	100

(b) Intermediate Examination in Science**I. English**

				Max Marks
1. Poetry and Drama	...	...	3 hours	70
2. Prose: Detailed and Non-Detailed	...	...	"	70
3. General English	...	...	"	60

II. Second Language**(1) KANNADA**

Composition, Non-Detailed Text-Books and Translation*	...	3 hours	100
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(2) TELUGU

Composition, Non-Detailed Text-Books and Translation*	...	3 hours	100
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(3) TAMIL

Composition, Non-Detailed Text-Books and Translation* ...	...	3 hours	100
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(4) URDU

Composition, Non-Detailed Text-Books and Translation* ...	...	3 hours	100
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(5) HINDI

Non-Detailed Text-Books and Translation†	3 hours	100
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(6) FRENCH

Texts, Grammar and Translation from English into French and from French into English ...	...	3 hours	100
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(7) SANSKRIT

Translation and Non-Detailed Text-Books	3 hours	100
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	Max. Marks
* Composition and Non-detailed Text-books	75
Translation from English to the Second Language	25
Composition on Non-detailed Text-books	75
† Translation from English into Hindi	25

(8) PERSIAN

Translation and Non-Detailed Text-Books	3 hours	100
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(9) LATIN

Texts, Grammar and Translation from English to Latin		3 hours	100
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III. Optional Subjects

(1) MATHEMATICS

			Max Marks
1	Algebra and Calculus	 3 hours	100
2.	Trigonometry and Geometry	 „	100

(2) PHYSICS

1.	First Paper	 3 hours	100
2.	Second Paper	 „	100

(3) CHEMISTRY

1.	First Paper	 3 hours	100
2.	Second Paper	 „	100

(4) BIOLOGY

1.	First Paper	 3 hours	100
2.	Second Paper	 „	100

(5) BOTANY

1.	First Paper	 3 hours	100
2.	Second Paper	 „	100

(6) ZOOLOGY

1.	First Paper	 3 hours	100
2.	Second Paper	 „	100

(7) GEOLOGY

1.	First Paper	 3 hours	100
2.	Second Paper	 „	100

(8) GEOGRAPHY

1.	Paper I—The Physical Basis of Geography	 3 hours	100
2.	Paper II—Regional Geography of the World	 „	100

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinances 68 and 69]

B.A. DEGREE EXAMINATION

CONDITIONS OF ADMISSION*

[*Vide* Ordinance 12]

COURSES OF STUDY (GENERAL)

[*Vide* Ordinances 76 to 78]

COURSES OF STUDY (DETAILED)

[*Vide* Ordinance 240 (b)]

I. Compulsory English

The same Text-Books shall be set for the B.A. and the B.Sc.

II. Second Language

(1) KANNADA

Text-Books in Modern Kannada shall be prescribed.

(2) TELUGU

Books set for non-detailed study shall consist of—

(a) One selection from the *Mahabharatamu* or other early classics.

(b) One selection from the mediæval poets, and

(c) One modern prose work.

The examination shall comprise such tests as epitomisation and expansion and partly of subjects for composition drawn from the subject-matter of the prescribed text-books.

(3) TAMIL

Composition based on prescribed Text-books.

(4) URDU

Composition based on prescribed Text-books.

* No one is allowed to enter for the B.A. Degree Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

(5) HINDI

- (a) Composition on prescribed text-books in Modern Hindi
- (b) Translation from English to Hindi.

Note.—Answers shall be written in Devanagari Script.

(6) SANSKRIT

The course of study shall comprise—

- (1) Classical Prose.
- (2) One prescribed drama.
- (3) Translation exercises from Sanskrit to English and from English to Sanskrit.

The passage for translation into English will be selected from the prescribed text-books.

(7) PERSIAN

The prescribed books shall comprise Prose and Poetry. The examination shall comprise questions on Prose and Poetry and passages for translation from Persian into English and *vice versa* to be selected from the prescribed text-books.

(8) ARABIC

- (1) Prescribed books—Poetry and Prose.
- (2) Translation.

The examination shall comprise questions on the prescribed texts and passages for translation from Arabic into English and *vice versa*.

(9) FRENCH

The course of study shall comprise—

Prescribed texts; grammar; translation from English into French and from French into English. Passages for translation from French into English shall be chosen from the prescribed texts.

(10) LATIN

The course of study shall comprise—

Prescribed texts, grammar and translation from English into Latin.

III. Optional Subjects

(1) ENGLISH

The course of study shall comprise—

- (1) Drama,
- (2) Poetry, and
- (3) Prose.

(2) KANNADA

The course of study shall comprise—

- (1) Poetry, including Poetics and Prosody.
- (2) Prose and Drama, including Dramaturgy.
- (3) History of Language and History of Literature—a general view.

Text-Books to be prescribed in Poetry, Prose and Drama.

Kannada Kaipidi to be the Text-Book for Poetics (including Dramaturgy and Prosody), History of Language and History of Literature.

Note.—Modern Kannada not to be included under Vernacular.

(3) TELUGU

The course of study shall comprise—

- (1) Study of set books representative of the several periods of Telugu Literature.
- (2) History of Telugu Literature with special reference to set books.
- (3) History of Telugu Language as illustrated by the set books.
- (4) Elements of Telugu Grammar including Prosody and Poetics.
- (5) Composition and Translation.

(4) TAMIL

The course of study shall comprise—

- (1) Poetry, including Grammar, Poetics and Prosody.
- (2) Prose and Drama including Dramaturgy.
- (3) History of Language and History of Literature.
- (4) Translation into English and *vice versa*.

(5) URDU

The course of study shall comprise—

- (1) Urdu Prose, Urdu Poetry.
- (2) Grammar, Rhetoric, Prosody, History of Literature.
- (3) Translation from English into Urdu and *vice versa*.

Note.—An Elementary knowledge of either Persian or Hindi is compulsory.

(6) SANSKRIT

(i) SAHITYA—CLASSICAL LITERATURE AND CRITICISM.

The course of study shall comprise—

- (1) Classical Prose.—Selection from the works of Dandi, Bana, Subandhu, etc.

(2) Classical Poetry.—Selections from the works of Kalidasa, Bharavi, Magha, etc.

(3) One prescribed Drama and Poetics.

Note.—Students are expected to possess a knowledge of the elements of Prakrit, Grammar and Dramaturgy.

(4) Grammar including a select portion of *Siddhanta Kaumudi*.

(5) History of Classical Literature and Criticism with special reference to books prescribed under (1), (2) and (3).

(ii) VEDIC STUDIES.

The course of study shall comprise—

(1) Selections representative of the several stages of Vedic Literature: Mantras, Brahmanas and Sutras.

(2) Vedic Grammar.

(3) History of Vedic Literature with special reference to books prescribed under (1).

(iii) DARŚANAS—PHILOSOPHICAL LITERATURE

The course of study shall comprise—

(a) Selections representative of earlier philosophical literature: Upanishads or Epics.

(b) Selections representative of the Vedānta (one of the three schools) and one other philosophical system.

(c) Elements of Tarka according to prescribed text-book.

(d) History of Indian Philosophy with special reference to the books prescribed.

(7) PERSIAN

The course of study shall comprise—

(1) Prose containing Fiction, Drama.

(2) Poetry.

(3) History of Language and Literature.

(4) Rhetoric, Prosody and Grammar.

Note.—An elementary knowledge of Arabic is recommended.

(8) ARABIC (CLASSICAL)

The course is the same as for Persian Optional.

(9) AVESTAN AND PAHLAVI (CLASSICAL)

The course is the same as for Persian Optional.

(10) HINDI

The course of study shall comprise—

(1) Prescribed text-books.

(2) History of Language and Literature.

(3) Translation from Hindi into English and *vice versa*.

Note.—An elementary knowledge of either Sanskrit or Urdu (as a non-examination subject) is recommended.

(11) HISTORY

The course of study shall comprise:

(i) History of India to 1300

Or

History and Culture of Islam to 1258

(ii) History of India from 1300 to 1920

(iii) History of Europe from 1500 to 1920

(i) AND (ii). HISTORY OF INDIA

An advanced study of the main currents of Political History, with outlines of the outstanding topics of Cultural History.

Books for Study

1. *The Cambridge Shorter History of India.*
2. Moreland and Chatterji : *Short History of India.*
3. Tarachand : *History of India*
4. Sathianathier : *A College Text-Book of Indian History.*
5. Vincent Smith : *The Early History of India*
6. Ishwari Prasad : *Short History of Muslim Rule in India.*
7. Roberts : *History of British India.*
8. *An Atlas of Indian History* (Macmillan).

Books for Reference

1. Mazumdar : *Outlines of Ancient Indian History and Civilization.*
2. Masson Oursel : *History of India* (History of Civilization Series).
3. Havell : *History of Aryan Rule in India.*
4. Mackay : *Indus Civilization.*
5. Raychaudhuri : *Political History of Ancient India.*
6. Krishnaswamy Aiyangar : *Ancient India.*
7. Lane-Poole : *Medieval India under Muhammadan Rule*
8. Ishwari Prasad : *History of Mediæval India.*
9. Edwards and Garrett : *Mughal Rule in India.*
10. Sardesai : *Main Currents of Mahratta History.*
11. Garrett and Thomson : *Rise and Fulfilment of British Rule in India.*
12. *Mysore Gazetteer*, Vol. II, Part I.

(iii) HISTORY OF EUROPE FROM 1500 TO 1920.

Books for Study

1. Grant : *A History of Europe.*
2. Plunket and Mowat . *History of Europe.*
3. Hollings : *Europe in Renaissance and Reformation.*
4. Johnson : *The Age of the Enlightened Despot*
5. Marriott : *The Remaking of Europe*
6. Hazen : *Modern European History.*
7. Herbert : *Modern Europe 1789-1939.*
8. Robertson and Bartholomew : *Historical Atlas of Modern Europe.*

Books for Reference

1. Fisher : *History of Europe.*
2. Southgate : *Modern European History.*
3. Grant and Temperley : *Europe in the 16th Century.*
4. Ogg : *Europe in the 17th Century.*
5. Wakeman : *The Ascendancy of France.*
6. Hassall : *The Balance of Power.*
7. Stephens : *Revolutionary Europe.*
8. Rose : *Revolutionary and Napoleonic Era.*
9. Ketelbey : *History of Modern Times.*
10. Alison Phillips : *Modern Europe.*

(iv) HISTORY AND CULTURE OF ISLAM TO 1258

Books for Study

1. Shustery : *Outlines of Islamic Culture.*
2. Ameer Ali : *A Short History of the Saracens.*
3. Ameer Ali : *Spirit of Islam.*
4. Von Kremer : *Orient under the Caliphs* (Tr. Khuda Buksh)
5. Wellhausen : *Arab Kingdom and its Fall.*
6. Sherwani : *Studies in Early Islamic Political Thought and Administration.*

Books for Reference

7. Le Strange : *Lands of the Eastern Caliphate.*
8. Lane-Poole : *Mahomedan Dynasties.*
9. Arnold : *Legacy of Islam.*
10. Khuda Buksh : *Islamic Civilization.*
11. Zaidan : *Umayyads and Abbasids.*
12. Muir : *Caliphate, its Rise, its Decline and Fall.*
13. Scott : *History of the Moorish Empire in Europe.*
14. Hitti and Murgotten : *Origin of the Islamic State.*
15. Hell : *Arab Civilization.* (Tr. Khuda Buksh).
16. Spruner : *Historical Atlas.*

(12) GEOGRAPHY

The course of study shall comprise—

I. REGIONAL GEOGRAPHY

(a) INDIA.

A study of the setting, or space relations of the country, its physical and structural evolution including its soil and mineral resources, its climatic condition and natural vegetation leading to the division of the country into several distinct natural regions or environments, with correspondingly different human responses as shown by the population, its distribution, occupations, racial and social characteristics, etc.

A detailed consideration of each of the several natural regions distinguished above with special reference to the nature of the physical and other factors involved, and of the human responses to them.

Relation between geographical regions and political divisions. Frontiers.

(b) ANY TWO OF THE CONTINENTS : EUROPE, NORTH AMERICA AND ASIA.

Books for Study and Reference

1. Indian Science Congress Association : *Field Sciences of India*.
2. Austey : *Trade of the Indian Ocean*.
3. *Imperial Gazetteer* : Volumes I to IV and XXVI.
4. Dudley Stamp : *Asia : An Economic and Regional Geography* (Longmans).
5. Lyde : *Asia* (Macmillan).
6. Lyde : *Europe* (Macmillan).
7. Rodwell Jones : *North America*.
8. Bartholomew : *The Oxford Advanced Atlas*.
9. Philip : *The University Atlas*.

II. Any one of the following :—

- (i) History of Geographical Knowledge
- (ii) Historical and Political Geography.
- (iii) Economic Geography.
- (iv) Anthropo Geography and the Distribution of Man.

(i) HISTORY OF GEOGRAPHICAL KNOWLEDGE

1. Early discoveries of Egyptians, Greeks, Phœnicians, Arabs, northern and mediæval travellers.

2. "The Age of Exploration and Discovery"—Prince Henry the Navigator—The Levant Trade—Sea route to India—Bartholomew Diaz—Columbus—Vasco da Gama—Vespucci—Drake—Magellan—North-East and North-West Passages.

3. Later explorations and discoveries—The Pacific, Australia and New Zealand. Explorations in the interior of South America, Australia and Africa, pioneering in North America—Marco Polo, Cook, Dampier, Livingstone, Burton, etc.—North and South Poles—Charting of the seas and climbing of the heights.

Books for Study and Reference

Baker: *A History of Geographical Discovery and Exploration.*

Spilhouse: *Background of Geography.*

Dickinson and Howrath: *The Making of Geography*

(ii) HISTORICAL AND POLITICAL GEOGRAPHY

(a) *Historical*: Geographical conditions which have influenced civilization and political life.

Ancient Times—Babylonia and Assyria, Egypt, Persia, India, Greece, Rome, Palestine and the Jews.

Modern Times—England, United States of America, Germany and Japan.

(b) *Political*: The State in its geographical relations, location, extent and resources of its territory, communications, frontiers, capitals, metropolitan cities

Political *versus* ethnic and linguistic units.

Backward regions, dependencies, protectorates, mandated territories.

Indian nationals abroad.

Books for Study and Reference

1. Febvre: *Geographical Introduction to History.*

2. George: *Relation of Geography and History.*

3. Short and Bowman: *Geo-Politics.*

4. Fawcett: *Political Geography of the British Empire.*

5. Valkenburg: *Political Geography.*

(iii) ECONOMIC GEOGRAPHY

The scope of Economic Geography, man and his environment, the significance of geographical control, the principal natural regions of the world and their main characteristics

Study of commodities dependent directly or indirectly on climate and soil; conditions affecting their growth, distribution and trade.

(a) Food Crops: Cereals—wheat, barley, rye, oats and rice; tea, coffee, cocoa, tobacco, spices, sugar and fruits.

(b) Raw materials of industry: cotton, silk, jute, flax, rubber, timber, and other forest products.

(c) Live-stock and animal products : Cattle, sheep and pigs ; beef, mutton, and pork ; hides and skins ; furs and wool ; fisheries, methods of farming, the impact of science on agriculture, irrigation, mechanised farming and scientific breeding, the advent of synthetic products.

Distribution of minerals and sources of mechanical power, iron and other principal metals, coal, oil and electricity.

The main features of modern economic organization, mass production, division of labour, localisation

Transport and communication, the principal trade routes of the world on land, sea and air

The development and course of national and international trade and its dependence upon geographical conditions, tariff and customs duties. Factors determining the growth of industrial and commercial towns.

Books for Study and Reference

1. McFarlane : *Economic Geography* (Pitman).
2. Russel Smith : *Industrial and Commercial Geography* (Constable & Co.).
3. Chisholm and Stamp : *Handbook of Commercial Geography*.
4. Zimmerman : *World Resources and Industries* (Harper).

5. ANTHROPO-GEOGRAPHY AND THE DISTRIBUTION OF MAN.

Classification of mankind into races— anthropometric data, blood groups.

Origin and development of man, Darwinian Theory, Pithecanthropus Erectus, Piltdown Man, Sinanthropus, etc.

Development of cultures through the ages. Centres of civilisation and culture. Spread and contact of cultures.

Present distribution of mankind. Distribution of languages and races. Rural and urban populations. Human migrations.

Books for Study and Reference

1. Haddon : *Races of Man*.
2. Smith : *Human History*.
3. Kene : *Man, Past and Present*.
4. Huntingdon : *Human Habitat*.
5. Hutchinson : *Living Races of Mankind* : 2 volumes.

PRACTICAL EXAMINATION

(1) Interpretation of Topographic maps of India, Great Britain, France, Germany and U.S.A.

(2) Elementary Surveying including chain, prismatic compass, plane table and theodolite.

(3) Elementary map projections—simple conical 1 and 2 standards, Bonne, Polyconic, International, Cylindrical—Equidistant, Equal area and Orthomorphic. Azimuthal—with pole as centre, equidistant, equal area, orthomorphic. Mollweide, Sinusoidal.

Only graphical methods of solutions will be expected.

(4) Interpretation of weather maps.

(5) Methods of determination of latitude and longitude.

(6) Land utilisation maps prepared by the candidates should be submitted :

(a) Geographic patterns of human settlement.

(b) Mapping the actual physical environment.

(c) Preparation of land utilisation maps.

(d) Study tours to places of Geographical interest.

(13) ECONOMICS

The course of study shall comprise—

(1) General Economics I— Consumption, Production, Theory of Value and Distribution.

(2) General Economics II— Currency and Banking, International Trade and Public Finance.

(3) Elements of Statistics.

Or

Recent Economic History of India.

Note.—In respect of General Economics, knowledge shall be expected of Indian conditions.

The following is the detailed course of study in Economics :

(1) GENERAL ECONOMICS I—

Scope and method of Political Economy. Economic Institutions. Theory of Production, Consumption, Value, and Distribution. State in relation to economic life.

Books for Study

1. Marshall : *Economics of Industry*.
2. Clay : *Economics for the General Reader*.
3. Henderson : *Supply and Demand*.
4. Silverman : *Substance of Economics*.
5. Cannan : *Review of Economic Theory*.
6. Gray : *Development of Economic Doctrines*.
7. Saltan : *Economic Functions of the State*.
8. Dobb : *Wages*.

(2) GENERAL ECONOMICS II—

Money and Banking. International Trade and Public Finance.

Books for Study

1. Robertson : *Money*.
2. *The Macmillan Report*.
3. Todd : *Mechanism of Exchange*.
4. Barret Whale : *International Trade*.
5. Dalton : *Public Finance*.
6. Stamp : *Fundamental Principle of Taxation*.
7. Clay : *Economics for the General Reader*.
8. Silverman : *Substance of Economics*.

(3) ELEMENTS OF STATISTICS—

Statistical Method (not pre-supposing a knowledge of Mathematics higher than the School Final standard) : Definitions of data, tabulation, averages, graphic methods, measures of dispersion, analysis of time series illustrated by statistics of production consumption, trade, prices, wages, etc., in India. A study of the statistical organisation in India is essential.

Books for Study

1. Conner : *Statistics in Theory and Practice*.
2. Mills : *Statistical Methods*.
3. Rhodes : *Elementary Statistical Methods*.
4. Bowley : *Measurement of Social Phenomena*.
5. *Report of the Visvesvaraya Economic Inquiry Committee*.
6. *The Salter Report on an Economic Advisory Organisation for India*.
7. *The Bowley-Robertson Report on the Economic Census for India*.
8. *Indian Census, 1931, Vol. I, Part I*.
9. *The Statistical Abstract for British India*.

(4) RECENT ECONOMIC HISTORY OF INDIA—

A general survey of the economic development of India in the modern age and an analysis of her principal economic problems.

Books for Study

1. Gadgil : *Industrial Evolution of India*.
2. Vera Anstey : *Economic Development of India*.
3. Knowles : *Economic Development of the Overseas Empire*, Volume II.
4. Jathar and Beri : *Indian Economics*, Vols. I and II.

(14) POLITICS

The course of study shall comprise—

- (1) Comparative Politics.
- (2) Political Theory.
- (3) Public Administration.

The following is the detailed course of study in Politics :—

(1) COMPARATIVE POLITICS—

I. The Origin of the State. The Family. Patriarchal and Matriarchal Theories. The Village Community, Political Integration and Political Differentiation.

II. The Ancient City State: its beginnings: course of evolution and decay as illustrated by Sparta, Athens and Rome. Federal Experiment in Greece.

III. The Roman Empire

IV. Mediæval Polity. The Teutonic Tribal State. The Holy Roman Empire. The Papacy. Feudalism. Mediæval Representative Institutions. Mediæval City States.

V. Absolute Monarchy and the Transition to the Modern State.

VI. The Modern National Democratic State

(a) The Federal State: its chief characteristics.

(b) Separation of Powers—The Legislature, the Executive and the Judiciary; their organisation and working.

Local Government, constitution and working.

(c) Sovereignty of the people:

(1) The Franchise, Electoral Methods and Minority Representation.

(2) Referendum, the Initiative and the Recall.

(3) Party Government.

(d) Recent tendencies; weakening of the faith in democracy, and the growth of dictatorships.

(e) The League of Nations.

Books for Study

1. Sidgwick: *Development of European Polity.*
2. Strong: *Modern Political Constitutions.*
3. Gilchrist: *Principles of Political Science.*
4. G. D. H. Cole: *A Guide to Modern Politics*

Books for Reference

1. Greenidge: *Greek Constitutions.*
2. Greenidge: *Roman Public Life.*
3. Bryce: *Modern Democracies.*
4. Finer: *Theory and Practice of Modern Government.*
5. Ogg: *English Government and Politics.*
6. Ogg: *Góvernment of Europe.*

7. Sapre : *Indian Administration*.

8. Kale : *Indian Administration*.

(2) POLITICAL THEORY—

1. Nature and scope of Political Science (relation of Politics to other social sciences ; methods of study).

2. Fundamental conceptions of Politics : The State Nationality and Nation ; Sovereignty ; Government ; Law Rights ; Liberty ; Equality ; Citizenship.

3. Origin of the State ; Divine right theory ; Social contract theory ; Organic theory.

4. Functions of Government ; Individualism ; Paternalism and Socialism.

5. History of Political Thought (a brief survey of political thought from Plato to the present times).

Books for Study

1. Leacock : *Elements of Political Science*.
2. Gettell : *Introduction to Political Science*.
3. Gilchrist : *Principles of Political Science*.

Books for Reference

1. Laski : *Grammar of Politics*.
2. Garner : *Introduction to Political Science*.
3. Sidgwick : *Elements of Politics*.
4. Willoughby : *Nature of the State*.
5. Dunning : *Political Thought* (three volumes and the Commemoration Volume).
6. Coker : *Recent Political Thought*

(3) PUBLIC ADMINISTRATION—

1. Introductory . Public Administration, what it means ; its scope ; importance of the study of public administration.

2. Theory of separation of powers ; the political and administrative functions of Government.

3. The political branch of the administration ; organization and powers of the Executive.

4. The central administration : History and organization of departments. The permanent services, organization and working. Relation between the political and administrative services.

5. Local government : History and organization of local governments. Local finance. Relation between local and central governments.

6. Public administration and industry.

7. Rights and duties of public servants.

8. Control over the administration : Administrative. Legislative and Judicial control.

Book for Study

1. Goodnow : *Comparative Public Administration*.

Books for Reference

1. Willoughby : *Principles of Public Administration*
2. Ghose : *Public Administration in India*.
3. Ghose, N. : *Comparative Administrative Law*.
4. Poincare : *How France is Governed*.
5. Harris : *Local Government in Many Lands*.
6. *The Monographs in the White Hall Series*.

(15) PHILOSOPHY

Candidates may select *one* of the following three combinations :—

- (1) Psychology, Ethics, Plato's Republic.
- (2) Psychology and any *two* of the following subjects: Logic, Metaphysics, Indian Philosophy, Philosophy of Religion.
- (3) Psychology (General), Experimental Psychology (Theory) and Experimental Psychology (Practical).

Note.—Candidates appearing from the Maharani's College for Women are permitted to offer Philosophy of Religion as an alternative to Psychology in group (1).

The following is the detailed course of study in the several subjects in Philosophy :

GENERAL PSYCHOLOGY

Introductory : Scope of Psychology—Data and Methods of Purposive Psychology.

Part I—Conative-affective Processes.

Instincts—

The Impulses of Food-seeking, Curiosity, Herd, Sex, Play
Escape, Repulsion, Appeal, Pugnacity, Ostrich and
Laughter.

The definition of Instinct. How far are instincts innate?

The criteria of instincts. Instinct in animals.

The relation between Instinct and Intelligence. The relation
of Pleasure and Pain to Thought and Action.

Emotions—

Relation of Emotions to Instincts. James-Lange Theory of
Emotions.

Blended or Secondary Emotions—Derived Emotions.

Distinction between Feelings and Emotions.

Disposition, Temper, Temperament and Moods.

The Effect of Glands on Personality. Marks of Introver-
sion and Extroversion.

Character—

- The Development of Sentiments and Tastes
- The Organization of Character.
- The Subconscious working of the Mind.

Mental Disorder—

- Amnesia and other Dissociative Disorders.
- Functional Disorders of the Repressive Type
- Compulsion and Obsessions.
- Mental Hygiene.

Part II—Cognitive Processes.**Cognitive Principles of Spearman—**

- Qualitative Laws of Neogenesis.
- Quantitative Principles of Energy, Retentivity and Fatigue
- Application of the Cognitive Principles—
- Attention.
- Nature of Perception. Errors in Perception.
- Perceptual and Conceptual Thinking.
- Analysis of Judgment and Reasoning—Belief and Doubt
- Nature of Intelligence and its Measurement.
- Memory and Imagination.

Part III—Some General Problems.**The Relation between Body and Mind.****Schools of Psychology—**

- Behaviourism *versus* the Purposive School.
- Associationism *versus* the Gestalt.

Books for Study

1. McDougall : *The Energies of Man*.
2. Spearman : *Nature of Intelligence and the Principles of Cognition* (Chapters 4, 5, 7, 9, 12, 13, 16, 19 and 20).
3. Charles Jessild : *Child Psychology*.

Books for Reference

1. Bridges : *Emotional Life of the Child*.
2. Susan Isaac : *Social Development of the Child*.

ETHICS

1. Distinction between Morality and Ethics. Definition and Scope of Ethics.
2. The Relation of Ethics to Psychology, Politics, Jurisprudence, Economics, Sociology and Religion.
3. The place of Reason and Feeling in morality.
4. Fundamental Ethical Concepts: Good, Right, Duty, Obligation, Virtue, Merit.

5. Distinction between Customary and Reflective Morality
The Relation of Custom, Law and Morality in Primitive and Advanced Societies. The Growth of Morality. (Part I, Chapters
6. The Concepts of Moral Order and Progress.
7. Subjective and Objective Rightness.
8. The Moral Judgment.
9. Types of Ethical Theory—
 - (a) Theological Ethics.
 - (b) Hedonism : Psychological and Ethical, Egoistic and Utilitarian.
 - (c) Evolutionary Ethics.
 - (d) Intuitionism : Perceptual, Dogmatic and Philosophical (Sidgwick : *Methods of Ethics*). The Concept of Conscience. Growth of Consciences (Mezes *Ethics—Descriptive and Explanatory*).
 - (e) Ethics of Kant.
 - (f) Ethics of Hegel. The Concept of Sittlichkeit.
 - (g) Ethics of Self-Realization.
10. Moral Standard and Moral Law.
11. Virtues and Vices : Wisdom Temperance, Courage, Justice, Benevolence. Critique of Humility, Pride, Anger, Ambition, Thrift.
12. Distinction between Conduct and Character.
13. Theories of Punishment.
14. The Relation of Ethics and Metaphysics. The problems of Free Will. Immortality of the Soul and the Concept of God in their bearing on Ethics.

Books for Study

1. Mackenzie : *Manual of Ethics*.
2. Dewey and Tufts : *Ethics*, Part I.

PLATO'S REPUBLIC

In the study of this book, its bearing on modern problems should always be borne in mind. In this connection, Joad's *Introduction to Modern Political Theory* may be made use of.

Books for Study

1. Nettleship : *Lectures on the Republic of Plato*
2. Lewis Campbell : *Plato's Republic*.

Books for Reference

Plato's Republic (Jowett's Translation).

LOGIC

1. The Development of Logic with special reference to contemporary schools

2. Thought and Inference—Demonstrative and Problematic Inference Proof and Discovery. Knowledge by Acquaintance and Knowledge by Description.

3. (a) Judgments and Propositions. The Idealistic Doctrine of Judgment. The Characteristics of Judgments: Universality. Necessity: Constructiveness: Truth-claim.

(b) Types of Judgment. Importance of the Negative Judgment.

(c) The Elements of Facts and Propositions. The Subjective Factor in Judgment.

4. (a) Classification of Propositions. The Traditional Classification based on the Subject-Predicate Relation: its defects. The Modern Classification of Propositions and its Peculiarities.

Simple, Compound and General Propositions

(b) The Compound Proposition and the Relations between the Compound Forms. Compound Functions.

(c) The Traditional Forms of Opposition of Propositions. The Modern Sevenfold Relation between Propositions. Different Interpretations of the Square of Opposition.

5. (a) Inference and Implication. The Conditions of Valid Inference. Implication and Deduction.

(b) A General Survey of Immediate Inference and the Syllogism. Deduction and Induction.

6. The Generalisation of Logic.

(a) The Utility of Symbols. Form and Function of Propositions.

(b) Relations. The Logical Properties of Deductive Relations. The System of Propositions and Classes.

(c) The Calculus of Propositions; The Calculus of General Propositions; and the Calculus of Classes.

7. System and Order. The Nature of System. Causal and Non-causal, *i.e.*, Logical Systems or Wholes. The Nature of Order. Similarity and Structure.

8. Scientific Thought and the Scientific Method.

9. Types of Induction. (i) Induction and Generalisation.

(ii) Perfect and Summary Induction. (iii) Intuitive Induction

(iv) Demonstrative Induction. (v) Problematic Induction.

10. The General Nature of Inductive Presuppositions.

11. Indirect Generalisation: (i) General Principles of Causality.

Uniformities and Multiformities. The Commonsense and the Scientific Notion of Cause. Mill's Theory of Causation.

Causation and Regular Sequence.

12. Indirect Generalisation: (ii) Principles of Causal Determination. Mill's Experimental Methods and their Presuppositions. Value of Mill's Methods.

13. Probability and Statistical Methods.
14. Analogy and Hypothesis. Analogy and Direct Induction.
15. The Transition from Logic to Epistemology.

Books for Consultation

1. C A Mace : *Principles of Logic*.
2. L S. Stebbing : *Introduction to Modern Logic*.
3. Eaton : *General Logic*.
4. Bosanquet : *Essentials of Logic*.

METAPHYSICS

1. Metaphysics : Meaning and Scope. Contents of Metaphysics ; the Philosophy of Nature and Mind, and the Philosophy of Values.

2. Relation of Knowledge and Being. Meaning of Reality.

3. Relation of Metaphysics to Logic and Mathematics, Science and History.

4. Methods of Metaphysics (Western and Indian) ; Dogmatism, Empiricism, Rationalism, Scepticism, Criticism, Dialectic.

5. Epistemological Theories. The Categories of Knowledge, Realism, Idealism, Ideal-Realism.

6. Ontological Theories (Western and Indian) : Pluralism, Dualism, Monism.

7. The World, the Soul, the Absolute :—

(i) Philosophy of Nature—

The World. Concepts of Time, Space, Cause, Substance, Matter, Law, Evolution in Nature ; Mechanical and Teleological Evolution. Immanent Finality. The World as a System of Reals.

(ii) Philosophy of Mind—

The Soul. Relation of Mind and Body : Causal Relation Epiphenomenalism, Interactionism, Parallelism, Instrumentalism. Life and Consciousness.

The Nature of Reason.

The Empirical and the Noumenal Self.

The Soul and the Self.

(iii) The Philosophy of Values—

(a) Concepts of the Good, the True, the Beautiful

(b) The Problem of Evil.

(iv) (a) Personality, Individuality.

(b) Theories of the Nature and the Relation of the Individual and the Universal.

(c) Transcendence and Immanence.

- (d) The Meaning and Nature of the Absolute. The Cosmos *sub specie æternitatis*, the Universal Reason.
- (e) The Relation of Metaphysics and Religion. The Idea of God. Deism, Theism, Pantheism, Antitheistic Theories. God as conditioning the World and Soul. God and the Absolute. Relation of God to the Individual. Liberty and Necessity. Future Life and Eternity.

8. Standpoints of Current Philosophical Speculations : Humanism, Pragmatism, Philosophy of Values, Creative Evolution and Philosophy of Change, the New Realism.

Books for Study

1. Patrick : *Introduction to Philosophy*.
2. Taylor : *Elements of Metaphysics*.
3. Durrant : *Mansions of Philosophy*.

INDIAN PHILOSOPHY

I VEDIC PERIOD—

(i) Mantras and Brahmanas—

- (1) Early Vedic Religion. Its Polytheistic Character. Nature of Vedic Gods. Their Philosophical Basis. Emergence of Monotheistic Conceptions.
- (2) Philosophic Monotheism. Pantheistic and Monistic Tendencies.
- (3) General World-outlook characteristic of the period.

(ii) The Upanishads—

- (1) The growth and general character of Upanishadic Literature. Its importance for later Indian Thought.
- (2) *Atman* and *Brahman*, *Maya* or *Avidya* and *Prakriti*.
- (3) *Jiva*. Gross and Subtle Bodies. *Prana*. *Manas*. *Vijnana*. Waking, Dream, Sleep and *Turiya*.
- (4) Origin and Nature of Evil. Conception of *Moksha*. Qualifying Discipline. Place of Morality in the Upanishadic Scheme of Life.
- (5) Upanishadic Religion : Conception of *Isvara*. Creation and Absorption of the World. Classification of Created Things. Doctrine of *Karma*. Its Origin and Value.

II. EARLY POST-VEDIC PERIOD—

- (1) Hinduism : The *Mahabharata* : Different Currents of Thought. Saivism. Vaishnavism. The Metaphysics and Ethics of the *Gita* : *Karma*, *Bhakti* and *Jnana Margas*.
- (2) Early Buddhism : Its positivistic and pessimistic character. Conception of Reality. *Sanghata* (aggregate) and *Santana* (flux). The Law of Change and its importance. Desire as the source of Evil. Mode of annihilating it. *Sila* (right conduct) and *Prajna* (right knowledge). *Nirvana*. Belief in *Karma* Doctrine.
- (3) Jainism : *Jiva* and *Ajiva*. Their Nature and mutual Relation Atomic Theory. Conception of Being. *Syadvada*. *Jaina* Atheism. *Karma* Doctrine. Freedom. Its Means : *Thiri-ratna* : Action, Contemplation and Faith.

III. THE PERIOD OF THE SYSTEMS—SUTRA LITERATURE IDEAS COMMON TO THE SYSTEMS.

Pramanas—

- (1) Charvaka : Perception, the only *Pramana*. Rejection of *Anumana*. Four *Bhutas* Denial of *Atman*. 'Mind only a function of Matter', Hedonistic Ideal of Conduct.
- (2) Later Buddhism. Relation to Early Buddhism. The *Hinayana* Schools. *Vaibhashika*, *Sautrantika*, *Pramanas*. Truth and Error. The Doctrine of the *bahya* world. The *Mahayana* Schools : *Yogachara* and *Madhyamika* Schools. Their distinctive Doctrines of Knowledge.
- (3) Later Jainism with special reference to Theory of Knowledge.
- (4) Nyaya-Vaisesika :—
 - (i) Its Realistic and Pluralistic Character. The Seven Categories. The Nine *Dravyas*. Atomic Theory. Comparison with Jaina view. Causation : *Asatkarya-vada*. *Atman* and its Specific Characteristics. God and His relation to the Universe. *Nanyayika* arguments for His existence.
 - (ii) Theory of Knowledge. Truth and Error. *Pramanas*. Perception : *Nirvikalpaka* and *Savikalpaka*. View of Induction. Comparison with Buddhist view. Inference. The Indian

Syllogism and its distinguishing features. Additional *Pramanas* according to *Nyaya*: *Sabda* and *Upamana*.

- (iii) Its pessimistic attitude towards Life. Evil. The Relation of *Atman* to Evil Release and its Means: *Tattva-jnana*.

(5) Sankhya-yoga :—

- (i) Its Realistic and Dualistic Character. Conception of *Prakriti*. *Gunas*. Evolution. Its Order and Purpose. The *Tattvas* Involution. Causation: *Satkarya-vada*. Conception of *Purusha*. Proofs for Plurality of *Purushas*. Atheism of *Sankhya* Theism of *Yoga*. Proof for the existence of God according to *Patanjali*.
- (ii) Doctrine of *Vrittis*. Truth and Error. *Pramanas*. Perception. Inference. *Sabda*.
- (iii) Its pessimistic attitude towards Life. *Kaivalya* and its Means; *Yoga* and *Jnana*.

(6) Purva-Mimamsa :—

- (i) Meaning of the word *Mimamsa*. Relation between *Purva* and *Uttara-Mimamsas*. Schools of *Purva-Mimamsa*: *Prabhakara* and *Kaumarila*.
- (ii) Its Realism and Pluralism. Comparison with *Nyaya-Vaisesika* Categories. *Atman*. The World an Eternal Process. Denial of a Supreme God. Importance of *Karma*.
- (iii) View of Knowledge. Explanation of Error. *Pramanas*: Perception, Inference, *Sabda* and the Authority of the *Veda*, *Upamana*, *Arthapatti*, *Anupalabdh*.
- (iv) Conception of *Dharma*. *Karma* and its main divisions. *Karma*, *Pratisiddha* and *Nitya*. *Moksha* and the way to secure it.

(7) Vedanta :—

Systematisation of *Upanishadic* Teaching. Its Aim

- (i) *Advaita*.—(1) Significance of the term. *Sankara* and his predecessors: *Gaudapada* and his relation to Buddhism. *Sankara's* Criticism of *Yogachara* and *Madhyamika* Systems. History of *Advaita* subsequent to *Sankara*.

(2) Conception of Knowledge: *Vritti jnana* and *Svarupa jnana*. *Pratibhasika*, *Vyavaharika*, and *Paramarthika*. Reality. Conception of *Sadasadvilakshana*. The World. Causation: Comparison with *Nyaya-Vaisesika* and *Sankhya-Yoga*. Meaning of *Vivarta*. Truth and Error. *Pramanas*. *Jiva*. *Eka-jiva-vada*

and *Anekajiva-vada*. *Saguna* and *Nirguna Brahman*. *Maya* Doctrine and its history. Discipline: *Virakti* and *Upasana*. *Sadhana-chatushtaya*. *Samyag-darsana* or Right Knowledge. *Sakshatkara*. *Jivanmukti*. *Videha-mukti*.

- (ii) *Visishtadvaita*.—*Pramanas*: Perception. Inference *Sabda*. Truth and Error. Distinctive feature of Ramanuja's conception of Unity. *Aprithak-siddhi*. Comparison with Sankara's view. The three *Tattvas*: *Achit*, *Chit* and *Isvara*. *Srishti* and *Pralaya* States. View of Causation. Ramanuja's Criticism of *Maya*. Plurality of Souls. Personality of God. Conception of *Moksha*. Means of securing it: *Karma*, *Jnana*, *Bhakti* and *Prapatti*.
- (iii) *Dvaita*.—Its Realism. *Pramanas*: *Pratyaksha*, *Sakshi-pratyaksha*, *Anumana* and *Sabda*. Truth and Error. *Svatantra* and *Asvatantra* Realities. God, Soul and Nature. Their mutual Relation. *Moksha* and its Means. *Dvaita* Criticism of *Advaita*.

Books for Study.

1. Hiriyantha : *Outlines of Indian Philosophy*.
2. Chatterjee and Datta : *Introduction to Indian Philosophy*.
3. Swamy Prabhavananda : *Vedic Religion and Philosophy*.

PHILOSOPHY OF RELIGION

1. Philosophy of Religion as distinguished from Philosophy, Theology, Comparative Religion and Psychology of Religion.
2. The Psychological Factors involved in Religion. Authority. Revelation.
3. The Relation of Magic and Religion. Mysticism.
4. Evolution of Religion : Animism, Polytheism, Monotheism. Tribal, National and Universal Religions.
5. The Problem of Evil.
6. Proofs of the Existence of God.
7. Meaning of the Immortality of the Soul and its value for Religion.
8. Distinction between Personal and Institutional Religion.
9. Science and Religion.
10. Value of Religion for Human Life.
11. A Brief Survey of the Leading Ideas of the Present Day Religions in India

Books for Study

1. D. Miall Edward : *Philosophy of Religion* (Hodder and Stoughton, London, or George H. Doran Company, New York).
2. Carpenter : *Comparative Religion*.
3. Whitehead : *Science and the Modern World* (Chapter XII).
4. Thouless : *Psychology of Religion (Selections)*.

EXPERIMENTAL PSYCHOLOGY*Part I—Experiments Suitable for Group Testing.*

1. Attention—
Concentration and Distraction of Attention (Betts).
Fluctuations in Attention (Kline).
Auditory Span of Attention.
2. Errors in Observation and Report—
Testimony Value of Individuals (Whipple).
3. Mental Imagery—
Questionnaire Method (Seashore).
Whipple's Test of Ink Blots for Visual Imagination.
Lingual Invention Tests (Whipple)
4. Laws of Association—
Free Association.
Controlled Association.
5. Memory—
Economical Methods of Memorising.
Repetition *versus* Recall (Turner).
Sense *versus* Non-Sense Series.
Concentrated *versus* Distributed Learning (Turner).
6. Perception—
The Interpretative Act in All Perception (Turner).
Illusion in Visual Perception—of Length, Distance, Angle, Curvature (Seashore).
Movement Illusion (Wheeler).
7. Reasoning—
Puzzle Situation for Analysing Inductive Reasoning.
Exercises in Deductive Reasoning—with Concrete *versus* Abstract Propositions.
Errors in Reasoning with Data involving Emotional Bias as compared to similar Data which are Objective.
Avelling's Concept Formation Test—Pictorial Method, Word List Method.
8. Intelligence Tests—
Group Lingual Tests of Intelligence—Opposites, Analogies, Number Completion, and Reasoning.

Group Non-Lingual Tests of Intelligence— Mirror Letters, Pitch.

Discrimination, Form Perception Tests and Grey's Test

9. Emotional Expressions —
Interpretation of facial Expressions of Emotions, with or without the help of names.
Interpretation of Emotional Vocal Expressions.
10. Affective Value of Simple Colours and Musical Notes.
11. Sense of Humour—
Jones Test of Sense of Humour. Ballard's Absurdities Test.
12. Ethical Discrimination—Koh's Tests.
13. Personality and character Traits—
Test of Introversion and Extroversion.
Rating Methods of Character Analysis.

Part II—Experiments Suitable for Individual Work.

1. Attention—
Visual Span of Attention for Non-Sense Letters and Meaningful Material.
Distribution of Attention between two Muscular or Mental Tasks.
2. Suggestion—
Suggestion by Progressive Weights.
The Size-Weight Illusion Test.
3. Laws of Learning—
Trial and Error *versus* Insightful Learning.
Motivation in Relation to Learning—Learning a Step Maze, with and without Punishment for Errors.
4. Conditioned Reflexes—
Conditioning Finger Movements for Verbal Stimuli.
Effect of Interval between Primary and Secondary Stimuli.
Effect of Increasing the Intensity of Primary Stimulus
5. Reaction Time Experiments—
Simple and Choice Reaction (Seashore).
Reaction Time for Controlled and Free Associations.
6. Perceptual Illusions—
Measurement of the Degree of Illusions under varying conditions of Background leading to an Analysis of the Factors which cause the Illusion.
7. Intelligence Tests—
Performance Tests of Intelligence.
The Form Board Tests.
The Picture Completion Test.
The Mirror Directions Test, etc.

8. Fatigue Test—

The Effect of Fatigue on Muscular Co-ordination.
 The Effect of Fatigue on Speed of Mental Association.
 The Effect of Fatigue on Sensory Discrimination.

9. Emotional Reactions—

Measurement of Psycho-galvanic Reflex for Simple
 Sensory Stimuli. Verbal Response for Free Association
 Test.

Books for Study

1. Seashore: *Elementary Experiments in Psychology*.
2. Collins and Drever: *Experimental Psychology*.
3. Foster and Tinker: *Experiments in Psychology*.

(16) SOCIOLOGY

(1) Principles of Sociology—General Principles.

(2) Principles of Sociology—Social Psychology. Indian
 Social Institutions.

(3) Anthropology.

The following is the detailed course of study in the several
 subjects in Sociology:

PRINCIPLES OF SOCIOLOGY

1. Nature and Scope of Sociology. Definition. Divisions.
2. The Relation of Sociology to Biology, History, Psychology, Anthropology, Ethnology, Economics, Ethics, Politics.
3. The Theory of Evolution in Relation to Man.
4. The Growth of Society—
 Zoogenic, Ethnogenic and Demogenic Associations.
 A brief Survey of Civilizations.
5. Factors in the Growth of Social Organisations—
 (a) Physical · Geographic (climate and natural resources
 as determining fundamental occupations).
 (b) Biological: Nutrition and Reproduction. Heredity
 and Environment.
 (c) Psychological.
 (d) Aesthetic.
 (e) Ethical.
 (f) Religious.
 (g) Historical.
6. Types of Social Organization—
 (a) Family: Mtariarchal and Patriarchal.
 (b) Horde, Clan, Tribe, Caste, Race, Nation.
 (c) Political: City State, Country State, Empire, Federation, Nationalism.

- (d) Economic : Communism, Slavery, Feudalism, Industrialism, Soviet Communism.
- (e) Religious : Church, Monastic Orders, Mutts.
- (f) Social : Clubs, Associations.
- (g) Educational : School, College, University.
- 7. Social Pathology—
 - (a) Poverty and the Problem of Charity.
 - (b) Diseases and Sanitation, Sterility and Sterilisation
 - (c) Crime and Prisons.
 - (d) Over-population and Birth-control.
 - (e) Abuse of Nationalism and Wars.
 - (f) Colour or Racial Problem.
- 8. Social Laws and Social Justice.
- 9. Present Day Sociological Problems—
 - (a) Relation of Races.
 - (b) Recent Economic Development : Industrial Organization, Credit System, Labour Movement and Socialistic Theories
 - (c) Recent Political Developments : Growth of Japan. Renaissance of Mahomedan Countries. British Empire as a Federation. Growth of Nationalism in non-European Countries. The League of Nations.
 - (d) Recent Tendencies in Morality and Religion Feminism.
 - (e) Present Day Tendencies in World Religions.

A. Indian Social Institutions

- I. General characteristics of Hindu Social Organization—
 - (1) Caste: its different aspects—Economic, Racial, Ethical, Religious, Social.
 - (2) The Different Theories of Caste.
 - (3) A Critical Survey of the Effects of Caste on the History of India.
 - (4) The distinction between Caste and Class. The Influence of Caste on non-Hindus in India.
 - (5) The Influence of British Administration and British Law on Caste.
- II. Hindu Joint Family—
 - (1) Its Original Advantages.
 - (2) Distinction between Family, Joint Family and Coparcenary.
 - (3) The Legal Implications of Joint Family.
 - (4) The Right to Partition.
 - (5) The Position of Women under the Hindu Law of Joint Family.
 - (6) Its Value under Present Conditions.

III. Hindu Marriage—

- (1) Different Kinds of Marriage.
- (2) Anuloma and Pratiloma Marriage. The general question of Inter-caste Marriage and its History. The Significance of Gotra and Pravara.
- (3) The Legal and Social Implications of *Stridhanam*.
- (4) Infant Marriage: its History, its Advantages, its Evil effects. Critical Study of the Sarada Act.
- (5) Prohibition of Widow Re-marriage. Its Legal and Social effects.
- (6) The Question of Divorce.
- (7) Marriage Customs. Devadasis. Polygamy. Marriage Customs among the Numbudris and Nairs.

IV. Mahomedan Family—

- (1) Marriage as Contract. Mehr. Divorce.
- (2) The General Legal Status of Woman in Islam.
- (3) The Purdah. The Original Significance of the Purdah in the *Quran*. Its Vogue in India and other Islamic Countries. Its Disadvantages.

V. Indian Village Organization—

- (1) The Importance of Village in Indian Society.
- (2) The Ancient Indian Village. Its Organization (*cf. Majumdar's Corporate Life in Ancient India*).
- (3) The Village Sabha. Its Relation to the Central Government.
- (4) The Effect of British Administration on Village Organization.
- (5) The Present State of Villages in India. Their Economic Life.
- (6) Revival of Village Panchayets: how far successful.
- (7) Village Problems at the Present Day.

VI. The Relation of Hindu Social Institutions and Hindu Religion. The general question of introducing Reform by Legislation.

B. Social Psychology

1. Definition, Scope and Importance of Social Psychology
Relation of Social Psychology to other Social Sciences.
2. Instincts: Their Nature and their Sociological Importance.
3. The Role of the Concepts of Suggestion, Imitation, Sympathy and Intellect in the Understanding of Social Life.
4. The Psychology of Moral Life, of Economic Life, and of Religious Life

- 5 Definition of the term 'Crowd.' Causes of the Formation of Crowds The Intellectual and Emotional Characteristics of Crowd Behaviour. The 'Crowd' distinguished from the 'Organized Group.'

Books for Study

Sociology

1. Blackmar and Gillin : *Outlines of Sociology*.
2. Ross : *Outlines of Sociology*.
3. Ellwood : *Social Psychology*.
4. Mukerjee and Sen Gupta : *Social Psychology*.
5. Viswanathan : *Racial Synthesis in Hindu Culture* (Sections on Caste).
6. Ghurye : *Race and Caste in India*.
7. *Women's Rights under the Hindu Law*. (Report of the Committee appointed by His Highness the Maharaja of Mysore, Chapter III.)
8. Appaswamy : *Legal Aspects of Social Reform*.
9. O'Malley : *India's Social Heritage*.

ANTHROPOLOGY

Introductory Topics : Scope. Relation to other sciences.

Physical Anthropology : Anthropometry. Human anatomy. Instruments and methods. Indices and criteria of racial classification.

The races of mankind : Evolution in general. The extinct races. The living races and their sub-divisions. Characteristics of the races. Racial history.

The Races of India : The older views. Criticism. Re-classification. Racial History of India.

Cultural Anthropology : History of Culture. Paleolithic stages. Neolithic cultures. The Metal ages. Cultural stages in India.

Special topics : Evolution of culture and diffusion. Useful arts of primitive men. Early History of Fine Art. Language. Writing. Magic and Religion. Primitive life in India.

Social Anthropology : Ethnology. Evolution and primitive society. Marriage. Family. Sib. Associations. Property. Justice. Rank. Government. Primitive Society in India.

Ethnography : Methods of Study. Select foreign tribes : Australians. Select Indian Tribe : Todas.

Books for Study

1. Kroeber : *Anthropology*.
2. British Association : *Notes and Queries in Anthropology*.
3. *Imperial Gazetteer of India*. Vol. I, Chapter VI.

4. Lowie : *Primitive Society*.
5. Ghurye : *Caste and Race in India*.

Books for Reference

1. Haddon : *Races of Man*.
2. Keane : *Man—Past and Present*.
3. Roy : *Physical Anthropology*.
4. Hutchinson : *Living Races of Mankind*.
5. Osborn : *Men of the Old Stone Age*.
6. De Morgan : *Pre-Historic Man*.
7. Sollas : *Ancient Hunters*, Chapter VII.
8. Thurston : *Castes and Tribes of Southern India—Todas*.
9. Taylor : *Anthropology*.

(17) EDUCATION

The course of study shall comprise—

1. Philosophy of Education.
2. History of Educational Ideals.
3. Educational Psychology.

(18) MATHEMATICS*

Same as for the B.Sc. Degree Examination.

(19) PHYSICS

Same as for the B.Sc. Degree Examination.

(20) CHEMISTRY

Same as for the B.Sc. Degree Examination.

(21) ZOOLOGY

Same as for the B.Sc. Degree Examination.

(22) BOTANY

Same as for the B.Sc. Degree Examination.

SCHEME OF EXAMINATION

[Vide Ordinance 241 (b)]

I. Compulsory English

				Max Marks
1.	English Composition I	...	5 hours	100
2.	English Composition II	...	"	100
TOTAL				200

*The syllabus and the examination scheme for the B.A. and the B.Sc. in all Science subjects shall be the same.

II. Second Languages

(Other than French and Latin)

Composition and Translation*	}	... 3 hours	Max. Marks
Or			100
Translation in respect of Classical Languages			---
TOTAL ...			100

FRENCH

Prescribed Texts, Grammar and Translation from English into French and from French into English	...	3 hours	100
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Note. - Passages for translation from French into English shall be chosen from the prescribed texts

LATIN

Prescribed Texts, Grammar and Translation from English into Latin	...	3 hours	100
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III. Optional Subjects.

(1) ENGLISH

1. Drama	...	...	3 hours	150
2. Poetry	...	...	"	150
3. Prose	...	...	"	150
TOTAL ...				450

(2) KANNADA

1. Poetry	...	...	3 hours	150
Prose and Drama	...	...	"	150
History of Language and Literature	...	...	"	150
TOTAL ...				450

(3) TELUGU

	Text-Books and Grammar	...	3 hours	150
2.	History of Language and Literature		"	150
3.	Composition and Translation	...	"	150
	TOTAL	...		450

			Max. Marks
* Composition	...	...	75
Translation from English to the Second Language	...	...	25
Total ...			100

(4) TAMIL

				Max. Marks
1.	Text-Books and Grammar	...	3 hours	150
2.	History of Language and Literature	...	"	150
3.	Translation	... ..	"	150
TOTAL				450

(5) URDU

1.	Prose and Poetry	...	3 hours	150
2.	Grammar, Rhetoric, Prosody and History of Literature	... ..	"	150
3.	Translation	... ..	"	150
TOTAL				450

(6) SANSKRIT

(i) Sahitya—Classical Literature and Criticism

1.	Classical Prose and Poetry	...	3 hours	150
2.	Drama and Poetics	...	"	150
3.	Grammar and History of Literature	...	"	150
TOTAL				450

(ii) Vedic Studies

1.	Vedic Texts I	... ..	3 hours	150
2.	Vedic Texts II	... ..	"	150
3.	Vedic Grammar and History of Vedic Literature	... ..	"	150
TOTAL				450

(iii) Darsanas—Philosophical Literature

1.	Prescribed Texts I Paper	...	3 hours	150
2.	Prescribed Texts II Paper	...	"	150
3.	Outlines of Indian Philosophy	...	"	150
TOTAL				450

(7) PERSIAN

1.	Prose and Poetry	...	3 hours	150
2.	History of Literature and Language	...	"	150
3.	Translation	... ..	"	150
TOTAL				450

(8) ARABIC

				Max. Marks
1.	Prose and Poetry	...	3 hours	150
2.	History of Literature and Language	...	„	150
3.	Translation	...	„	150
TOTAL				450

(9) AVESTAN AND PAHLAVI

1.	Prose and Poetry	...	3 hours	150
2.	History of Literature and Language	...	„	150
3.	Translation	...	„	150
TOTAL				450

(10) HINDI

1.	Poetry	...	3 hours	150
2.	Prose and Drama	...	„	150
3.	History of Hindi Language and Literature, and Translation	...	„	150
TOTAL				450

Note —In the third paper, 50 per cent of the maximum marks shall be allotted for translation.

(11) HISTORY

1.	History of India, to 1300	}	3 hours	150
	Or History and Culture of Islam to 1258			
2.	History of India, from 1300 to 1920...		„	150
3.	History of Europe from 1500 to 1920		„	150
TOTAL				450

(12) GEOGRAPHY

1.	Paper I:—		
	(a) Regional Geography of India	}	3 hours 150
	and		
	(b) any <i>two</i> of the Continents: Europe, Asia and North America		
2.	Paper II: Optional Subject	...	150
3.	Paper III: Practical Examination	...	100
		TOTAL	... 400

Max.
Marks

(13) ECONOMICS

1.	General Economics I	...	...	3 hours	150
2	General Economics II	...	...	"	150
3.	Elements of Statistics	}	...	"	150
	Or		...	"	150
	Recent Economic History of India		...	"	150
TOTAL				...	450

(14) POLITICS

1.	Comparative Politics	...	...	3 hours	150
2.	Political Theory	...	...	"	150
3.	Public Administration	...	...	"	150
TOTAL					450

(15) PHILOSOPHY

(a)	(1) Psychology (General)	...	...	3 hours	150
	(2) Ethics	...	...	"	150
	(3) Plato's Republic	...	...	"	150
TOTAL					450

(b)	(1) Psychology (General)	...	3 hours	150
	(2) and (3) Any <i>two</i> of the following :—			
	Logic, Metaphysics, Indian	}	3 hours	300
	Philosophy, Philosophy		each carrying	
	of Religion.		150 marks	
		TOTAL	...	450

(c)	(1) Psychology (General)	...	...	3 hours	150
	(2) Experimental Psychology (Theory)	...	...	"	150
	(3) Experimental Psychology (Practical)	...	...	"	150
TOTAL					450

(16) SOCIOLOGY

1.	Principles of Sociology I	...	...	3 hours	150
2.	Principles of Sociology II	...	...	"	150
3.	Anthropology	...	...	"	150
TOTAL					450

(17) EDUCATION

Max.
Marks

1.	Philosophy of Education	...	3 hours	150
2.	History of Educational Ideals	...	"	150
3.	Educational Psychology	...	"	150
TOTAL				450

(18) MATHEMATICS

1.	Pure Mathematics I	...	...	3 hours	125
2.	Pure Mathematics II	...	...	"	125
3.	Applied Mathematics—Either Dynamics, Statics and Astronomy	}		"	150
	Or				
	General Statistics and Applications of Mathematics to Economics and Mental and Social Measurements				
TOTAL				...	400

(19) PHYSICS

1.	Physics I	...	3 hours	150
2.	Physics II	...	"	150
3.	Practical Physics	...	"	100
TOTAL				400

(20) CHEMISTRY

1.	Chemistry I	...	3 hours	150
2.	Chemistry II	...	"	150
3.	Practical Chemistry	...	"	100
TOTAL				400

(21) ZOOLOGY

1.	Zoology I	...	3 hours	150
2.	Zoology II	...	"	150
3.	Practical Zoology	...	"	100
TOTAL				400

(22) BOTANY

Max.
Marks.

1. Botany I	...	...	3 hours	150
2. Botany II	...	...	"	150
3. Practical Botany	...	...	"	100
TOTAL ...				400

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[Vide Ordinances 82 to 84]

B.A. (Hons.) DEGREE EXAMINATION

CONDITIONS OF ADMISSION*

[Vide Ordinance 12]

COURSES OF STUDY (GENERAL)

[Vide Ordinances 86 to 88]

COURSES OF STUDY (DETAILED)

[Vide Ordinance 240 (b)]

I. Compulsory English

Composition on the non-detailed study of prescribed text books.

II. Second Language

(1) KANNADA

Text-Books in Modern Kannada to be prescribed

(2) TELUGU

The books to be set for non-detailed study shall consist of—

1. One selection from the *Mahabharatamu* or other early classic.
2. One selection from the mediæval poets.
3. One modern prose work.

Text-Books shall be the same as those prescribed for the B.A. Degree Examination.

*No one is allowed to enter for the B.A. (Hons.) Degree Examination as private candidate, unless such a candidate has completed his attendance before appearing for the examination.

(3) TAMIL

Text-Books shall be the same as those prescribed for the B.A. Degree Examination.

(4) URDU

Composition

Text-Books shall be the same as those prescribed for the B.A. Degree Examination.

(5) HINDI

Same as for the B.A. Degree Examination.

(6) SANSKRIT

Text-Books shall be the same as those prescribed for the B.A. Degree Examination.

(7) PERSIAN

Text-Books shall be the same as those prescribed for the B.A. Degree Examination.

(8) ARABIC

Text-Books shall be the same as those prescribed for the B.A. Degree Examination.

(9) FRENCH

Same as for the B.A. Degree Examination

(10) LATIN

Same as for the B A. Degree Examination

III. Optional Subjects

(1) ENGLISH

Major Subject—

1. Chaucer and History of English Language.
2. History of English Literature.
3. Elizabethan Drama.
4. Elizabethan Prose and Poetry
5. Post-Elizabethan Literature.
6. Comparative Drama.
7. Principles of Literary Criticism.

Minor Subject—

1. English History as a Background to English Literature.
2. One of the following (with prescribed Text-Books):—
 - (a) Kannada Literature
 - (b) Urdu Literature
 - (c) Sanskrit Literature
 - (d) Persian Literature
 - (e) Politics (The paper in Political Theory for the B.A. Degree Examination)

(6) Hindi Literature

The following is the detailed syllabus in Language for English Honours—

1. The Indo-European family of Languages—the discovery of Sanskrit—Grimm's Law—Verner's Law.
2. Languages in England before English—the Romans in Britain, Latin in Britain, the Teutonic conquest, origin and position of English, periods in Old English, Dialects, Characteristics of Old English, Old English Literature.
3. Foreign influence on Old English vocabulary—Celtic, Latin, Scandinavian.
4. The Norman Conquest and its linguistic consequences.
5. Re-establishment of English (1200–1500): loss of Normandy, Hundred Years War, Rise of the middle class.
6. Middle English: decay of inflexions, French influence, Middle English Dialects, London English, Rise of the "Standard Language."
7. The Renaissance: the vernacular problem, struggle for recognition, 'Inkhorn terms,' changes in vocabulary and meanings, reinforcements from Latin and French.
8. Shakespeare and the Bible.
9. The Eighteenth Century: Refinement of the language, "fixing" the language, an English Academy? Johnson's Dictionary, the eighteenth century grammarians, reform of vocabulary, objections to 'borrowings,' growth of the British Empire and its influence on language.
10. 1800 and after; the advent of scientific terms, new coinages, the German influence, Carlyle, experiments in 'rationalising' the spelling, Robert Bridges and others.
11. The new branch of language study: Semantics.

The following is the syllabus in Principles of Literary Criticism (*Major Subject*):—

A. General Problems—

1. Nature and function of literature.
2. Thought, emotion and imagination.
3. Form and matter.
4. Truth, poetic and scientific.
5. Classicism and romanticism.
6. The qualities of greatness in literature
7. Tradition and originality.
8. The role of personality in literature

B. Forms—

1. POETRY :

- (a) Nature of poetry.
- (b) Rhythm in prose and verse, metre.
- (c) Poetic diction.
- (d) Epic, romance, ballad, tale in verse, lyric, elegy, etc., satire.

2. DRAMA :

- (a) Definition.
- (b) Drama, theatre and environment.
- (c) Construction, characterisation and unity.
- (d) Enjoyment of drama.
- (e) Tragedy, comedy, tragicomedy.

3. PROSE :

- (a) Novel.
- (b) Short story.
- (c) Essay.
- (d) Satire.
- (e) Biography.
- (f) Prose style (definition, elements of style, types of style, faults of style).

C. Literary Criticism—

1. Nature and function of criticism.
2. Criticism and creation.
3. Kinds of criticism, rhetorical, judicial, interpretive, impressionistic.
4. Brief history of criticism.
5. Literary taste appreciation and judgment.

The following **Reading-list** is recommended :—

INTRODUCTORY STUDY :

1. Hudson : *Introduction to Literature*.
2. Worsfold : *Judgment in Literature*.
3. Scott-James : *The Making of Literature*.
4. Charlton : *The Art of Literary Study*.

STYLE :

1. Dobree : *Prose Style*.
2. Middleton Murry : *The Problem of Style*.
3. Arnold : *Remarks on the Grand Style in "On Translating Homer."*
4. Saintsbury : *Shakespeare and the Grand Style ; Milton and the Grand Style ; Dante and the Grand Style*.
5. Bailey : *The Grand Style*.
6. Rannie : *Elements of Style*.
7. Read : *Modern Prose Style*.

POETRY :

1. Alden : *Introduction to Poetry*.
2. Bradley : *Poetry for Poetry's Sake*

On the Sublime.

3. Housman : *The Name and Nature of Poetry*.
4. Gordon : *Poetry and the Moderns*.
5. Cowl : *Theory of Poetry in England*.
6. Butcher and Lane Cooper : *Aristotle's Poetics*.
7. Graves : *Introduction to His Collection of Ballads*.
8. Ker : *Epic and Romance*.
9. Grierson : *Classical and Romantic*.

DRAMA :

1. Nicoll : *The English Theatre*.

The Theory of Drama.

2. Dukes : *The Drama*.
3. Macneile Dixon : *Tragedy*.
4. Thorndike : *Tragedy*.
5. Smart : *Essay on Tragedy*. (*Essays and Studies by Members of the English Association, Vol. VIII.*)
6. Meredith : *On Comedy*.
7. Palmer : *Comedy (Art and Craft of Letters Series)*.

PROSE :

1. Forster : *Aspects of the Novel*.
2. Albright : *The Short Story*.

CRITICISM :

1. Saintsbury : *Loca Critici*.

History of English Criticism.

2. Longinus : *On the Sublime*.
3. *Art and Craft of Letters Series*.

NOTE.—Two or three lectures should be provided on Indian critical thought.

The following is the syllabus in English History as a Background to English Literature (*Minor Subject*):—

1. Celtic Britain. The Roman Occupation. The coming of the English. Christianity in England. The Danish Invasions. Anglo-Saxon political institutions. Anglo-Saxon literature: *Beowulf*, *Cædmon*, *Bede*, the Anglo-Saxon Chronicle.

2. The Norman Conquest. The Feudal System. Administrative efficiency. Church and State. The reforms of Henry II. The amalgamation of Norman and English.

3. The Great Charter. Simon de Montfort. Edward I's legislation. The Hundred Years War. The Black Death. The social and economic revolution. The Peasants' Revolt. The Lollards. The rise of the universities. The Wars of the Roses. Chaucer, Langland, Wyclif's Bible, the Paston Letters, Malory.

4. Tudor despotism. Parliament in tutelage. The home and foreign policy of Henry VII. The balance of power. Geographical discovery and exploration. The beginnings of sea power. Shakespeare's England. The growth of the drama—mediæval and classical origins. The revival of Greek studies and the new Humanism—More, Erasmus, Spenser, Lyly, Ben Jonson. The efflorescence of art in Italy and elsewhere. Italian influence on English cultural and social life—Machiavelli, Castiglione. New horizons in science, and the growth of empiricism—Bacon. The rise of nationalism—Shakespeare's historical plays. Catholicism, Protestantism, Humanism, Puritanism. The Anglican compromise—Hooker, the Authorised Version of the Bible.

5. The Stuart theory of kingship—Hobbes. Ritualism in the church—Laud. Stuart patronage of art—Inigo Jones, Van Dyck, Rubens. King *versus* Commons—Cromwell, Milton. The Commonwealth. Seventeenth Century mysticism—Baxter, Bunyan, the Metaphysicals, the Cambridge Platonists. The decline of the drama—Jeremy Collier. The Restoration. The influence of the France of Louis XIV on English life. The Royal Society—Newton, Boyle. The Plague and the Great Fire—Wren. The expansion of the navy under James II and Pepys. The "Glorious Revolution." The Bill of Rights. Limited monarchy, parliamentary supremacy—Locke. The Age of Queen Anne. Pamphleteering, political satire, and periodical literature. The coffee-houses.

6. Party system and cabinet government. Walpole, Chatham, Pitt, Fox, Burke. The Whig oligarchy. The South Sea Bubble. The Jacobites. The beginnings of the Empire in India and America. Foreign relations, American independence—Burke. The influence of the French Encyclopedists—Voltaire, Montesquieu. Patronage of letters—Dr. Johnson. Deism—Shaftesbury. The cult of the "Gothic"—Horace Walpole,

Beckford. Refinement of manners—Addison, Chesterfield. Methodism—Wesley. The Grand Tour. The French Revolution—Napoleon, Nelson, Wellington. The Industrial and Agrarian Revolution—Adam Smith, Cobbett. Romanticism—the influence of Rousseau. The cult of mediævalism—Scott.

7. The epoch of reform. Social and political reforms. Factory legislation. Criticisms of industrialism—Carlyle, Ruskin, Dickens, Arnold. The Pre-Raphælite influence—Morris, Ruskin, Turner—æstheticism. Gladstone and the Irish question. The Poor Law, municipal administration, education. Victorian morality. The Gothic revival—Pugin, Gilbert Scott. The conflict of science and religion—Darwin, Huxley. The Oxford Movement—Newman. Free Trade. The working-class movement—mechanics' institutes. Social problems—Wells, Shaw, Galsworthy. Expansion of Empire, the British Commonwealth of Nations.

8. Nationalism *versus* Internationalism. The war of 1914-18. Problems of world peace.

Text-Book

- 1 Trevelyan : *History of England*.

Books for Consultation

1. Wingfield-Stratford : *History of British Civilization*.
2. Do *The Victorian Tragedy*.
3. Pollard : *History of England*.
4. Coulton : *Social Life in England from the Conquest to the Reformation*.
5. Pater : *The Renaissance*
6. Tawney : *Religion and the Rise of Capitalism*.
7. Basil Willy : *The Seventeenth Century Background*.
8. Do *The Eighteenth Century Background*.
9. Somervell : *English Thought in the Nineteenth Century*.

(2) KANNADA

Major Subject—

1. Jaina Literature.
2. Veerasaiva Literature.
3. Brahmana Literature.
4. Poetics and Prosody.
5. Old Kannada Grammar (as in *Sabdamanidarpana*) and History of Language (a general view).
6. History of Literature (a general view).
(Text-books to be prescribed under 1, 2, and 3).
7. Sanskrit Language and Literature.

Minor Subject—

1. Tamil or Telugu
(i) Text-books and Grammar.

(ii) Translation from Kannada into the Selected Language and *vice versa*.

2. Cultural and historical studies relating to Karnataka—a general knowledge of Social and Political History, Religious, History and Archæology (including Architecture, Sculpture, Iconography, Numismatics and Palæography).

(3) SANSKRIT

Major Subject—

1. Selections from Vedic, Epic and Classical Sanskrit Literature
2. Darsanas
3. Poetics
4. Grammar and Elements of comparative Philology
5. History of Sanskrit Literature and Criticism
6. Translation and Composition

Minor Subject—One of the following groups.—

A. (History).—

1. History of India (same as B.A. Pass Course, p. 190)
2. Archæology with special reference to India (same as in the Minor Subject of History Honours, p. 231)

B. (Philosophy).

- | | | |
|----------------------|---|--|
| 1. Logic | } | Same as in the B.A. Pass Course,
p. 99. |
| 2. Metaphysics | | |
| 3. Indian Philosophy | | |

C. (Pali and Prakrit).

Pali and Prakrits—Prescribed Text, Translations
Grammar and History of Literature

D. (English Literature).

English (Same as Optional English in the B.A. Pass
Course, p. 188)

E. Kannada Literature.

Kannada. (Same as Optional Kannada in the B.A. Pass
Course, p. 188)

NOTE.—As the Minor subject is not made common with B.A. Pass Sahitya, Classical Sanskrit Literature is included under Major subject.

(4) PERSIAN

Major Subject—

1. Indo-Iranian Philology and Elements of Avestan Literature.
2. Classical Prose and Poetry (820--1231 A.D.).
3. Classical Prose and Poetry (1231--1500 A.D.).
4. Classical Prose and Poetry (1500--1800 A.D.).

5. Modern Prose and Poetry (1800--1932 and after).
6. Drama and Fiction.
7. Essay
8. Arabic Literature.

Minor Subject—

1. Outline of Islamic Philosophy.
2. History and Culture of Islam to 1258 A.D.
3. History of Persian Literature and Language, Rhetoric and Prosody.
4. Translation.

(5) AVESTAN AND PAHLAVI

Major Subject—

1. Pre-Islamic Religion and Philosophy of Iran.
2. Pahlavi Literature.
3. Pazend and early Classical Persian up to Suljukid Period.
4. Elements of Vedic Literature.
5. Political History of Pre-Islamic Period.
6. Outline of Greek Philosophy.

Minor Subject—(Same as for B.A.)

1. Prose and Poetry.
2. History of Literature
3. Translation.
4. Grammar.

(6) ARABIC

Major Subject—

1. Advanced Grammar.
2. Comparative Study of Semetic Philology.
3. Rhetoric and Prosody.
4. Outline of Islamic Philosophy.
5. History of Islamic Civilization.
6. History of the Development of Islamic Sects.
7. Neoplatonic Philosophy.
8. Essay on a subject connected with the Islamic Arts and Architecture.

Minor Subject—

- | | |
|--|-------------------|
| 1. Poetry and Prose (Classical). | } Same as for B.A |
| 2. History of Literature. | |
| 3. Translation. | |
| 4. Modern Prose and Poetry (1850 to the present time). | |

(7) URDU

Major Subject—

1. History of Urdu Language and Literature with special reference to the comparative study of Indo-Aryan dialects.
2. Urdu Poetry.
3. Literary Criticism.
4. Drama and Fiction.
5. Prose. Any *one* of the following periods :—
 - (a) Prose before 1857.
 - (b) Sir Sayyad's School.
 - (c) Modern Prose.
6. Essay.
7. Dakhani Literature with special reference to the part played by the Sufis in the development of the language.
8. Rhetoric and Prosody

Minor Subject—

1. Hindi Language and Literature.
2. Persian as developed in India
3. Arabic Language and Literature.
4. History of Muslim Rule in India with special reference to the development of Muslim Culture and evolving of Urdu Language.

The following is the detailed syllabus in Urdu Language and Literature for B.A. (Hons.) in Urdu :

A. Language.—

I. GENERAL—

- (i) Definition, purpose, science of language, phonetics and phonology, morphology and semantics.
- (ii) Kinds of Languages, synthetic, agglutinating and analytic
- (iii) Tone, Intonation, Accent
- (iv) Patois, Dialect, Koine.
- (v) Genealogical and morphological classification of languages with special reference to Indian Languages.
 - (a) The Sematic Family
 - (b) The Iranian Family
 - (c) The Dardic Family
 - (d) The Indo-Aryan Family.
- (vi) Sound, its formation, the script, the international phonetic script, the origin of Urdu and Devanagari script, classification of Urdu sounds, pitch and accent.

- (vii) Sound changes.
- (viii) Semantic Laws.

II —

- (i) A brief history of the Indo-Aryan languages. O.I.A., M.I.A., N.I.A., and their distinguishing features.
- (ii) The different groups of N.I.A. Languages, their geographical distribution, the Eastern Panjabi, the Eastern and Western Hindi, and their dialects, origin of Hindi, Urdu, Hindustani.
- (iii) Khari Boli and its development, Hindi, High Hindi, Bhakha, Hindvi, Dekhni, Rekhta, Urdu.

III. HISTORY OF URDU LANGUAGE—

(a) Phonological.—

- (i) History of Khari Boli Sounds.
- (ii) Sound changes in words borrowed from Persian, Arabic and other languages.
- (iii) Change of accent.
- (iv) Suffixes and Prefixes.

(b) Morphological.

- (i) Noun, Gender, Number and Post-positions.
- (ii) Numerals, ordinal and cardinal numbers.
- (iii) Pronoun.
- (iv) Verb, Root, the auxiliary verbs, participles, tenses, voice, causatives, namdhatu and compound verbs.
- (v) The pure Hindustani Compounds.
- (vi) The Indeclinables.

(c) Syntax.

(d) Influence of the script on the language.

B. Literature—

- (i) General, the Dawn of Urdu as a distinct language; a general survey of Urdu literature. Divisions into periods, characteristics and tendencies of each period.
- (ii) The Early Urdu period, specimens of Urdu found in the works of early Sufi writers.
- (iii) Period of old Urdu literature, Historical background of the Ahmed Shahi dynasty of Gujarat, Bahmani dynasty of the Dekhan, the Nizam Shahi, the Adil Shahi and the Qutb Shahi dynasties, and the development of Urdu under their patronage.
- (iv) The Middle Period.—
 - (1) The early writers of the Punjab.
 - (2) Rise of Urdu Poetry at Delhi, the Age of Abru and Hatim, the Age of Mir and Souda and their contemporary writers in the Dakhan.

- (3) Development of Urdu Prose and Poetry in Mysore under the patronage of Haider Ali Khan and Tipu Sultan with special reference to the historical background
- (4) Patronage extended to the Urdu poets by the Nawabs of Aoudh, migration of Urdu poets from Delhi to Faizabad and Lucknow, rise of Urdu poetry at Lucknow, the Ghazal, the Masnavi, the Marsia, Age of Nasikh, the Marsia Writers, Anis, Dabir.
- (5) Later Writers of Lucknow, the Urdu Drama, the Early Prose writers of Urdu.
- (v) Age of Fort William College, Calcutta and the contemporary writers, development of Urdu prose.
- (vi) Age of Sir Syed and Hali : Essay, Novel, the new school of Urdu poetry.
- (vii) Modern period, prose, poetry, drama, novel, short story, essay, criticism.
- (viii) Services rendered to the Urdu language and literature by important institutions, the Delhi College, the Scientific Society, the Osmania University and the Dar-ut Tarjuma, Hyderabad (Dn.), Anjuman-e. Taroqqi-e-Urdu, Dar-ul-Musannifu, the Urdu Academy, Delhi, the Hindustani Academy, Allahabad.

(8) HISTORY.

Major Subject—

1. History of India to 1300.
2. History of India from 1300 to 1920.
3. History of Europe from 1789 to 1939.
4. British Constitutional History.
5. A Special Subject.
6. Economics.
7. Politics.
8. Essay.

Minor Subject—

1. Archæology with special reference to India
2. History of Civilization.
3. Recent Economic History of India.
4. Public Administration.

NOTE —1. Under Major Subject the paper in Politics shall be common for Honours Economics and Honours History.

NOTE.—2. Under Minor Subject the papers on Recent Economic History of India and Public Administration shall be the same as the corresponding papers set for the B.A. Degree Examination.

The following are the detailed courses of study :
Major Subject—

1. HISTORY OF INDIA TO 1300.
2. HISTORY OF INDIA FROM 1300 TO 1920
A critical study of Indian Political and Cultural History with a knowledge of important sources.

Books for Study.

1. Marshall : *Mohenjo-Daro*, Chapters 1 to 8.
2. *The Cambridge History of India*, Vol. I.
3. Vincent Smith : *The Early History of India*.
4. Raychaudhuri : *Political History of Ancient India*.
5. Jayaswal : *History of India, 150 to 350 A.D.*
6. Rangacharya : *History of Pre-Mussalman India*.
7. *Mysore Gazetteer* : Vol. II, Part I.
8. Farquhar : *Religious Literature of India*.
9. Macdonell : *India's Past*
10. Venkateswara : *Indian Culture through the Ages*.
11. Sewell and Aiyangar : *Historical Inscriptions of Southern India*.
12. Nilakanta Sastry : *Colas*.
13. Sarkar : *India through the Ages*.
14. *Source Books of Indian History* (Cooper & Co.)
15. Ishwari Prasad : *History of Mediaeval India*.
16. Sewell : *A Forgotten Empire*.
17. Garrett and Edwardes : *Mughal Rule in India*.
18. Sinha : *Rise of the Peshwas*.
19. Sen : *Administrative System of the Marathas*.
20. Payne : *A History of the Sikhs*.
21. Garratt and Thompson : *Rise and Fulfilment of British Rule in India*.
22. Roberts : *History of British India*.
23. Dodwell : *A Sketch of the History of India, 1858-1918*.
24. Keith : *Constitutional History of India, 1600-1935*.

3. HISTORY OF EUROPE FROM 1789 TO 1939.

Books for Study.

1. Fisher : *History of Europe*.
2. Grant and Temperley : *Europe in the 19th and 20th Centuries*.
3. Lipson : *Europe in the 19th and 20th Centuries, 1815 to 1939*.
4. Rose : *Revolutionary and Napoleonic Era*.
5. Marriott : *History of Europe from 1815 to 1923*.
6. Hazen : *Europe since 1815*.

7. Rose : *Development of the European Nations, 1870-1921*.
8. Gooch : *History of Modern Europe, 1878-1919*.
9. Gathorne Hardy : *Short History of International Affairs*.

Books for Reference.

1. *Cambridge Modern History*, Vols. VIII to XI
2. Acton : *Lectures on Modern History*.
3. Hayes : *Political and Cultural History of Modern Europe, Vol. II*.
4. Madelin : *The French Revolution*.
5. Butterfield : *Napoleon*.
6. Fisher : *Bonapartism*.
7. Bourgeois : *Modern France*.
8. Caesaresco : *Cavour*.
9. Robertson : *Bismarck*.
10. Marriott and Robertson : *The Evolution of Prussia*.
11. Dawson : *The German Empire*.
12. Muir : *Expansion of Europe*.
13. Marriott : *The Eastern Question*.
14. Carr : *Twenty Years Crisis*.
15. Crutwell : *History of the Great War*.
16. Chamberlain : *Russian Revolution, 1917-21*.
17. Slosson : *Twentieth Century Europe*.

4 BRITISH CONSTITUTIONAL HISTORY.

In outline up to 1485, and in detail from 1485, with selected Documents in both periods. In the examination there will be one compulsory question on Documents and one on the period up to 1485. ●

DOCUMENTS.

1. Charter of Liberties of Henry I.
2. Constitutions of Clarendon.
3. Assize of Clarendon.
4. Great Charter of Liberties.
5. The Statute of Westminster I.
6. Writs of Summons to Parliament, 1295.
7. Confirmatio Cartarum.
8. The Statute of Treasons.
9. Commons to Originate Money Bills.
10. Electors of Knights of the Shire must be Forty Shilling Freeholders.
11. Establishment of the Court of Star Chamber.
12. Lex Regia.
13. Ferrers, case.
14. Act of Supremacy of 1559.
15. Opinions of the Court of Exchequer in Bates' Case.
16. The Petition of Right.
17. The Grand Remonstrance, with the Petition accompanying it.
18. The Instrument of

Government. 19. Test Act. 20. Habeas Corpus Act. 21. First Mutiny Act. 22. The Bill of Rights. 23. Act of Settlement. 24. Act of Union with Scotland. 25. Act of Union with Ireland. 26. Catholic Emancipation Act. 27. Reform Act of 1832. 28. British North America Act. 29. Reform Act of 1867. 30. Reform Act of 1884. 31. Local Government Act of 1888. 32. Parliament Act. 33. Representation of the People Act of 1918. 34. Women's Franchise Act of 1928. 35. Statute of Westminster of 1931.

Books for Study.

1. Adams : *Constitutional History of England*.
2. Medley : *English Constitutional History*.
3. Maitland : *Constitutional History of England*.
4. Taswell-Langmead . *English Constitutional History*.
5. Joliffe : *Constitutional History of Medieval England*.
6. Keir : *Constitutional History of Modern Britain*.
7. Jennings : *The British Constitution*.
8. Adams and Stephens : *Select Documents of English Constitutional History*.

Books for Reference.

1. Stubbs : *Constitutional History of England*.
2. Erskine May : *Constitutional History of England 1760-1911*.
3. Pollard : *Evolution of Parliament*.
4. Tanner : *English Constitutional Conflicts of the 17th Century*.
5. Bagehot : *The English Constitution*.
6. Anson : *The Law and Custom of the Constitution*.
7. Dicey : *The Law of the Constitution*.
8. Low : *The Governance of England*.
9. Ramsay Muir : *How Britain is Governed*.
10. Lowell : *The Government of England*.
11. Laski : *Parliamentary Government in England*.
12. Jennings : *Cabinet Government*.
13. Jennings : *Parliament*.
14. Stubbs : *Select Charters*.
15. Prothero : *Statutes and Constitutional Documents, 1558-1625*.
16. Tanner : *Tudor Constitutional Documents*.
17. Gardiner : *Constitutional Documents of the Puritan Revolution*.
18. Grant Robertson : *Select Statutes, Cases and Documents*.
19. Keith : *Documents of the Constitutional History of the British Empire*.

5 A SPECIAL SUBJECT.

6. ECONOMICS.

Nature and significance of economic science. Economics of wealth and welfare. Development of economic doctrines. Schools of Economic thought. Competition and Monopoly.

Production. Consumption. Theory of Value. Value under Imperfect Competition. Theory of Distribution. Rent, wages, interest, profits. State in relation to economic life.

Principles of money. Monetary standards. Currency and credit. The money market. Banks. Theory of Central Banking. The credit structure of the principal countries. The trade cycle. Stabilisation of prices.

International trade. Theory of International values. Gains from Foreign Trade.

State control over external trade. Protection and Free Trade. Theory of Foreign Exchange. Exchange control.

Public Finance. Theoretical Problems connected with Public Revenue. Public Expenditure and Public Debts.

Books for Study.

1. Taussig : *Principles of Economics*.
2. Thomas : *Elements of Economics*.
3. Briggs and Jordan : *Text Book of Economics*.
4. Benham : *Economics*.

Books for Reference.

1. Marshall : *Principles of Economics*.
2. Meade : *Economic Analysis and Policy*.
3. Gray : *Development of Economic Doctrine*.
4. Cannan : *Review of Economic Theory*.
5. Knight : *Risk, Uncertainty and Profit*.
6. Hicks : *Value and Capital*.
7. Crowther . *Money*.
8. Sayers . *Modern Banking*.
9. Todd : *The Mechanism of Exchange*.
10. Hawtrey : *Currency and Credit*.
11. Kisch and Elkin : *Central Banks*.
12. Ropke : *Cycles and Crises*.
13. Barret Whale : *International Trade*.
14. Dalton : *Public Finance*.
15. Silverman : *Taxation, its Incidence and Effects*.

7. POLITICS.

Nature and scope of Politics. Fundamental conceptions of Politics. State. Nationality. Nation. Sovereignty, Government. Law. Liberty. Equality. Rights. Citizenship.

Origin of the State. Inductive and Speculative Theories. History of Political Thought (in outline). Structure of Government comparatively studied with special reference to England, France, U.S.A., the British Self-Governing Dominions and India. Forms of State. Classification of Governments. Legislature. Executive. Judiciary. Theory of the Separation of Powers. Parties and Party Government. Local Government.

Functions of Government. The Province of the State Individualism. Socialism. Fascism. Communism.

The League of Nations. International Relations. Federal Union.

Books for Study.

1. Gettel : *Political Science*.
2. Wilson : *Elements of Modern Politics*.
3. Garner : *Political Science and Government*.
4. Strong : *Modern Constitutions*.
5. Joshi : *Indian Constitution*.
6. Doyle : *History of Political Thought*.

Books for Reference.

1. Laski : *Grammar of Politics*.
2. Marriot : *Mechanism of the Modern State*.
3. Bryce : *Modern Democracies*.
4. Finer : *Theory and Practice of Modern Governments*.
5. Ogg : *European Governments and Politics*.
6. Mill : *Representative Government*.
7. Buell : *New Governments in Europe*.
8. Coker : *Recent Political Thought*.
9. Keith : *A Constitutional History of India*.
10. Ruthnaswamy : *The Making of the State*.
11. Sabine : *History of Political Theory*.
12. McIver : *The Modern State*.
13. Willoughby : *Modern Governments*.
14. Joad : *Modern Political Thought*.
15. Ramaswamy : *The Law of the Indian Constitution*.
16. Barker : *Political Thought in England from Spencer to the Present Day*.
17. Munro : *Government of the United States*.

Minor Subject—

1. ARCHÆOLOGY WITH SPECIAL REFERENCE TO INDIA

Aims and Scope of Archæology. Relation to History
Methods of Archæology. Exploration, survey and
preservation.

Epigraphy: Value for History, Find spots, materials and contents of inscriptions, varieties of inscriptions. Methods of study. Authenticity. Language of inscriptions. Eras and Dates

Palæography: History of writing in general. Origin of writing in India; History of Brahmi, Nagari and later Northern alphabets. History of Kannada alphabet. Other southern alphabets. Foreign alphabets in India. Indian numerals.

Select Inscriptions: Asoka's Rock Edicts 2 and 13. Minor Rock Edict No. 1. Hatigumpha inscription of Kharavela. Junaghad Rock inscription of Rudradaman. Allahabad pillar inscription of Samudra Gupta. Nana-ghat inscriptions. Nasik cave inscription of Pulamavi. The Chandravalli inscription of Mayurasarman. Talagunda inscription of Santivarman. Aihole inscription of Pulakesin II. Uttaramallur inscriptions. Belur Temple inscription of Vishnuvardhana. Sringeri inscription of Harihara I. Seringapatam inscription of Chikka Deva Raya. Kannambadi inscription of Tippu Sultan.

Numismatics: General principles. Contribution to ancient Indian History. Methods of studying coins. Select Indian coins. Punchmarked Coins. Indo-Greek and Kushan Coins. Gupta Coinage. Coins of the Sultanate of Delhi. Moghul Coins. Chola, Hoysala, Vijayanagara and Mysore Coins.

Excavations: Discovery and survey of sites. Preliminary excavations. Details of excavation. Excavation records. Preservation, study and publication of evidence. Indian ceramics. Progress of excavation in India. Select Indian excavations: Mohenjo-Daro, Taxila, Nalanda, Adichanallur, and Chandravalli.

Architecture: General Principles. Styles of Indian Architecture. Buddhist Architecture. Cave Architecture. Indo-Aryan. Dravidian. Chalukyan. Indo-Moslem.

Sculpture and Paintings: Principles of Indian Sculpture. Schools of Indian Sculpture. Gandhara. Gupta. Northern Medieval Pallava. Chalukya. Vijayanagara. Indo-Moslem. Ideals and technique of Indian painting. Schools of Indian painting; Buddhist, Rajput, Moghul.

Books for Study.

1. Petrie: *Aims and Methods in Archaeology*.
2. Marshall: *Conservation Manual (Government of India)*.
3. *Imperial Gazetteer of India, Vol. I* (Chapter on Epigraphy).

4. Buhler : *Indian Palæography* (Translated by Fleet : *Indian Antiquary*, 1904).
5. Bhandarkar : *Carmichael Lectures on Indian Numismatics* (Calcutta University).
6. Brown : *Coins of India*.
7. Rapson : *Coins of India* (Encyclopædia of Indo-Aryan Research).
8. Masters : *Romance of Excavation*.
9. Woolley : *Digging up the Past*.
10. Fergusson : *History of Indian and Eastern Architecture*.
11. Stella Kramrish : *Indian Sculpture* (Heritage of India Series).
12. Percy Brown : *Indian Painting* (Heritage of India Series).
13. Coomarswami : *Indian and Indonesian Art*.

2. HISTORY OF CIVILIZATION

A study in outline of the main currents of world civilization.

Books for Study.

1. Swain : *A History of World Civilization*
2. Thorndike : *A Brief History of Civilization*
3. Durant : *The Story of Civilization*.

Books for Reference

1. Wells : *Outline of History*.
2. De Morgan : *Pre-Historic Man*
3. Breasted : *Ancient Times*.
4. Glover : *The Ancient World*.
5. Stobart : *The Glory that was Greece*.
6. Stobart : *The Splendour that was Rome*.
7. Tappan : *In Feudal Times*.
8. Ashley : *Modern European Civilization*
9. Marvin : *The Living Past*.
10. Ameer Ali : *A Short History of the Saracens*.
11. Douglas : *China* (Story of the Nations).
12. Murray : *Japan* (Story of the Nations).
13. Giles : *The Civilization of China, 1000 B.C. to 1920 A.D.*
14. Bryan : *The Civilization of Japan*.
15. Harmsworth : *History of the World*.
16. Hayes, Mood and Weyland : *Brief History of the World*.

3. RECENT ECONOMIC HISTORY OF INDIA

(Same as for B.A.)

4. PUBLIC ADMINISTRATION

(Same as for B.A.)

(9) POLITICS

Major Subjects—

1. History of Political Thought.
2. Political Theory.
3. Political Organization.
4. Public Administration.
5. Economics.
6. Public Finance.
7. Indian Political Institutions.
8. Essay.

Minor Subjects—

1. Constitutional History of England.
2. Jurisprudence.
3. Sociology.
4. Recent Economic History of India.

The following is the detailed syllabus in Politics :—

Major Subjects—

1. HISTORY OF POLITICAL THOUGHT.

Greek political thought, the Roman contribution, the Mediæval period, St. Thomas Aquinas and Dante, Machiavelli, Political Theory of the Reformation and Counter Reformation, the Divine Right of Kings, Bodin and Grotius, the Social Contract: Hobbes, Locke and Rousseau, Montesquieu, the Theory of the American and the French Revolutions, Natural Rights, Convention and Tradition: Hume and Burke, the Idealist Theory, the Utilitarians, Maine and the Historical Method, Spencer, Value of the Biological conception in Politics, Reaction against individualism, Pluralism, the Theory of Democracy, Socialism, Evolutionary and Revolutionary Communism, Fascism and National Socialism.

NOTE.—A knowledge of original authorities is required.

Books Recommended

1. Plato: *The Republic*.
2. Aristotle: *The Politics*.
3. Machiavelli: *The Prince*.
4. Hobbes: *The Leviathan*.
5. Locke: *On Civil Government*.
6. Rousseau: *The Social Contract*.
7. Burke: *Reflections on the French Revolution*.
8. John Stuart Mill: *On Liberty*.
9. Maine: *Ancient Law*.
10. Barker: *Greek Political Theory*.
11. Barker: *Political Thought in England, 1848-1914*.

12. Gettel : *History of Political Thought*.
13. Coker : *Recent Political Thought*.
14. Davidson : *The Utilitarians*.
15. Dunning : *A History of Political Theories*, 3 Vols.
16. Englemann : *Political Philosophy from Plato to Jeremy Bentham*.
17. Gierke : *Political Theories of the Middle Age* (Translated by F W. Maitland).
18. Graves : *A History of Socialism*.
19. Hearnshaw : *The Social and Political Ideas of Some Great Mediaeval Thinkers*.
20. Joad : *Modern Political Theory*.
21. Laski : *Political Thought in England from Locke to Bentham*.
22. McIlwain : *The Growth of Political Thought in the West*.
23. Merriam and Barnes : *A History of Political Theories in Recent Times*.
24. Sabine : *A History of Political Theory*.
25. Joad : *Guide to the Philosophy of Morals and Politics*.
26. Willoughby : *The Ethical Basis of Political Authority*.
27. Mayer : *Political Thought*.
28. Maxey : *Political Philosophies*.
29. Murray : *History of Political Thought from Plato to the Present*.
30. Spender : *The Government of Mankind*.
31. Laski : *Communism*.

2. POLITICAL THEORY.

Nature and Scope of Politics.—Definition of Politics, Relation between Politics and other Social Sciences, Method: Inductive and Deductive methods, their merits and limitations, Basis of political obligation, Fundamental ideas: Society, State, Nationality and Nation, Sovereignty, Government and Law; Rights, Liberty and Equality; Citizenship; Duties of Citizenship; Nationalism and Internationalism.

Origins of State: Speculative and Historical theories, the new concept of the State, the democratic *versus* the authoritarian State, the sphere of the State: the purposes of the State and Governmental functions, the individualistic minimum of Governmental functions, the theories of punishment, the Socialistic tendencies, State in relation to Economic life, Property, Associations, Family and Education, Recent trends in functions of Government: Democracy *versus* Dictatorship.

Books Recommended

1. Garner : *Political Science and Government*.
2. Garner : *Introduction to Political Science*.

3. Green : *Principles of Political Obligation*.
4. Mill : *Representative Government*.
5. Krabbe : *The Modern Idea of the State*.
6. Laski : *Grammar of Politics*.
7. Laski : *Liberty in the Modern State*.
8. Lindsay : *The Essentials of Democracy*.
9. Lord : *The Principles of Politics*.
10. MacIver : *The Modern State*.
11. Ruthnaswamy : *The Making of the State*.
12. Sidgwick : *Elements of Politics*.
13. Soltan : *The Economic Functions of the State*.
14. Tawney : *Equality*.
15. Wilson : *Elements of Modern Politics*.
16. Lippman : *Public Opinion*.

3. POLITICAL ORGANIZATION

(A) *History of Government*.—The Greek City-State, the Government of Rome, Mediæval European Polity: Feudalism, Theocracy, Mediæval Parliaments, Mediæval City-States, the Renaissance, the Reformation, Absolute Monarchy, the French Revolution, Industrial Revolution, Growth of Nationalism, Democracy, Dictatorships.

(B) *The Organization of Government*.—The classification of Constitutions, the nature of the State: Unitary and Federal, the nature of the Constitution: Rigid and Flexible, Separation of Powers, the Legislature, Parties and Party Government, the Electorate, the Executive, Local Government, Judiciary, Rule of Law, Administrative Law.

(C) *Modern Constitutions*.—Britain, Canada, Australia, South Africa, Dominion Status, France, the U. S. A., Switzerland, Russia, Italy, Germany, India.

Books Recommended

1. Buell : *New Governments in Europe*.
2. Eddy and Lawton : *India's New Constitution*.
3. Finer : *The Theory and Practice of Modern Government*.
4. Fowler : *The City-State of the Greeks and Romans*.
5. Goad and Currey : *The Working of a Corporative State*.
6. Keith : *The Governments of the British Empire*.
7. Laski : *Grammar of Politics*.
8. Laski : *Parliamentary Government in England*.
9. Munro : *The Governments of Europe*.
10. Munro : *The Governments of the United States*.
11. Petrie : *The History of Government*.
12. Sidgwick : *The Development of European Polity*.
13. Varadarajan : *The Indian States and the Federation*.
14. Bryce : *Modern Democracies*.
15. Marriot : *Mechanism of the Modern State*.
16. Strong : *Modern Constitutions*.

4. PUBLIC ADMINISTRATION

(a) *Introductory*.—The scope and nature of Public Administration.

(b) *Organization*.—

- (1) Evolution and general structure of the Public Services.
- (2) Staff: Conditions of Service, Recruitment, Training, Discipline, Promotion, Organization of Public Employees.
- (3) Description of the Organization of various departments and local authorities.
- (4) Problems of Management and Control—Control of Government by Legislature, Control of Local Authorities by the Central Government. Management of Public Utility services.
- (5) Financial Control.
- (6) Demarcation of functions and areas, between departments, between centre and local authorities, between local authorities.
- (7) Co-ordination.
- (8) The use of the non-official and voluntary associations in administration.

(c) *Functions and Contacts*.—Relations with the public and press, Legislative functions including statutory orders, Judicial functions and relations with the Courts. The State in relation to finance, industry and agriculture, Land Revenue Administration. The State in relation to Labour, Public Health, Provision of social benefits like Education, Roads, Housing, Public assistance, Prohibition, Control of Credit, Famine Relief, Pensions, Public Safety, Police and Army, Statistics. The State as Purchaser. Raising of funds by the State.

NOTE.—The principles will be studied with special reference to administration in I.

(d) *Budget*.—

Books Recommended

1. *Finer: The British Civil Service.*
2. *Harris: Local Government in Many Lands.*
3. *Maud. Local Government in Modern England.*
4. *Report of the Machinery of Government Committee, 1918.*
5. *Roy: Indian Civil Service.*
6. *The Simon Commission Report.*
7. *Ghosh: Public Administration in India.*
8. *Metha: Public Administration of India.*
9. *White: Introduction to the Study of Public Administration.*

10. Willoughby : *Principles of Public Administration*
11. Buck : *The Budget*.

5. ECONOMICS.

Same as for History Honours.

6. PUBLIC FINANCE.

Same as for Economics Honours.

7. INDIAN POLITICAL INSTITUTIONS.

(a) *From early times to the British Period*.—Vedic foundations, Post-Vedic life and ideals. *Mauryan Polity* : Monarchy. Ministers and Departments, Provincial Government. Local Government, Justice. Military system. *The Middle Ages* : Rajput polity, Afghan polity, Chola Administration, Institutions of the Vijayanagar Empire. *Mughal Administration* : The Government, its character and aims, the sovereign and the departmental heads, the Treasury and Household departments, Provincial Administration, Taxation of Land. *Later Period* : Maratha Administration, Central, Provincial and Local Government, Finance, Military system, Justice ; Mysore under the Wodeyars, Hyder Ali and Tippu Sultan ; the polity of the Sikhs.

(b) *The British Period*.—The East India Company : its Constitution and the Administration of its Settlements and Territories. The Diwani and Daul Government in Bengal. The intervention of Parliament, Warren Hastings. The establishment of Organized Administration : Pitt's Act and Cornwallis. The Supremacy of the Company in India and the Charter Acts of 1813 and 1858. The assumption of Government by the Crown ; the Golden Age and Bureaucracy. The Minto-Morley Reforms. The Montague-Chelmsford Scheme. The Working of Dyarchy. The Simon Commission and the Round Table Conference. The Act of 1935 ; main features. The Federal Scheme. The Central Government, Provinces, the position of the States. Relation between the Centre and the Units, Federal Finance, Defence. The Services of the Crown. The Judiciary. The Home Government.

Books Recommended.

1. Appadorai : *Dyarchy in Practice*.
2. Banerjee : *Public Administration in Ancient India*
3. Ghoshal : *A History of Hindu Political Theories*.
4. Jayaswal : *Hindu Polity*.
5. Krishnaswami Aiyangar : *Evolution of Hindu Administrative Institutions in South India*.

6. Keith: *Speeches and Documents on Indian Policy, 1750-1921*. 2 Volumes.
7. Keith: *Constitutional History of India, 1600-1935*.
8. Mukherji: *Indian Constitutional Documents, 1600-1918*. 2 Volumes.
9. Nilakanta Sastry: *The Colas*, Vol. II, Chapters XVII to XIX.
10. Ramachandra Dikshitar: *Hindu Administrative Institutions*.
11. *Report of the Indian States Enquiry Committee, 1928-29*.
12. Sarkar: *Mughal Administration*.
13. Sen: *Administrative System of the Marathas*.
14. *The Government of India Act, 1935*.
15. *The Montague-Chelmsford Report*.
16. Venkateswara: *Indian Culture through the Ages*, Vol. II.
17. Joshi: *The New Constitution of India*.
18. Ramaswamy: *Law of the Indian Constitution*.
19. Bose: *The Working Constitution of India*.

Minor Subjects—

1. CONSTITUTIONAL HISTORY OF ENGLAND.

Features of the English Constitution, Theories regarding the origin of the Constitution, the Anglo-Saxon age, the Norman and First Angevin Kings, Administrative System under the Norman and Plantagenet Kings, the Great Charter. The Origin and Development of Parliament, Premature Constitutional Government, the Tudor Monarchy. The 17th Century: Parliament *versus* the King, the Victory of Parliament. The Development of the Cabinet and the Party System, the Civil Service, the Rise of Democracy, Growth of Local Self-Government and the Judicial System in the 19th Century, Development of the Constitution after 1900.

Books Recommended

1. Adams: *Constitutional History of England*.
2. Keir: *The Constitutional History of Modern Britain, 1485-1937*.
3. Maitland: *The Constitutional History of England*.
4. Jennings: *Cabinet Government*.
5. Tashwell-Landmead: *English Constitutional History*.
6. Medley: *Constitutional History of England*.

2. JURISPRUDENCE.

Introductory.—The science of Jurisprudence.

Nature and Source of Law.—The kinds of Law, Civil Law, Administration of Justice, the State, Source of Law: Legislation, Precedent, Custom, the end of Law.

The Elements of the Law.—Legal Rights, Kinds of Legal Rights, Ownership, Possession, Persons, Titles, Liability, Intention and Negligence, Law of Property, Law of Obligations, the Law of Procedure.

Books Recommended

- 1 Holland : *The Elements of Jurisprudence*.
- 2 Maine : *Ancient Law*
3. Pound : *An Introduction to the Philosophy of Law*.
4. Salmond : *Jurisprudence*, Ninth Edition.
- 5 Austin : *Jurisprudence*.

3. SOCIOLOGY.

(Same as Paper I, General Principles, for B.A.)

4. RECENT ECONOMIC HISTORY OF INDIA.

(Same as for B.A.)

(10) ECONOMICS

Major Subject—

- (1) Economic Principles.
- (2) Money.
- (3) Structure and Problems of Modern Industry.
- (4) Public Finance.
- (5) Economic History.
- (6) Politics.
- (7) A Special Subject.
- (8) Essay.

NOTE—The special subject will be prescribed from time to time.

Minor Subject—Same as for B. A.

One of the following groups :—

- (A) Recent Economic History of India.
Elements of Statistics.
History of India to 1300.
History of India from 1300 to 1920.
- (B) Recent Economic History of India.
Elements of Statistics.
Principles of Sociology I.
Principles of Sociology II.
- (C) Recent Economic History of India.
Pure Mathematics I.
Pure Mathematics II.
Applied Mathematics—General Statistics, etc.

The following is the Detailed Course of Study in Economics :—

1. ECONOMIC PRINCIPLES.

Nature and significance of economic science. Economics of Wealth and Welfare. General Principles of Economic analysis. Theories of Production, Consumption, Value and Distribution. Development of economic doctrines. Schools of economic thought. Theory of Domestic Trade and Foreign Trade. Imperfect Competition. Monopolies. Economic Theory of Socialism.

Books Recommended

1. Keynes : *Scope and Method of Political Economy*.
2. Robbins : *Nature and Significance of Economic Science*.
3. Marshall : *Principles of Economics*.
4. Pigou : *Economics of Welfare*.
5. Cannan : *Review of Economic Theory*.
6. Gray : *Development of Economic Doctrine*.
7. Knight : *Risk, Uncertainty and Profit*.
8. Hicks : *Theory of Wages*.
9. Fisher : *Theory of Interest*.
10. Taussig : *International Trade*.
11. Wicksteed : *Commonsense of Political Economy*.
12. Dalton : *Inequality of Incomes*.
13. Homan : *Contemporary Economic Thought*.
14. Suranyi-Unger : *Economics in the Twentieth Century*.
15. Carr-Saunders : *Population*.
16. Keynes : *General Theory of Employment, Interest and Money*.
17. Meade : *Economic Analysis and Policy*.
18. Skelton : *Socialism*.
19. Fraser : *Economic Thought and Language*.
20. Ropke : *Crises and Cycles*.
21. Roll : *History of Economic Thought*.
22. Haberler : *The Theory of International Trade*.
23. Hall : *The Economic System of a Socialist State*.
24. Robinson : *Imperfect Competition*.
25. Wicksell : *Lectures on Political Economy*.

2. MONEY.

Theory of Money. Monetary Standards. Principles of Currency and Credit. The Price Structure and the Behaviour of Prices—Banking Policy and the Price Level. Central Banking, Commercial Banking and Investment Banking. The Main Features of the Currency and Banking Organisation of the Principal Countries. Theory of Foreign Exchanges. Theory of International Prices. Exchange Control. Monetary Theories of the Trade Cycle. Stabilisation of Prices. Bank for International Settlement.

Books Recommended

1. *The Macmillan Report.*
2. Hawtrey : *Currency and Credit.*
3. Kisch and Elkin : *Central Banks.*
4. Angell : *Theory of International Prices.*
5. *Report of the Indian Central Banking Inquiry Committee.*
6. Coyajee : *The Indian Currency System.*
7. Willis and Beckhart : *Foreign Banking Systems.*
8. Keynes : *General Theory of Employment, Interest and Money.*
9. Haberler : *Prosperity and Depression.*
10. Curtis and Townsend : *Modern Money.*
11. Sayers : *Modern Banking.*
12. Cole : *What Everybody Wants to Know About Money*
13. Durbin : *The Problem of Credit Policy.*
14. White : *Money and Banking.*
15. Moulton : *Financial Organisation of Society.*
16. Lavington : *English Capital Market.*
17. Einzig : *Monetary Reform.*
18. Hawtrey : *Art of Central Banking.*
19. Mises : *Theory of Money and Credit.*
20. Edie : *Stabilisation of Business.*
21. Gregory : *Gold, Capitalism and Employment.*
22. Robertson : *Banking Policy and the Price Level.*
23. Burgess : *The Reserve Banks and the Money Market.*
24. Lawrence : *Stabilisation of Prices.*
25. Spalding : *Foreign Exchange and Foreign Bills.*
26. Jathar and Beri : *Indian Economics.*
27. Einzig : *Exchange Control.*

3. STRUCTURE AND PROBLEMS OF MODERN INDUSTRY.

Industry and Agriculture. The promotion of a Public Company. Organisation of Stock Exchange. Organised Produce Markets. Industrial Combinations. International Industrial Agreements. Industrial Fluctuations. Business Forecasting. Scientific Management and Rationalisation. Risk and Risk-bearing in Modern Industry. Economic Transport. Labour Problems and the Problem of Unemployment. The Tariff and Commercial Policy. Alternative to Capitalism. Economic Planning.

Books Recommended

1. Haney : *Industrial Organisation and Combination.*
2. Clark and Jenks : *The Trust Problem.*
3. Watkins : *Labour Problems.*
4. Shields : *Industrial Organisation.*

5. Duguid : *Stock Exchange*.
6. Mitchell : *Business Cycles*.
7. Hardy : *Risk and Risk-bearing*.
8. Grunzell : *Economic Protectionism*.
9. Lloyd : *Trade Unionism*.
10. Jacob Winer : *Dumping*.
11. Urwick : *Meaning of Rationalism*.
12. Douglas and Director : *The Problem of Unemployment*.
13. Jathar and Beri : *Indian Economics*.
14. Lokanathan : *Industrial Organisation of India*.
15. Beveridge : *Tariff, the Case Examined*.
16. Wootton : *Plan and No Plan*.
17. Burrows : *Economic Planning*.
18. Slichter : *Modern Economic Society*.
19. Marshall : *Industry and Trade*.
20. Fenelon : *Railway Economics*.
21. Fisk and Peirce : *International Commercial Policies*.
22. Zimmerman : *World and its Resources*.
23. Smith : *Organised Produce Markets*.
24. Robinson : *Structure of Competitive Industry*.
25. Clark : *Strategic Factors in Business Cycle*.
26. Robertson : *Control of Industry*.

4. PUBLIC FINANCE

The Theoretical Problems connected with Public Revenue, Public Expenditure and Public Debts. Government Finance, the Money Market and the Price Level. Economics of Public Utilities and State Enterprises. Financial Administration. Federal Finance. Economics of Public Works. Financing of Social Insurance. Proposals for Financial Reform.

Books Recommended.

1. Dalton : *Public Finance*.
2. Pigou : *A Study in Public Finance*.
3. Lutz : *Public Finance*.
4. Findlay Shirras : *Science of Public Finance*.
5. *Report of the Colwyn Committee on National Debt and Taxation*.
6. *The Report of Indian Taxation Enquiry Committee*.
7. Adarkar : *Principles of Federal Finance*.
8. *The Report of the Simon Commission-Layto-Memorandum*.
9. Silverman : *Taxation, its Incidence and Effects*.
10. Gyan Chand : *Financial Administration of India*.
11. Glaeser : *Outlines of Public Utility Economics*.

12. Jathar and Beri : *Indian Economics*.
13. Fagon and Macy : *Public Finance*.
14. Thomas : *Evolution of Federal Finance*.
15. Grice : *National and Social Finances*.
16. Seligman : *Essays in Taxation*.
17. Stamp : *Fundamental Principles of Taxation*.
18. Plehn : *Public Finance*.
19. *Public Works Policy*, I.L.O.
20. *Financial Statement of the Chancellor of the Exchequer*.
21. Hilton Young : *The System of National Finance*.
22. Comstock : *Taxation in the Modern State*.
23. Hobson : *Taxation in the New State*.
24. De Marco : *First Principles of Public Finance*.

5. ECONOMIC HISTORY

Main Features in the Economic Development of the Leading Countries in the Modern Age, viz., U.S.A., France, Germany and Japan. Outstanding Changes in Agriculture and Industry, Trade and Transport, Tariff and Commercial Policy. The Development of International Economic Relations. The Part played by the State in the Regulation of Economic life.

Books Recommended

1. Ogg and Sharp : *The Economic Development of Modern Europe*.
2. Birnie : *Economic History of Modern Europe*.
3. Knowles : *Economic Development of the 19th Century*.
4. Moulton : *Japan*.
5. Vyebara : *Industry and Trade of Japan*.
6. Culbertson : *International Economic Policies*.
7. *Cambridge Modern History*, Vol. VII, U.S.A.,
Ch. XXII.
8. *Cambridge Modern History*, Vol. X,
Economic Change '.
9. Day : *History of Commerce*.
10. Fisk and Peirce : *International Commercial Policies*.
11. Weber : *General Economic History*, Part IV.
12. Herbert : *Economic History of Europe*.
13. Donaldson : *International Economic Relations*.
14. Unwin : *Studies in Economic History*.
15. Toynbee : *Survey of International Affairs*.
16. Clapham : *Economic Development of France and Germany*.
17. Hammond : *The Rise of Modern Industry*.
18. Ashley : *Modern Tariff History*.

19. Faulkner : *Economic History of the United States.*
20. Seligman : *Economic Interpretation of History.*
21. Tawney : *Religion and the Rise of Capitalism.*

6. POLITICS

Nature and Scope of Political Science. Methods of Political Science. Development of Political Ideas. The Nature of the State. Constituent Elements and Attributes of the State. State, Nation and Nationality. Sovereignty. Theories of the State. Forms and types of States. Associations and Unions of States. Forms and types of Government. Elements of Strength and Weakness in different forms and types of Government. The Province of Government. Constitutions. The Electorate. The Legislative Organ. The Executive Organ. The Judiciary. Recent Developments in Political Theory and Practice.

Note.—A sound knowledge of the Indian Constitution will be required.

Books Recommended

1. Garner : *Political Science and Government.*
2. Laski : *Grammar of Politics.*
3. Wilson : *Modern Politics.*
4. MacIver : *The Modern State.*
5. Sabine : *History of Political Theory.*
6. Strong : *Modern Constitutions.*
7. Follett : *The New State.*
8. Buell : *New Governments in Europe.*
9. Dicey : *Law of the Constitution.*
10. Mill : *Representative Government.*
11. Barker : *Political Thought from Herbert Spencer to Present Day.*
12. Coker : *Recent Political Thought.*
13. Rathnaswamy : *The Making of the State.*
14. Finer : *Theory and Practice of Modern Government.*
15. Ghosal : *Hindu Political Theories.*
16. Keith : *A Constitutional History of India.*
17. Joshi : *The New Constitution of India.*
18. *Report of the Joint Committee on Indian Constitutional Reforms, 1934.*
19. Bryce : *Modern Democracies.*
20. Joad : *Guide to the Philosophy of Morals and Politics*
21. Mogi : *Theory of Federalism.*
22. Willoughby : *Modern Governments.*
23. Keith : *Constitutional Law of the British Dominions.*
24. Munro : *Governments of Europe.*
25. Munro : *Government of U.S.A.*
26. Ogg : *English Government and Politics*

(11) PHILOSOPHY

(A) METAPHYSICS BRANCH

Major Subject—

1. History of European Philosophy, Ancient and Mediæval.
2. History of Modern European Philosophy.
3. Metaphysics with Special reference to Contemporary Philosophy.
4. Theory of Knowledge.
5. History of Indian Philosophy (exclusive of Vedānta).
6. Vedānta (Advaita, Viśiṣṭadvaita, Dvaita).
7. Philosophy of Religion (with special reference to India).
8. Essay.

Minor Subject—Same as for the B.A. Degree Course.

1. General Psychology.
2. Ethics.
3. Logic.
4. Plato's Republic.

(B) SOCIAL PHILOSOPHY BRANCH

Major Subject—

1. Ethics.
2. Political Philosophy.
3. History of Ethics and History of Political Philosophy.
4. Indian Ethics and Indian Political Thought.
5. Sociology I (Principles of Sociology).
6. Sociology II (Indian Social Institutions).
7. Philosophy of Religion (with special reference to India).
8. Essay.

Minor Subject—

One of the following Groups :—

- (A)
 1. Anthropology.
 2. Comparative Politics.
 3. General Economics [Paper (I) of Economics at the B.A. Pass].
 4. Social Psychology.
- (B)
 1. General Psychology.
 2. Metaphysics.
 3. Indian Philosophy.
 4. Anthropology or Social Psychology.

(C) PSYCHOLOGY BRANCH

Major Subject—

1. General Psychology.
2. Systems of Psychology.
3. Experimental Psychology—Theory I.
4. Do do —Theory II.
5. Do do —Practical.
6. Essay.
- 7-8. Any *two* of the following to be prescribed from time to time.
 - (a) Mental Measurement.
 - (b) Psychology of Industry.
 - (c) Psychology of Religion.
 - (d) Child Psychology.
 - (e) Social Psychology (including Folk Psychology).

Minor Subject—

1. Elements of Metaphysics *or* Principles of Sociology.
2. Comparative Psychology : Animal and Abnormal.
3. Statistics and Scientific Method.
4. Mental Heredity and Physiological Psychology.

The following is the detailed course of study in the several subjects in Philosophy :

(A) METAPHYSICS BRANCH

Major Subject—

1. HISTORY OF EUROPEAN PHILOSOPHY, ANCIENT
AND MEDIÆVAL

This should comprise a study of the following philosophers as covered by the text-books recommended :—

- (1) Early Greek Philosophers up to the Sophists—
Socrates, Plato, Aristotle, Stoics and Epicureans.
Plotinus and Neo-Platonism.
- (2) General Influence of Christianity on Philosophy in the Middle Ages—
Influence of Avicenna and Averrhoes on Christian Thought.
Scholasticism of Albert the Great and Aquinas.
Nominalists and Realists. Ockham and Duns Scots.
Decay of Scholasticism.
Roger Bacon and the Birth of Modern Science.
The Influence of the Renaissance on the Development of Philosophic Thought.

NOTE.—Mediæval Philosophy should cover only a quarter of the whole paper.

Books for Study

1. *Burnet : Early Greek Philosophy.
2. *Burnet : Greek Philosophy from Thales to Plato.
3. *Plato. *Phædrus*, *Republic*, *Parmenides*, *Theætetus*, *Sophist*, *Philebus*.
4. *Aristotle : *Metaphysics*, Books XII and XIII.
5. Bakewell : *Source Book in Ancient Philosophy*.
6. Stace : *Critical History of Greek Philosophy*.
7. Fuller : *History of Philosophy*, Vol. I.
8. Wallace : *Outlines of the Philosophy of Aristotle*.
9. Erdmann : *History of Ancient and Mediaeval Philosophy*.
10. Plotinus : *Enneads*, Book I (Stephen Mackenzie).
11. De Wulf : *History of Mediaeval Philosophy*

2. HISTORY OF MODERN EUROPEAN PHILOSOPHY

1. The general influences which made the birth of Modern Philosophy possible.

2. Lord Bacon and Descartes as founders of Modern Philosophy.

3. The Rationalism of Descartes, Spinoza and Leibnitz with particular reference to their method and the following problems :

The Relation of Mind and Body, Modes and Substance.
God. Monism and Pluralism. Space and Time.

4. The Empiricism of Locke, Berkeley and Hume with particular reference to their method and the following problems :—

Substance and Qualities (primary and secondary), Matter and Self, Causality, Space and Time and God.

5. The Relation of Rationalism and Empiricism as leading to the Birth of Idealism in Kant.

6. The Philosophy of Kant with particular reference to the critical method and the following problems :—

Space and Time, Categories, Transcendental Dialectic in the Critique of Pure Reason. The main ideas in the Critique of Practical Reason and the Critique of Judgment as bearing on the Teaching of the Critique of Pure Reason.

7. The Philosophy of Fichte and Schelling in so far as they attempt to overcome Kantian Dualism.

8. The Philosophy of Hegel with particular reference to his Dialectical Method, his Conception of Logic, the Triadic Law,

* These are particularly emphasized.

the Concept of the Absolute, the Philosophy of Spirit, the Relation of Art and Religion to Philosophy.

9. A Brief Survey of Post-Hegelian Philosophy as developed by Schopenhauer, Nietzsche, Lotze and Herbert Spencer.

Books for Study

1. *Hoffding : *History of Modern Philosophy*.
2. Robinson : *An Anthology of Modern Philosophy*.
3. Fuller : *History of Philosophy*. Vols. II and III.
4. Watson : *Selections from Kant*.

3. METAPHYSICS WITH SPECIAL REFERENCE TO CONTEMPORARY PHILOSOPHY

A prescribed classic is to be studied. But candidates will be expected to have a general knowledge of metaphysical problems as covered by the syllabus in Elements of Metaphysics for the B.A. Degree Examination. They are also expected to have a general knowledge of the different currents of contemporary thought as represented, *e.g.*, by Bergson and James, Bertrand Russell and Alexander, Whitehead and Eddington, Croce and Gentile.

Books for Study

Prescribed Classic---To be prescribed every year.

Books for Reference

1. * Prescribed Classic to be prescribed every year.
2. Perry : *Recent Tendencies in Philosophy*
3. Bosanquet : *The Meeting of Extremes in Contemporary Philosophy*.
4. Joad : *Introduction to Modern Philosophy*.
5. Metz : *A Century of British Philosophy*.

4. THEORY OF KNOWLEDGE

- I. Nature of Knowledge.
- II. Postulates of Knowledge: Formal and Material.
- III. Ways of Knowing.
- IV. The Relation of Thought and Language.
- V. Nature of Judgment—
Various Theories of Judgment. Unity of Judgment,
Various kinds of Judgment and their Inter-relation.
Negation and Disjunction.
- VI. Nature of Inference.

* These are particularly emphasized.

VII Knowledge and Reality—

- (1) Idealism.
- (2) Pragmatism.
- (3) Realism.
- (4) Intuitionism. (Losskey's Intuitive Basis of Knowledge.)
- (5) The Problem of Truth and Error: Degrees of Truth and Reality; Criterion of Truth; Theories of Truth; Relation of Knowledge to Truth and Reality.

Note.—A comparative study of Theories of Knowledge in Indian Philosophy is expected of candidates.

Books for Study

1. *Bosanquet : Logic.
2. Blanshard : The Nature of Thought.
3. Bradley : Essays on Truth and Reality (Epistemological chapters only).
4. Holt and Others : The New Realism.
5. Drake and Others : Essays in Critical Realism.
6. Reid : Knowledge and Truth.
7. The Philosophy of John Dewey, edited by Joseph Rantner (Selections bearing on the Theory of Knowledge).

5. HISTORY OF INDIAN PHILOSOPHY (EXCLUSIVE OF VEDANTA), AND 6. VEDANTA

Topics will be covered in these as in the syllabus in Outlines of Indian Philosophy for the B.A. Degree Examination; but candidates are expected to have a detailed knowledge of them.

Books for Study

1. *Hiriyanna : Outlines of Indian Philosophy.
2. *Radhakrishnan : Indian Philosophy.
3. *Dasgupta : History of Indian Philosophy.
4. *Srinivasachari : Ramanuja's Idea of the Finite Self.
5. *Raghavendrachar : The Dvaita Philosophy and Its Place in the Vedanta.
6. Rande : Survey of Upanishadic Philosophy.
7. Deussen : The Philosophy of the Upanishads.
8. Leussen : The System of the Vedanta.
9. Urquhart ; Vedanta and Modern Thought.

* These are particularly emphasized.

10. S. Subba Rao : Introduction to his translation of Sutra Bhashya.
11. Keith : Indian Logic and Atomism.
12. Kuppuswamy Sastry : Primer of Indian Logic.
13. K. A. Krishnaswamy Iyer : Vedanta as the Science of Reality.
14. Srinivasachari : The Philosophy of Bhedaboeda.
15. Nagaraja Sarma : The Reign of Realism in Indian Philosophy.
16. Jaini : Outlines of Jainism.
17. Paranjoti : Saiva Sidhanta.

7. PHILOSOPHY OF RELIGION (WITH SPECIAL REFERENCE TO INDIA)

I. Introductory—

Philosophy, Science and Religion.
 Philosophy of Religion and Theology.
 Philosophy of Religion and Comparative Religion.
 Philosophy of Religion and Psychology of Religion.

II. Elements of Comparative Religion—

1. Value of the Comparative Study of Religion.
2. Sacred Objects, Sacred Act, Sacred Persons.
3. Tribal Religion, National Religion and Universal Religion.

III Psychology of Religion—

The Religious Attitude and the Psychological Factors involved therein. Psychology of Mysticism. The question of the Validity of Mystic Experience.

IV. A brief survey of Hinduism (including Sikhism, Brahma Samaj and Arya Samaj), Buddhism, Jainism, Zoroastrianism, Judaism, Christianity and Islam.

V Nature of Religion—

1. The Nature of Religion. The Bearing of Psychology and Sociology.
2. Theories of Religion and their Critique :
 - (a) Intellectualist.
 - (b) Moralist.
 - (c) Romantic.
 - (d) Sociological.
3. Positive Statement of the Nature of Religion : Definition.

VI. The Relation of Magic and Religion.

- VII. Idea of God in Polytheism. Pantheism. Monotheism. Proofs of the Existence of God : Ontological, Cosmological, Teleological. Emphasis in Contemporary Philosophy on the Nature of God rather than on Proofs. Some modern views : Alexander and Whitehead. " Religion without God " : is it tenable ?
- VIII. Problems of Divine Nature—
Attributes of God. God and the Absolute. Emanation and Creation. Immanence and Transcendence. The Problem of Evil. The Relation of God and Individual.
- IX. Immortality and Future Life—
Primitive and Modern Conceptions.
The Relation of Mind and Body.
Inherent and Conditional Immortality.
- X. Doctrine, Dogma and Revelation—
" Revelation : " its place in Religion. Mediæval and Modern Views on the Subject of Revelation. Is Revelation necessary for Religion ? Can the claims of Reason and Revelation be reconciled ? Scholastic attempt.
- XI. Personal and Institutional Religion.

Books for Study

1. *Galloway : The Philosophy of Religion.
2. *Leuba : A Psychological Study of Religion.
3. *Pratt ; Religious Consciousness.
4. James Varieties of Religions Experience.
5. Woodburne : The Religious Attitude.
6. Otto : The Idea of the Holy.
7. Religions of the World, edited by Carl Clemen.
8. Bhattacharya : Foundation of Living Faiths.
9. Woodburne : *The Religious Attitude*.
10. H. D. Bhattacharya : *Foundations of Living Faith*.
11. Carl Clemen : *Religions of the World*.
12. E. E. Kellett : *Short History of Religion*.

Minor Subject—

- | | | |
|------------------------|---|---|
| 1. General Psychology. | } | Same as for the B.A. Degree Examination in Philosophy |
| 2. Ethics. | | |
| 3. Logic. | | |
| 4. Plato's Republic. | | |

* These are particularly emphasized.

(B) SOCIAL PHILOSOPHY BRANCH

Major Subject—

1. ETHICS

The topics to be covered are the same as in the Ethics syllabus for the B.A. Degree Examination. But a detailed knowledge is expected of the Honours candidates. They are also expected to be familiar with the general standpoints of recent authors, such as A. E. Taylor, Alexander, G. E. Moore, Croce, Bergson, and Nicolai Hartmann.

Books for Study

1. *Plato : Republic
2. *Aristotle : Nicomachean Ethics
3. *Sidgwick : History of Ethics
4. *Kant : Critique of Practical Reason
5. *Kant : Metaphysics of Morals
6. *T. H. Green : Prolegomena to Ethics
7. *Sidgwick : Methods of Ethics
8. A. E. Taylor : The Problem of Conduct
9. S. Alexander : Moral Order and Progress
10. Moore : Principia Ethica
11. Croce : Philosophy of the Practical
12. Nicolai Hartmann : Ethics
13. L. A. Reid : Creative Morality
14. Ross : Foundations of Ethics
15. Joseph : Some Problems of Ethics
16. Muirhead : Rule and End in Morals
17. Westermarck : Origin and Development of Moral Ideas
18. Lecky : History of European Morals

2. POLITICAL PHILOSOPHY

1. Distinction between Political Science and Political Philosophy. Relation of Politics to Sociology and Psychology.
2. The Concept of the State. Its basis in Force or Will. The Concepts of the General Will and the Will of All. The Concept of Liberty.
3. The Relation of the State to Morality. Critique of the Concept of the State as Super-moral.
4. Type of the State: Monarchy, Aristocracy, Democracy.
5. The Ethical Value of Democracy. The Relation of Equality and Freedom. The Weaknesses of Democracy. Is Genuine Democracy possible ?

*These are particularly emphasized

6. Influence of Economics on Modern Politics. The Relation of Democracy and Socialism. Different Types of Socialism : Fabianism, Syndicalism, Communism.

7. The Philosophy of Materialism underlying Communism.

8. Modern Reactions against Democracy—

(a) Fascism and National Socialism.

(b) New Individualism.

9. The Concept of the World State. The Ethics of War
The League of Nations.

Books for Study

1. *T. H. Green : Lectures on Political Obligation
2. *Sabine : History of Political Theory
3. *Barker : Political Thought from Spencer to J. S. Mill
4. *Laski : Grammar of Politics
5. Maciver : The State
6. Ritchie : Natural Rights
7. Hobhouse : The Metaphysical Theory of the State
8. Ramsay Macdonald : Socialism
9. Laski : Communism
10. Lenin : Selections, edited by Pierre Pascal
11. Bukharin : Historical Materialism
12. Coker : Recent Political Thought

3. (a) HISTORY OF ETHICS

1. Greek Ethics with particular reference to Socrates, Plato, Aristotle, Stoicism and Epicureanism.

2. Christian Ethics with particular reference to St. Augustine and Aquinas.

3. Modern Ethics with particular reference to the Cambridge Platonists, the Moral Sense School, Richard Price, Bishop Butler, Hume, Kant, Hegel, Bentham, Utilitarians, Herbert Spencer.

Books for Study

Same as those prescribed for Ethics.

(b) HISTORY OF POLITICAL PHILOSOPHY

1. Greek Political Thought as in Plato and Aristotle.

2. Early Christian Political Thought as in St. Augustine

3. The Political Philosophy of the Scholastics.

4. The Conflict between the Empire and the Papacy with particular reference to Dante.

5. Rise of Independent Political Thought as in Bodin.

6. Social Contract Theory : Hobbes, Locke, Rousseau.

* These are particularly emphasized.

7. Reaction against the Social Contract Theories as in Bentham and Burke.

8. Idealistic Political Philosophy as in Hegel and his followers.

Books for Study

Same as those prescribed for Political Philosophy.

4. (a) INDIAN ETHICS

I. Nature and scope of *Dharma* as conceived in the various systems. Its relation to morality. Early moral notions like *rita* and *satya*. Classification of *dharma*s into—

- (i) *Sadharana* or those common to all : Life of virtues.
- (ii) *Vishesha* or those relative to particular *varnas* or classes of society, and *asramas* or stages of life.

Aim and significance of the classification. Morality of Indian Social Institutions. *Nitya*, *namittika*, *praisiddha* and *kamyā karmas*. Source of knowledge of *Dharma* :

- (1) Revelation (*sruti*). View of *vidhi* as (i) a divine command and (ii) an impersonal imperative.
- (2) Intuition of sages (*yogi pratayksha*).
- (3) Practices of the wise (*sishtachara*).
- (4) Reason.

II. Metaphysical Background of Indian Ethics. Conception of the Individual or Jiva as a transmigrating personality. Origin and history of the Karma doctrine. Its ethical basis. Free will and determinism. *Samsara* and Moral Order.

III. Inter-relation of cognition, feeling and conation. Voluntary and other forms of activity. The object of moral judgment. Analysis of Will. Springs of action according to the different systems. Reason and moral action.

IV. Standard of Moral Judgment:—

(1) Standard as Right (*karya*): Prabhakara's view of *nyoga* and *apurva*. Duty for duty's sake.

(2) Standard as Good (*ishtha*)—(i) End as present pleasure (*preyas*). Egoistic hedonism of the Charvaka. Natural and political sanctions the only deterrents. (ii) End mainly as pleasure in a future life (*svarga*). Eudæmonism of the Bhattas. (iii) End at self-realization (*moksha*) through self-conquest. Place of Asceticism in Indian Ethics. Jaina and Buddhistic Schemes of Discipline. Value of the doctrine of *himsa* or non-injury. Ideal of Bodhisattva. *Yama* and *nyama*. *Nisakma karma* as taught in the *Gita*. Importance of the teaching in the history of Hindu Ethics. *Lokasangraha*. Bhakti in relation to ethical conduct. Different views of self-realization.

V. The place of morality in the Indian scheme of life.

Books for Reference

1. *The Bhagawad Gita.
2. Manu's Code.
3. *E. W. Hopkins : Ethics of India.
4. *S. K. Maitra : Ethics of the Hindus.
5. Brahma : Philosophy of the Hindu Sadhana.
6. Sivaswamy Iyer : Evolution of Hindu Moral Ideals.

(b) INDIAN POLITICAL THOUGHT

1. General features of Ancient Hindu Polity. Its relation to Religion.
2. Early Tribal Organization and Early Monarchy.
3. Hindu Polity in its developed form as in *Kautilya's Artha Sastra*.
4. The chief concepts of Hindu Polity.
5. Hindu Republican Organizations.
6. Influence of Jainism and Buddhism on Political Theory.
7. Village Organisation : Its importance in Indian History. Its Relation to the Central Government.
8. Study of Hindu Political Institutions with reference to the concepts of Western Political Thought.

Books for Study

1. *Kautilya : Arthasastra.
2. *Ghoshal : Hindu Political Theories.
3. *Bandyopadhyaya : Development of Hindu Polity and Political Theories.
4. K. V. Rangaswamy Iyengar : Ancient Indian Polity.
5. Jayaswal : Introduction to Hindu Polity
6. Benop Kumar Sarkar : The Political Institutions and Theories of the Hindus.
7. Majumdar : Corporate Life in Ancient India

5. SOCIOLOGY I—PRINCIPLES OF SOCIOLOGY.

The topics to be covered are the same as in the Principles of Sociology I Paper Syllabus for the B.A. Degree Examination. But a detailed knowledge is expected of the Honours candidates.

Books for Study

1. *Gillin and Blackmar : Outlines of Sociology.
2. *Park and Burgess : An Introduction to the Science of Sociology.

* These are particularly emphasized.

3. *Davis and Barnes : Introduction to Sociology.
4. Giddings : Inductive Sociology.
5. Ross : Principles of Sociology.
6. George : The Relations of History and Geography.
7. Thomson and Geddes : Evolution.
8. Earnest Barker : National Character.
9. Westermarck : History of Human Marriage.
10. Wadia, A. R. : The Ethics of Feminism.
11. Gregory : The Colour Problem.
12. Gregory : Human Migration and the Future.
13. Davis and Barnes : Readings in Sociology.

6. SOCIOLOGY II—INDIAN SOCIAL INSTITUTIONS.

The topics to be covered are the same as in the Indian Social Institutions Syllabus (Principles of Sociology : II Paper A) for the B.A. Degree Examination. But a detailed knowledge is expected of the Honours candidates.

Books for Study

1. *Ghurye : Race and Caste in India.
2. * Dutt : Origin and Growth of Caste in India.
3. *Valavalkar : Hindu Social Institutions.
4. * Women's Rights under the Hindu Law (Report of the Chandrasekhara Iyer's Committee appointed by the Government of His Highness the Maharaja of Mysore).
5. * Appasamy : Legal Aspects of Social Reform.
6. * Visvanathan : Racial Synthesis in Hindu Culture (Sections on Caste and Marriage).
7. Manu's Code.
8. Karandikar : Hindu Exogamy.
9. Raghunath Rao : The Aryan Marriage.
10. Imperial Gazetteer. Vol. I, Chap. VI.
11. Benoy Kumar Sarkar : Positive Background of Hindu Sociology.
12. O. Malloy : Indian Social Heritage
13. Sivaswamy Iyer : Evolution of Hindu Moral Ideals.
14. Shustery : Outlines of Islamic Culture, Vol II, Chap. XIV.
15. Maine : Village Communities in East and West
16. Baden Powell : Origin and Growth of Village Communities in India.

* These are particularly emphasized.

7. PHILOSOPHY OF RELIGION

Same as in the Metaphysics Branch.

Minor Subject—

One of the following groups :—

A. 1. ANTHROPOLOGY

Same as for the B.A. Degree Examination in Sociology.

2. COMPARATIVE POLITICS

Same as for the B.A. Degree Examination in Politics.

3. GENERAL ECONOMICS

Same as for the B.A. Degree Examination in Economics (Paper I).

4. SOCIAL PSYCHOLOGY

I. Scope and standpoints of Social Psychology and Sociology.

Standpoints—

- (1) Early Views of Group Life. Theological Explanation of Society.
- (2) Metaphysical View of Social Life: Plato—Indian Theory of Gunas.
- (3) Political: Social Contract Theories.
- (4) Judicial: Society as an Ensemble of Public Law, Rights, etc.
- (5) Biological.
- (6) Psychological:
 - (a) Adam Smith: Sympathy.
Ratzenhofer: Interest.
Tarde: Imitation.
Trotter: Herd Instinct.
Verben: Instinct of Construction.
McDougall: Primary Instincts.
 - (b) Social Psychology as a Study of Occupational Attitudes.
 - (c) Psycho-Analytic Standpoint.
 - (d) Social Psychology as the Study of the Group Mind: Durkheim, McDougall.
 - (e) Social Psychology as the Study of the Social Personality.

II Social Setting of Human Behaviour.

III. Biological Basis of Human Behaviour.

IV. Psychology of Individual Behaviour :

Unlearned Behaviour—Reflexes, Instincts. The Feelings and Emotions and the Unconscious in Man's Behaviour.

Behaviourism and Purposivism.

Habit and Sentiments. Will.

Cognitive Processes.

Personality: Individual Differences and Social Behaviour.

V. The Development of the Social Personality, Personality and Group Participation—

(1) Language and Social Interaction—Language in Communication and Culture.

(2) Personality as conditioned by the Play Life of the Child. Theories of Play.

(3) Personality as conditioned by the Primary Group. Contacts. Neighbourhood. Congenality Group. The Gang.

(4) Personality as conditioned by Secondary Groups. The School, Religious and Fraternal Institutions. The Community and Political Institutions.

(5) Personality as conditioned by Occupational Groups. Difference in Outlook due to Industrialization. Psychology of the Working Classes. Capitalist *versus* Labourer.

Psychology of the Professional Classes: the Medical Profession, the Legal Profession, the Engineer's Profession, the Teacher's Profession, the Ministerial Profession. Occupational Egocentrism: its Nature.

(6) Personality and Culture Stereotypes. Myths and Legends. Psychology of Myth-making and the Engineer's Profession, the Teacher's Profession, Utopias, Ideologies.

(7) How an individual imbibes or develops Prejudices. Nature of Prejudice, Psychology of Prejudice. Illustrations of certain Prejudices :

(a) White and Negro.

White and Oriental Races : China, Japan and India.

(b) Caste Prejudices : The Touchable and the Untouchable.

(c) National Prejudices. Anti-foreign Prejudices.

(d) Religious Prejudices.

(e) Prejudices among Economic Groups.

(8) Personality and Leadership. Nature of Leadership.

Psychology of Leadership. Psychology of the Radical Leader, the Conservative Leader, the Scientific Leader.

Introversion and Extroversion in relation to different types of Leaders.

The Leader and the Masses.

VI. The Behaviour of Men as Members of Groups and of Crowds—

(a) Types of Crowds, (b) Characteristics of Crowds, (c) Crowd Formation, (d) Influence of Crowds upon the Individual. Causes of the Change in the Individual as an element in a Crowd.

VII. The Psychology of the Audience.

VIII. Fashion as Collective Behaviour.

IX. Public Opinion.

X. Social Neurosis.

XI. Applied Social Psychology—

Social Psychology and Economics.

Social Psychology and Religion and Morality.

Social Psychology and Art.

Social Psychology and Social Hygiene.

Books for Study

1. Young : *Social Psychology*.

2. *McDougall : *Group Mind*.

3. *Mukherjee and Sen Gupta : *Social Psychology*.

B. 1. GENERAL PSYCHOLOGY

Same as for the B.A. Degree Examination.

2. METAPHYSICS

Same as for the B.A. Degree Examination.

3. INDIAN PHILOSOPHY

Same as for the B.A. Degree Examination.

4. ANTHROPOLOGY or SOCIAL PSYCHOLOGY

Anthropology : Same as for the B.A. Degree Examination in Sociology.

Social Psychology : Same as for Social Psychology under Group A, page 263.

* These are particularly emphasized.

(C). PSYCHOLOGY BRANCH

Major Subject :—

1. GENERAL PSYCHOLOGY

The topics prescribed for the B.A. Degree course to be studied in greater detail from a historical and critical standpoint, specially with reference to the cognitive processes.

Books Recommended for Study

1. McDougall, W. : *Outlines of Psychology*.
2. Spearman, C. : *Psychology Down the Ages*.
3. Flugel, J. C. : *A Hundred Years of Psychology*.

2 SYSTEMS OF PSYCHOLOGY

Historical—

- A Brief Survey of Psychology through the Centuries.
- Introspective Psychology and the Existential School.
- The Associationist School of Psychology.

Behaviourism—

- Pre-Behaviouristic Trends to exclude Introspection from Psychology.
- Russian Objectivism and Conditioned Reflex.
- Watson's Behaviourism : His general assumptions examined.
- The Behaviouristic Account of Learning, Thinking, Instincts, Emotions, and Personality.
- Significance of Behaviourism

The Gestalt or Configuration Psychology—

- Its Assumptions and Methods. The Concepts of Figure and Ground.
- The Laws of Gestalt Formation.
- Applications of the Gestalt Principles to the Psychology of Learning, Perceptual Illusions and Instincts.

The Neogenetic School—

- Its Assumptions and Methods.
- Laws of Neogenesis—Qualitative and Quantitative.
- Applications of Neogenetic Laws to the Psychology of Perception, Learning, Reasoning and Intelligence.

Psycho-Analysis and Related Schools—

- Freud's Psychology and its application to Dreams, Neuroses, Errors, Laughter, etc. The Fundamental Assumptions of Freud examined. Modifications of the Freudian System by Adler, Jung and others.

Purposivism or Hormic Psychology—

- Its Assumptions and Methods. Comparison with Behaviourism. Examination of the Concept of 'Instinct'.

Experimental Methods in Psychology—

Relation of General to Experimental Psychology.

Psychology in relation to other Sciences : Biology, Physiology, Politics, Economics, Aesthetics, Science of Values.

Relation of Psychology to Metaphysics.

Books Recommended for Study

1. Woodworth, R. S. : *Contemporary Schools of Psychology*.
2. Miller : *Psycho-Analysis and its Derivatives*.
3. Watson, J. B. : *Psychology from the Standpoint of the Behaviourist*.
4. Hartmann, G. W. : *Gestalt Psychology*.
5. Thomas, F. C. : *Knowledge and Ability*.

3. EXPERIMENTAL PSYCHOLOGY—THEORY I

Standpoint.—Conditions of experiment in Psychology. Place of introspection in Psychology.

Attention.—Span, Fluctuation, Division and Distraction, Conditions favourable to securing sustained attention.

Sensation.—Cutaneous sensibility. Analysis of visual and auditory experiences. Theories of colour vision and of hearing. Sensations of taste and smell.

Sensory acuity.

(Woodworth : Chapters 20, 21 and 22.)

(Myers : Chapters 2, 4, 7 and 18.)

Psycho-Physical Methods.—Experience of identity and difference.

(Myers : Chapter 19.)

(Woodworth : Chapters 17 and 18.)

Space Perception.—Visual perception of size, depth, direction and form. Figure and ground. Factors of advantage in all perception. General conditions of visual illusions.

(Woodworth : Chapters 25 and 26.)

(Myers : Chapter 22.)

Time Perception.—Estimation of time intervals. Effects of pause, surprise, expectation, etc.

Rhythm. Subjective accentuation.

(Myers : Chapter 23.)

Memory and Retention.—Experimental methods—Recall and Recognition. Perseveration. Curve of Forgetting. Reminiscence. Memory for visual forms. Theories of forgetting.

(Woodworth : Chapters 2, 3 and 4.)

Persistence of motives as revealed by recall of incomplete experiences. Effect of pleasant and unpleasant experiences on recall. Influence of language on recall.

(Crafts : Chapters 21 and 23).

Imagery and Imagination.—Types of imagery. Spontaneous and voluntary memory imagery. Eidetic Imagery. Fertility of imagination. Constructive ability. Imagery and Thought.

Learning.—Nature of the learning process. The learning curve. Factors influencing efficiency of learning. Transfer of training. Interference and retro-active inhibition.

(Bills : Chapters 9 to 13.)

(Woodworth : Chapters 6, 8 and 9.)

4. EXPERIMENTAL PSYCHOLOGY—THEORY II

Simple and Conditioned Reflexes.—Pavlov's results and conceptions. Types of conditioning. Conditioning of emotional behaviour. Significance of the conditioned response.

(Woodworth : Chapter 5.)

Reaction Time.—Types of reaction. Factors influencing speed of reaction. Associative reaction time.

(Woodworth : Chapters 14 and 15.)

Work and Fatigue.—Muscular and mental work. Features of work curve. Nature of fatigue. Symptoms and causes of fatigue. Factors influencing efficiency of work.

(Bills : Chapters 21 to 26).

Thought.—Nature of thought. Thought and language. Concept formation. Inductive reasoning. Problem solving situations. Deductive reasoning. Errors in reasoning.

(Boring and Langfeld : Chapter 18)

(Woodworth : Chapters 29 and 30.)

(Crafts : Chapter 24.)

Intelligence.—Verbal and non-verbal tests. Concept of I. Q. Theories of Intelligence.

(Ballard : *Group Tests of Intelligence.*)

Feelings and Emotions.—Elementary and mixed feelings. Methods of impression and expression. Vocal and facial expressions of emotions. Bodily changes in emotion. The Psychogalvanic Reflex.

(Woodworth : Chapters 10 to 13.)

(Crafts : Chapter 7.)

Experimental Aesthetics.—Nature of æsthetic judgment. Colour and form preferences.

(Woodworth : Chapter 16.)

Personality Traits.—Methods of study. Personality Types. Measurement of attitudes, interest, emotional stability and character qualities.

(Symonds : *Diagnosing Personality and Conduct.*)

Volition.—Methods of experiment. Analysis of the process of will.

Vocational Guidance and Selection.—Manual dexterities—Mechanical, Musical, Mathematical, Scientific, Social and Lingual aptitudes.

Books Recommended for Study—Theory I and II

1. Collins and Drever : *Experimental Psychology*.
2. Myers, C. S. : *Experimental Psychology*.
3. Woodworth, R. S. : *Experimental Psychology*.
4. Boring, Langfeld and Weld : *Psychology*.
5. Bills, A. G. : *General Experimental Psychology*.
6. Crafts and others: *Recent Experiments in Psychology*.
7. Garrett, H. E. : *Great Experiments in Psychology*.
8. Boring, E. : *A History of Experimental Psychology*.

5. EXPERIMENTAL PSYCHOLOGY—PRACTICAL

List of additional experiments to be conducted by students in the Psychology Honours class.

Vision—Colour mixture, After-images. Blind spot. Mapping the colour zones.

Audition.—Analysis of auditory experiences. Pitch Discrimination, Beats, Combination tones, and masking.

Taste and Smell.—Identification and analysis of flavours.

Cutaneous Sensibility.—Mapping thermal pressure and pain spots.

Sensor Acuity.—Absolute and differential threshold experiments on colour sensitivity, loudness and weight-lifting. Two-point discrimination. Experience of identity and difference.

Space Perception.—Auditory localisation. Localisation of touch and tactual form perception. Stereoscopic vision. Depth and Solidity. Retinal disparition. Visual form perception Figure and ground. Experiment to illustrate the Gestalt Principles of Proximity, Similarity, Common Destiny, Unity, etc. (Hartmann).

Time Perception.—Estimation of temporal intervals. Filled and empty intervals. Sense of Rhythm.

Perception of Movement.—Apparent Movement. Passive and Active Movement.

Errors in Perception.—Factors in visual illusions. Illustrations of substitution of fundaments arising from difficulty in abstraction and from expectancy.

Memory and Learning.—Perseveration. Tetro-active inhibition. Effect of feeling and language on recall. Transfer of training. Factors in conditioning.

Higher Thought Processes.—Speed of neogenetic processes. Images and meaning. Images and problem solving. Generalization.

Feelings and Emotions.—Hedonic summation and contrast. Changes in breathing and pulse beats accompanying emotional

experience. Psychological correlate of the Psycho-galvanic Reflex. The Applications of the P. G. R. for crime detection and character analysis.

Volition.—"Will" tests of control of breathing, and the winking reflex, dynamometre and stance tests.

Vocational Guidance and Selection.—Tests of Manual, Mechanical, Musical, Scientific, Literary and Social abilities.

Aesthetic appreciation.—Analysis of the beautiful and the humorous from pictures and cartoons.

Books Recommended for Reference

- 1 Boring, Langfeld and Weld : *A Manual of Psychological Experiments*.
2. Valentine, W. L. and Others: *Student's Guide to Psychology*.
3. Myers, C. S.: *Text-Book of Experimental Psychology, Part II*.
4. Kline and Kline : *Psychology by Experiment*.

6. ESSAY

- 7 AND 8. ANY TWO OF THE FOLLOWING SUBJECTS :—
(to be prescribed from time to time)

A. MENTAL MEASUREMENT.—

Part I—Measurement of Intelligence

Introductory—

Current Errors in the Estimates of Intelligence.

Principles of Valid Measurement.

Principles of Intelligence Test Construction—

Binet-Simon Tests ; Group Verbal Test ; Non-verbal Group Tests ; Individual Performance Tests.

Pre-School Test. Developmental Tests. Problem-solving Tests.

Definition of Intelligence ; Nature of Intelligence.

The Factors of Language, Information, Speed, Memory and Motivation in relation to Intelligence.

Theories of Intelligence of Thorndike, Thompson and Spearman.

Distribution of Intelligence ; Growth-Curve of Intelligence.

Is 'Intelligence' Innate ?

Value of Intelligence Measurements for Education and Industry.

Part II—Personality and character Diagnosis

Introductory—

Significance of the Diagnosis of Conduct. Common Errors in Character Estimates.

Method of Interview and Observation.

Questionnaire Methods of Adjustment, Attitudes and of Interest.

Free Association Methods of Personality Diagnosis, Psycho-Analytical Methods of Diagnosing Conduct and Feelings.

Physiological Measures of Emotional Expressions.

Objective Tests of Character Traits. Tests of Honesty Suggestibility, and of Aggressiveness.

Rating of Home and Socio-Economic Environment.

Applications to Vocational Guidance and Selection.

Books Recommended for Study

1. Terman, L. : *Measurement of Intelligence.*
2. Ballard, P. : *Group Tests of Intelligence.*
3. Drever and Collins : *Performance Tests of Intelligence.*
4. Gassell, A. : *Mental Growth of the Pre-School Child.*
5. Symonds, P. M. : *Diagnosing Personality and Conduct.*
6. Spearman, C. : *Abilities of Man.*

B. PSYCHOLOGY OF INDUSTRY.—

Introductory—

Scope, Data and Methods.

Environment and Efficiency—

Temperature, Air, Humidity, Ventilation, Illumination, Noise Level in relation to the Efficiency of the Industrial Worker.

Industrial Fatigue—

Methods of Fatigue Study ; Length of the Working Day and the Week ; Rest Pauses and Intervals in relation to Output ; Speed of Work ; Movement Study and the Elimination of Wasteful Movements, and Fatiguing Postures.

Motivation in Industry—

The Acquisitive Tendency ; Self-assertion ; the Constructive Tendency ; Pugnacity and Escape. Systems of Payment in relation to the Happiness and Efficiency of the Worker.

Industrial Unrest—

Psychological Causes of Industrial Unrest. Conflict and Repressions. Lack of Opportunities for Self-expression. Welfare work

Vocational Selection—

Social and Economic Importance of Minimising Turnover of Labour. Current Methods of Staff Selection.
 Scientific Methods of Selection.
 Reliability and Validity of Vocational Tests.

Vocational Guidance—

On the Importance of a Proper Choice of a Career.
 Psychological Tests for Vocational Guidance. Experiments in Vocational Guidance.

Advertisement—

Favourable conditions for the Attraction and Securing of attention in Newspaper Advertisement.

Books Recommended for Study

1. Myers, C. S. : *Industrial Psychology* (Home University Library.)
2. Earle, F. M. : *Methods of Choosing a Career.*
3. Hollingworth : *Vocational Psychology—Its Problems and Methods.*
4. Oakley and others : *Handbook of Vocational Guidance.*
5. Moore and Hartman : *Readings in Industrial Psychology.*

C. PSYCHOLOGY OF RELIGION.—*Part I—Introductory*

1. Introduction : Some Objections to the Study of Psychology of Religion considered. The Scope of the Subject and Methods of Study. The Psychological Standpoint.

2. Definition of Religion : The difficulty of defining Religion
 Universal Characteristics of Religion : Objective and Subjective Characteristics. Institutional and Personal Religion.

3. A Brief Survey of the Development of Religion.

(a) Origins of Religion : As an outgrowth of uncertainty, as a reaction to natural forces, as a product of Metaphysical interests. Psychological Sources of Primitive Religions. Origin of Religion no Test of its Validity.

(b) Belief in God and Immortality. Causes of Disbelief and Doubt.

4. Cult Practice : As an Outlet to Emotional Life and Aesthetic Interests. Psychology of Religious Sects. Group Worship. Reverence for Sacred Symbols. Music and Chanting. Sacrifices and Offerings. Crowd Psychology and Revivals. The Qualifications of a Preacher. The value of Preaching.

5. Psychological Principles : Instincts—Development of Sentiment. Conscience. The Unconscious Conflicts. The

Mechanisms of Transference, Projection and Sublimation. The Divided Self. Suggestibility. Psychology of Belief, Doubt, Insight, Intuition, Illusion, Hallucination and Errors in Reasoning. Logic of the Unconscious Mind.

Part II—The Development of Religion in the Individual

(a) The Normal

1. The Religious Development of the Child.
2. The Religious Development of the Adolescent. Characteristic Difficulties: (a) Disposition to Doubt, (b) Tendency to be dogmatic, (c) Excessive Emotionality.
3. The Normal Religious Development of the Adult: The Affective, Rational and Moral Elements.
4. Prayer and Worship: The prompting to Prayer. The Objects of Prayer. The Efficacy of Prayer. The Interpretation of Prayer. Objective and Subjective Worship.

(b) The Exceptional

1. Conversion: As an awakening. Pre-Conversion States. The Conversion States. Types of Conversion. Factors at work in Conversion.
2. Saintliness: Characteristics: (a) Peace of Mind, (b) Charity, (c) Fortitude and (d) Purity of Life.
Asceticism: Chastity, Poverty and Obedience. The Sense of Sin.
3. Mysticism: Description and Classification. Favourable conditions for the Occurrence of Mystic Experience. The Ecstasy. The value of the Mystic Findings. The Place of Mysticism.
4. Pathology of Religion: Psycho-Analysis and Religion Pathological Conversions. Sadistic Components.

Part III—Conclusion

1. Summary of Religious Characteristics. Uneasiness and Deliverance. Meaning and Purpose of Religion.
2. Religion and Morality. Religion and the State. Religion and Science.
3. The Future of Religion

Books for Study

1. Josey, C. C.: *The Psychology of Religion* (Macmillan)
2. Pratt, J. B.: *The Religious Consciousness* (Macmillan)

Books for Reference

1. Thouless, R. H. : *An Introduction to the Psychology of Religion* (pp. 102-186).
2. Ames, E. S. : *The Psychology of Religious Experience* (pp. 33-116).
3. James, W. : *Varieties of Religious Experience* (pp. 259-429).
4. Sante De Sanctis : *Religious Conversion* (pp. 27-127).
5. Leuba, J. H. : *Psychology of Religious Mysticism* (pp. 1-46 and 191-299).

D. CHILD PSYCHOLOGY.—**Introductory—**

Data and Source Materials of Child Study

Methods of Child Study : Observation ; Biographical Method ; Questionnaire Method ; Case History Method ; Experimental Methods.

The Concepts of Heredity, Environment, Maturation, Development, Training and Learning Valences.

The New Born Child : His Reflexes : Reactions to Sensory Stimuli ; Emotional Responses.

Sensori-Motor Development of the Infant—

Muscular and Locomotor Responses. Sensory Discrimination.

Emotional Development—

Early Emotional Patterns ; Development of Specialised Emotional Responses. Child's Fear, Anger, Jealousy, Laughter, etc. Scale of Emotional Development.

Social Development—

Early Signs of Social Response ; Group Formation and Conflicts in Children's Societies. Leadership. Influence of Environmental Factors. Scale of Social Development.

Language Development—

The First Word. Growth in Vocabulary. Effect of Environmental Conditions on Language Development. Sex-differences in Language Development. Scales of Language Growth.

Development of Thinking and Reasoning—

Characteristics of Child's Thinking. Child's Understanding as revealed by its Questions and Definitions. Children's Beliefs.

Growth of Intelligence—

Measurement and Prediction of Individual Differences in Mental Ability.

The Determination of D. Q. and J. Q.

Reliability and Validity of Pre-School Mental Test. The Effect of Health, Nutrition, Birth Order, Size of the Family, Play Companions, Parental Attitudes, on the Growth of Intelligence.

Play and Imagination of Children—

Functions of Play: Stages in the Development of Play
Children's Imagination as indicated in their Drawings
Story-interest and Dreams.

Development of Personality and Character—

Constancy of Behaviour Patterns. Emotional Stability
Self-reliance. Aggressiveness. Submissiveness. In
Troversion and Extroversion in Children.

Moral Development—

The Child's Concept of Good and Bad. Effect of Adult
Prohibitions as commands. Factors which promote Self-
control. Personality. Aberrations of Childhood
Causes of Juvenile Delinquency.

Books Recommended for Study

1. Jersild : *Child Psychology*.
2. Stoddard and Wellman : *Child Psychology*.
3. Isaacs, S. : *Social Development in Young Children*.
4. Isaacs, S. : *Intellectual Growth in Young Children*.
5. Bridges, K. : *Social and Emotional Development of the Pre-School Child*.
6. Murchison C. : *Hand-book of Child Psychology*

E. SOCIAL PSYCHOLOGY (INCLUDING FOLK PSYCHOLOGY).—

Scope, data, and standpoint of Social Psychology. The concept of group mind. Various types of groups. The Instinctive bases of group life : Herd, Play, Parental, Self-assertion and Submission. The role of Suggestion. Imitation and primitive passive sympathy in social life.

Primitive Society—General characteristics of totemism.

The Psycho-Analytical account of tribal life. Origin of myths and the nature of superstitions.

The mental life and behaviour of the crowd. The submergence of personality in the crowd. Suggestibility and lack of responsibility. The Psychology of rumour—Nature of prejudice and the will to believe. The Psychology of persuasion.

Formation of public opinion. The crowd distinguished from an organised group. The nature of collective will. The influence of leaders. The group spirit and sentiment.

The crowd distinguished from an organised group. The nature of collective will. The influence of leaders. The group spirit and sentiment. National mind and character. What is

a nation? National character defined. The influence of racial qualities, geographical conditions and vocational pursuits on national character. Mental organisation based on a common tradition and culture the most essential condition of nationhood. Language in social interaction and communication of culture.

Self-consciousness of nations developed by rivalry and intercourse.

Social Neuroses and Social Hygiene.

Books Recommended for Study

- 1 McDougall, W. : *Group Mind* (Chapters 2 to 11).
- 2 Mukherjee and Sen Gupta : *Social Psychology*.
- 3 Wundt : *Folk Psychology*.
- 4 Freud, S. : *Group Psychology and the Analysis of the Ego*.

Minor Subject—

1. (a) ELEMENTS OF METAPHYSICS

Syllabus same as that prescribed for the B.A. Degree Examination (page 213).

Books for Study

1. Patrick : *Introduction to Philosophy*.
2. Roger : *History of Modern Philosophy*.

(b) PRINCIPLES OF SOCIOLOGY

Syllabus same as that prescribed for the B.A. Degree course under Principles of Sociology I. General Principles (page 220).

Books for Study

1. Blackmar and Gillin : *Outlines of Sociology*.
2. Giddings : *Principles of Sociology*.

2. COMPARATIVE PSYCHOLOGY—ANIMAL AND ABNORMAL

Part A.—Animal Psychology.

Scope, data and methods. Evidence for animal mind. Evolution of Behaviour. Instinct and Intelligence. Animal learning in relation to incentives Do animals reason in problem solving situations? Role of Insight. Instinctive and emotional behaviour: Pugnacity, Play, Courtship, Parental, Herd and Migratory propensities. Group life amongst animals and insects.

Part B.—Abnormal Psychology.

Scope, data and methods of Abnormal Psychology. The concept of the subconscious mind. The concept normality. Milder deviations from the normal—Fatigue, Drugs and Sleep. Dreams—Principal types and functions. Dream theories of Freud, Jung, Adler and Rivers. Hypnosis and Characteristics of mind in the several stages of Hypnosis. Theories of Hypnosis and suggestion. Nature of functional disorders in general. Conflict. Repression and the complex. Dissociation. Multiple personality. Regression. General theory of Neurosis. Mental Hygiene.

Books Recommended for Study

1. Washburn, M. F.: *The Animal Mind* (Chapters 1 and 2).
2. Lloyd Morgan: *Animal Behaviour* (Chapters 1 and 3).
3. Young: *Motivation of Behaviour* (Chapter 3).
4. Kohler, W.: *Mentality of Apes* (Chapters 2, 4 and 6).
5. Alverdes: *Social Behaviour*.
6. Bernard Hart: *Psychology of Insanity*.
7. McDougall, W.: *Outlines of Abnormal Psychology* (excluding Chapters 13 to 28).
8. Freud, S.: *A General Selection*.

3. STATISTICS AND SCIENTIFIC METHOD

PART A.—STATISTICS.

Introductory.—Why measurements in Psychology? Essentials of valid measurements. The unit of measurement of Psychological processes.

Frequency Distribution.—The concept of "Chance." The properties of the Normal Curve of distribution; graphic representation of frequency distribution.

Measures of Central Tendency and Variability.—The Mode, the Median and the Mean. The Inter-Quartile Range, the Quartile Deviation and the Standard Deviation.

Reliability of Statistical Constants.—Probable error of mean, S. D. and of difference between two means. Limitations of reliability measures.

Psycho-Physical Methods.—Method of Limits, equal appearing intervals. The constant method.

Methods of Estimating.—Rating Scales; Rank order, Paired comparisons.

Correlation.—Graphic representation. Calculation of Spearman's R. and Pearson's r values, Yule's Coefficient of Association. P. E. of correlation coefficient.

Coefficients of Reliability and of Validity. Correction of a coefficient of correlation for attenuation. Partial and Multiple correlations. Tetrad equation.

PART B.—SCIENTIFIC METHOD.

Introductory.—Characteristics of Science. Essentials of the Scientific attitude of mind.

Collection of Data.—Observation and Experiment.

Classification and Definition.—Significance. Nature of Definition. Rules for Definition.

Evolutionary and Comparative Methods.—Meaning, Scope and Value.

Hypotheses and Scientific Inquiry.—Role of Analogy in the suggestion of hypotheses. The formulation of relevant hypotheses. Deductive development of hypotheses. Formal conditions for hypotheses. Reference to facts and crucial experiments.

The Methods of Experimental Inquiry.—Methods of Agreement. Difference, Joint Method, Concomitant variation, and Residues. Value of Experimental Methods.

Probability and Induction.—Securing “fair samples.” The Mechanism of sampling. Reasoning from analogy. Nature of probable inference. Calculus of Probability, Interpretations of Probability.

Scientific Explanation—Description and explanation. Types of explanation. Theory and Law. Uniformity of nature. Limitations of Science.

Books Recommended for Study

1. Garrett, H. E. : *Statistics Applied to Psychology and Education.*
2. Guilford, J. P. : *Psycho-Metric Methods.*
3. Thomson, J. A. : *Introduction to Science.*
4. Wolf, A. : *Essentials of Scientific Method.*
5. Cohen and Nagel : *An Introduction to Logic and Scientific Method* (Chapters 3 to 10).
6. Clarke : *The Art of Straight Thinking.*

4. MENTAL HEREDITY AND PHYSIOLOGICAL PSYCHOLOGY

Part A.—Mental Heredity.

What is evolution? Principal lines of evidence in support of the evolutionary hypothesis.

The chief theories of evolution—Natural Selection. Use and Disuse. The Mutation theory. The evolution of mind—Tropisms. Instincts. Intelligence. What is heredity? Laws of Heredity. Nature and cause of variation. Heredity and environment—their relative importance. Experimental studies of developmental modifications. Are acquired traits inheritable? The inheritance of "Intelligence" and "Character"—Studies in genius, mental deficiency and special talents.

Studies of the resemblances and differences between twins.

Part B.—Physiological Psychology.

Relations between Physiology and Psychology. Analysis of Behaviour—Sensory-motor Arcs. The Nervous system—its evolution, structure and functions. The Problem of localisation of cerebral functions—action, speech and thought. Principles of integration of behaviour. Principles of conditioning reflexes—modification of behaviour. The Endocrinal glands. The autonomous nervous system and emotional reactions. Sense perception—Lower senses—Taste, Smell, Cutaneous, Kinæsthetic, etc Higher senses—Vision, Hearing.

Books Recommended for Study

1. Thomson and Geddes : *Evolution*.
2. Hogben, L. : *Nature and Nurture*.
3. Newman and others : *Twins, a Study of Heredity and Environment*.
4. Dashiell : *Fundamentals of Objective Psychology* (Chapters 3 to 7).
5. Wheeler : *Science of Psychology* (pages 376 to 500).

SCHEME OF EXAMINATION

[*Vide Ordinance 241 (c)*]

(A) PRELIMINARY EXAMINATION.

I. Compulsory English.

					Max. Marks
1	English Composition I	...	...	3 hours	100
2	English Composition II	...	...	"	100
Total ...					200

II. Second Languages

(Other than French and Latin)

			Max. Marks
Composition and Translation*	...	3 hours	100

Or

Translation in respect of Classical Language	...	...	...	3 hours	100
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French

Prescribed Texts, Grammar and Translation from English into French and from French into English	...	3 hours	100
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Note.—Passages for translation from French into English shall be chosen from the prescribed texts.

Latin

Prescribed Texts, Grammar, Translation from English into Latin	...	3 hours	100
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III. Minor Subjects

(1) ENGLISH

1. English History as a Background to English Literature ... Two papers of three hours, each carrying 150 marks. 300
 2. One of the following:—

(a) Kannada Literature	...	3 hours	}	150
(b) Urdu Literature	...	"		
(c) Sanskrit Literature	...	"		
(d) Persian Literature	...	"		
(e) Politics (The paper in Political Theory for the B.A. Degree Examination)	...	"		
(f) Hindi Literature	...	"		
-
- Total ... 450

					Max Marks
*Composition	...	...	...	...	75
Translation from English to the Second Language	...	...	...	...	25
Total	...	...	...	...	100

(2) KANNADA

			Max. Marks.
1. and 2. Tamil or Telugu—			
(i) Text-Books and Grammar	... 3 hours		150
(ii) Translation	... ..		150
3. Cultural and Historical Studies relating to Karnataka, Paper I	... ..		150
4. Cultural and Historical Studies relating to Karnataka, Paper II	... ..		150
	Total ...		600

(3) SANSKRIT

A. *History*.—

1. History of India, Political and Cultural, upto 1300 A.D.	3 hours	150
2. History of India, Political and Cultural, after 1300 A.D.	..	150
3. Archæology	... ..	150
	Total ...	450

B. *Philosophy*.—

1. Logic	... 3 hours	150
2. Metaphysics	... ..	150
3. Indian Philosophy	... ..	150
	Total ...	450

C. *Pali and Prakrits*.—

1. Pali, Text and Translation	3 hours	150
2. Prakrit, Texts and Translation	..	150
3. Grammar and History of Literature	..	150
	Total ...	450

D. *English Literature*.—

1. Drama	... 3 hours	150
2. Poetry	... ..	150
3. Prose	... ..	150
	Total ...	450

E. *Kannada Literature*—Max.
Marks.

1. Poetry	...	3 hours	150
2. Prose and Drama	...	"	150
3. History of Language and History of Literature		"	150
Total			450

(4) PERSIAN

1. Outline of Islamic Philosophy	...	3 hours	150
2. History and Culture of Islam	...	3	150
3. History of Literature and Language	3	"	150
4. Translation	...	3	150
Total			600

(5) AVESTAN AND PAHLAVI

1. Prose and Poetry	...	3 hours	150*
2. History of Literature	...	"	150*
3. Translation	...	"	150*
4. Grammar	...	"	150
Total			600

(6) ARABIC

1. Poetry and Prose	...	3 hours	150*
2. History of Literature	...	"	150*
3. Translation	...	"	150*
4. Modern Prose and Poetry	...	"	150
Total			600

(7) URDU

1. Hindi Language and Literature	...	3 hours	150
2. Persian as developed in India	...	"	150
3. Arabic Language and Literature	...	"	150
4. History of Muslim Rule in India with special reference to the Development of Muslim Culture and evolving of Urdu Language.		"	150

Total ... 600

Notes.—The paper on Hindi Language and Literature may be answered either in Urdu or in Devanagari script.

*Common to B.A. (Hons.) Preliminary and B.A. Degree Examinations.

(8) HISTORY

Max.
Marks.

1.	Archæology with special reference to India.	3 hours	150
2.	History of Civilization ...	"	150
3.	Recent Economic History of India ...	"	150
4.	Public Administration ...	"	150
Total ...			600

(9) POLITICS

1.	Constitutional History of England ...	3 hours	150
2.	Jurisprudence ...	"	150
3.	Sociology ...	"	150
4.	Recent Economic History of India ...	"	150
Total ...			600

(10) ECONOMICS

A 1.	Recent Economic History of India ...	3 hours	150
2.	Elements of Statistics ...	"	150
3.	History of India to 1300 A.D. ...	"	150
4.	History of India after 1300 A.D. ...	"	150
Total ...			600

B 1.	Recent Economic History of India ...	3 hours	150
2.	Elements of Statistics ...	"	150
3.	Principles of Sociology I ...	"	150
4.	Principles of Sociology II ...	"	150
Total ...			600

C 1.	Recent Economic History of India ...	3 hours	150
2.	Pure Mathematics I ...	"	150
3.	Pure Mathematics II ...	"	150
4.	Applied Mathematics—General Statistics, etc. ...	"	150
Total ...			600

(11) PHILOSOPHY

(A) Metaphysics Branch

Max.
Marks.

1.	General Psychology	...	...	3 hours	150
2.	Ethics	...	...	"	150
3.	Logic	...	...	"	150
4.	Plato's Republic	...	...	"	150
Total ...					600

(B) Social Philosophy Branch

A 1.	Anthropology	...	...	3 hours	150
2.	Comparative Politics	...	...	"	150
3.	General Economics (Paper 1 of Economics at the B.A. Pass)	...	...	"	150
4.	Social Psychology	...	...	"	150
Total ...					600

B 1.	General Psychology	...	...	3 hours	150
2.	Metaphysics	...	...	"	150
3.	Indian Philosophy	...	...	"	150
4.	Anthropology or Social Psychology	...	...	"	150
Total ...					600

(C) Psychology Branch

1.	Elements of Metaphysics or Principles of Sociology	...	...	3 hours	150
2.	Comparative Psychology : Animal and Abnormal	...	...	"	150
3.	Statistics and Scientific Method	...	...	"	150
4.	Mental Heredity and Physiological Psychology	...	...	"	150
Total ...					600

(B) FINAL EXAMINATION.**(1) ENGLISH**

			Max. Marks.
1.	Chaucer and History of English Language	3 hours	100
2.	History of English Literature	... ..	100
3.	Elizabethan Drama	... ..	100
4.	Elizabethan Prose and Poetry	... ..	100
5.	Post-Elizabethan Literature I	... ..	100
6.	Post-Elizabethan Literature II	... ..	100
7.	Post-Elizabethan Literature III	... ..	100
8.	Comparative Drama	... ..	100
9.	Principles of Literary Criticism	... ..	100
Total			900

(2) KANNADA

1.	Jaina Literature	... ..	3 hours	100
2.	Veerasaiva Literature	... ..	..	100
3.	Brahmana Literature	... ..	..	100
4.	Poetics and Prosody	... ..	..	100
5.	Old Kannada Grammar and History of Language	... ..	..	100
6.	History of Literature	... ..	..	100
7.	Sanskrit Language and Literature I	... ..	..	100
8.	Sanskrit Language and Literature II	... ..	..	100
Total				800

(3) SANSKRIT

1.	Vedic Literature	... ..	3 hours	100
2.	Classical Poetry and Prose	... ..	..	100
3.	Drama	... ..	..	100
4.	Darsana I	... ..	..	100
5.	Darsana II	... ..	..	100
6.	Poetics	... ..	..	100
7.	Grammar and Elements of Comparative Philology	... ..	..	100
8.	History of Literature and Criticism	... ..	..	100
9.	Translation and Composition	... ..	..	100
Total				900

(4) PERSIAN

Max
Marks

1.	Indo-Iranian Philology and Elements of Avestan Literature	...	3 hours	100
2.	Classical Prose and Poetry I Paper	...	"	100
3.	Do II Paper	...	"	100
4.	Do III Paper	...	"	100
5.	Modern Prose and Poetry	...	"	100
6.	Drama and Fiction	...	"	100
7.	Essay	...	"	100
8.	Arabic Literature	...	"	100
Total				800

(5) AVESTAN AND PAHLAVI

1.	Pre-Islamic Religion and Philosophy of Iran	...	3 hours	100
2.	Pahlavi Literature	...	"	100
3.	Pahlavi Translation	...	"	100
4.	Pazend and Early Classical Persian	...	"	100
5.	Elements of Vedic Literature	...	"	100
6.	Elements of Vedic Literature Translation	...	"	100
7.	Political History of Pre-Islamic Period	...	"	100
8.	Outline of Greek Philosophy	...	"	100
Total				800

(6) ARABIC

1.	Advanced Grammar	...	3 hours	100
2.	Comparative Study of Semetic Philology	...	"	100
3.	Rhetoric and Prosody	...	"	100
4.	Outline of Islamic Philosophy	...	"	100
5.	History of Islamic Civilization	...	"	100
6.	History of the Development of Islamic Sects	...	"	100
7.	Neo-Platonic Philosophy	...	"	100
8.	Essay	...	"	100
Total				800

(7) URDU

				Max. Marks.
1.	History of Urdu Language and Literature with special reference to the Comparative Study of Indo-Aryan Dialects	...	3 hours	100
2.	Urdu Poetry	...	„	100
3.	Literary Criticism	...	„	100
4.	Drama and Fiction	...	„	100
5.	Prose (a) Before 1857	...	}	100
	(b) Sir Sayad's School	...		
	(c) Modern	...		
6.	Essay	...	„	100
7.	Dakhani Literature with special reference to the part played by the Sufi in the development of this Language	...	„	100
8.	Grammar, Rhetoric and Prosody	...	„	100
Total ...				800

(8) HISTORY

1.	History of India to 1300	...	3 hours	100
2.	History of India from 1300 to 1920	...	„	100
3.	History of Europe from 1789 to 1939	...	„	100
4.	British Constitutional History	...	„	100
5.	A Special Subject	...	„	100
6.	Economics	...	„	100
7.	Politics	...	„	100
8.	Essay	...	„	100
Total ...				800

(9) POLITICS

1.	History of Political Thought	..	3 hours	100
2.	Political Theory	...	„	100
3.	Political Organization	...	„	100
4.	Public Administration	...	„	100
5.	Economics	...	„	100
6.	Public Finance	...	„	100
7.	Indian Political Institutions	...	„	100
8.	Essay	...	„	100
Total ...				800

(10) ECONOMICS

Max.
Marks.

1.	Economic Principles	...	...	3 hours	100
2.	Money	...	...	"	100
3.	Structure and Problems of Modern Industry	...	...	"	100
4.	Public Finance	...	...	"	100
5.	Economic History	...	...	"	100
6.	Politics	...	...	"	100
7.	A Special Subject	...	...	"	100
8.	Essay	...	...	"	100
Total ...					800

(11) PHILOSOPHY

(A) Metaphysics Branch

1.	History of European Philosophy, Ancient and Mediæval	...	...	3 hours	100
2.	History of Modern European Philosophy	...	...	"	100
3.	Metaphysics with special reference to Contemporary Philosophy	...	...	"	100
4.	Theory of Knowledge	...	...	"	100
5.	History of Indian Philosophy (exclusive of Vedānta)	...	...	"	100
6.	Vedānta (Advaita, Viśiṣṭadvaita, Dvaita)	...	...	"	100
7.	Philosophy of Religion (with special reference to India)	...	...	"	100
8.	Essay ...	...	...	"	100
Total ...					800

(B) Social Philosophy Branch

1.	Ethics	...	...	3 hours	100
2.	Political Philosophy	...	...	"	100
3.	History of Ethics and History of Political Philosophy	...	...	"	100
4.	Indian Ethics and Indian Political Thought	...	...	"	100
5.	Sociology I (Principles of Sociology)	...	...	"	100
6.	Sociology II (Indian Social Institutions)	...	...	"	100
7.	Philosophy of Religion (with special reference to India)	...	...	"	100
8.	Essay	...	...	"	100
Total ...					800

(C) Psychology Branch				Max Marks.
1.	General Psychology	...	3 hours	100
2.	Systems of Psychology	...	"	100
3.	Experimental Psychology, Theory I	...	"	100
4.	Experimental Psychology, Theory II	...	"	100
5.	Experimental Psychology, Practical	...	"	100
6.	Essay	...	"	100
7.	Any two of the following to be prescribed from time to time—			
	(a) Mental Measurement	...	} Two papers of three hours each carrying 100 marks	200
	(b) Psychology of Industry	...		
	(c) Psychology of Religion	...		
	(d) Child Psychology	...		
	(e) Social Psychology (including Folk Psychology)	...		
Total		...		800

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinances 92 to 96]

B. Sc. DEGREE EXAMINATION

CONDITIONS OF ADMISSION*

[*Vide* Ordinance 12]

COURSES OF STUDY (GENERAL)

[*Vide* Ordinances 79 to 81]

COURSES OF STUDY (DETAILED)

[*Vide* Ordinance 240 (c)]

I. Compulsory English

The same text-books shall be set for the two Compulsory Composition papers both in the B.A. and B.Sc.

*No one is allowed to enter for the B.Sc. Degree Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

II. Second Language

(1) KANNADA

Text-books in Modern Kaunada to be prescribed.

(2) TELUGU

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(3) TAMIL

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(4) URDU

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(5) HINDI

Same as for the B.A. Degree Examination.

(6) SANSKRIT

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(7) PERSIAN

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(8) ARABIC

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(9) FRENCH

Same as for the B.A. Degree Examination.

(10) LATIN

Same as for the B.A. Degree Examination.

III. Optional Subjects

(1) ECONOMICS AND STATISTICS

With regard to group (xi), the detailed course shall be as under :—

(i) The course of study in Economics, Mathematics and Sociology shall be the same as for the B.A. Degree.

(ii) The course of study in Mathematical Statistics and Mathematical Economics shall consist of—

- (a) Mathematical Statistics,
- (b) Mathematical Economics,
- (c) Mathematics or Social Measurements,

the latter subject being offered by candidates who take Mathematics instead of Sociology.

(2) PSYCHOLOGY

The course of study in Group (x) shall be as follows :—

(i) *Experimental Psychology*—

(1) Experimental Psychology of Attention, Perception, Imagery, Association, etc. (Theory).

(2) Experimental Psychology of Reasoning, Impulses, Emotions, Will, Hypnosis, etc. (Theory).

(3) Experimental Psychology (Practical).

(ii) *Child Psychology and Educational Psychology*—

(1) General Psychology.

(2) Child Psychology

(3) Educational Psychology.

(iii) *Mathematical Statistics*—

(1) Theory of Measurements and Statistical Methods.

(2) and (3) Pure Mathematics.

Books for Study

(i) General Psychology

1. McDougall : *Outlines of Psychology* (except Chapters 2, 3 and 4).
2. Spearman : *Nature of Intelligence* (Chapters 4, 5, 7, 9, 12, 13, 16, 19 and 20).

Note.—The practical examination in Experimental Psychology shall include the valuation of class records of laboratory work. The practical examination shall, in addition, include a *viva voce*.

(ii) Experimental Psychology

1. Seashore: *Elementary Experiments in Psychology*.
2. Collins and Drever: *Experimental Psychology*
3. Foster: *Experiments in Psychology*.

(iii) Child Psychology

1. Waddle, C. W.: *Introduction to Child Psychology*.
2. Gessel: *Psychology of the Pre-School Child*.
3. Stern: *Psychology of the Early Childhood*.
4. Miller: *The New Psychology and the Parent*.

(iv) Educational Psychology

1. Charles Fox: *Educational Psychology*.
2. James Ward: *Psychology Applied to Education*
3. Sandiford: *Educational Psychology*.

(3) SOCIOLOGY

Same as for the B.A. Degree Examination.

(4) MATHEMATICS

1. Pure Mathematics—Analysis, Geometry (Pure and Analytical).
2. Applied Mathematics—
Either
Dynamics, Statics and Astronomy.

Or

General Statistics and Applications of Mathematics to Economics and Mental and Social Measurements.

The following is the detailed course of study in Mathematics:—

PURE MATHEMATICS

Analysis—

Ideas of rational, irrational and complex numbers. Sequences. Limits. Addition, subtraction, multiplication and division theorems on limits of sequence. Monotonic sequences, Cauchy's principle of convergence (without proof). A Monotonic sequence tends to a limit (examples and applications of the result only).

Simple comparison tests for convergence and divergence of series. D'Alembert's and Raabe's Tests (in their simpler forms.)

*The syllabus and the examination scheme for the B.A. and the B.Sc. in all science subjects shall be the same.

Absolute convergence. Convergence of alternating series. Multiplication theorem for absolutely convergent series. The Binomial Theorem for rational index. Multinomial Theorem. Exponential and logarithmic series [rigorous proof for the series for $\log(1+x)$ is not expected]. Recurring series. Addition and multiplication theorems on determinants. Solution of simultaneous linear equations.

The fundamental relations between the roots of a polynomial equation and its coefficients. Simple transformation of roots. Reciprocal equations. Simple properties of the roots $f(x)=0$ and $f'(x)=0$, and their mutual relations.

Functions of a single variable. Definition of continuity, Graphical study of properties of continuous functions. Differential coefficients. Differentials. Differentiation of various functions. Successive differentiation. Leibnitz's theorem. First and second mean value theorem of the differential calculus. Cauchy's mean value theorem. L'Hospital's Rule Taylor's theorem. Simple examples of expansions by Taylor's theorem and by the formation of linear differential equations.

Subtangent. Subnormal. Curvature of plane curves. Cartesian, polar and (p.r.) formulæ. Circle of curvature. Involution and evolutes. Double points of plane curves. Maxima and minima for function of one variable. Points of inflexion. Simple examples on partial differentiation.

Integration. Methods of integration. Reduction formulæ. The definite integral as limit of a sum (introduced geometrically). Lengths and areas of plane curves. Volumes and surfaces of revolution. Theorems of Pappus

The Argand diagram. Addition and multiplication of complex numbers. De Moivre's Theorem for a rational index. Series for $\cos \theta$ and $\sin \theta$ in powers of θ (rigorous proof not expected). Expansion of $\tan(A+B+C \dots)$ in terms of $\tan A, \tan B$, etc. Expressions for $\cos n\theta$ and $\sin n\theta$ in terms of cosines and sines of multiples of θ . Definitions of circular functions for a complex variable. Hyperbolic functions. Principal values of the inverse circular and hyperbolic functions. Logarithm of a complex number. Simple examples of separation of real and imaginary parts. Gregory's series, Simple series for π .

Geometry—

(i) Pure Geometry

Properties of circles. Pole and polar. Coaxial circles. Inversion. Elementary notions about projection, cross-ratios and harmonic division. Harmonic property of pole and polar of circle. The quadrilateral and quadrangle. Their harmonic properties. The property of collinearity of the middle points of the diagonals of a quadrilateral.

(ii) Plane Analytical Geometry.

Straight lines. The circle. Coaxial circles. The conic sections referred to their principal axes. Tangent, pole and polar chord with given middle point, pair of Tangents from a point. Centre, asymptotes and axes of a conic given by the general cartesian equation of the second degree. Tracing of conic sections. Polar equations of the straight line, circle and conic.

(iii) Solid Geometry.

Direction cosines, angle between two straight lines. The equation of the plane. Distance of a point from a plane. Equations of a straight line. Distance of a point from a straight line. Condition for coplanarity of two lines. Shortest distance between two lines in space

APPLIED MATHEMATICS

Dynamics, Statics and Astronomy--

1. *Dynamics*.—Addition of vectors. Angular velocity and acceleration. Areal velocity and acceleration. Relative velocity. Newton's laws of motion. Work and energy. Conservation of energy and momentum. Units and dimensions. Motion in a straight line under constant acceleration. Projectiles under gravity. Collision of elastic bodies. Simple harmonic motion. Combination of S.H.M.'s tangential and normal acceleration. The simple and conical pendulums. Motion in a vertical circle.

2. *Statics*.—Moments and couples. Conditions of equilibrium of a rigid body under coplanar forces. Laws of friction. Problems on centre of gravity, using methods of the calculus. Stable and unstable equilibrium. The simple catenary.

3. *Astronomy*.—The celestial sphere. Celestial co-ordinates. The earth and its rotation. Foucault's pendulum.

The transit instrument. The equatorial. The sextant.

The ecliptic. Apparent path of the Sun at different latitudes. Length of day. Season twilight.

Sidereal time. Apparent and mean time. Conversion of time. Equation of time (rough graphical study only). Date line. The calendar. Determination of geographical longitude.

Planets: Kepler's laws. Phases of planets. Direct and retrograde motion. Sidereal and synodic periods. Comets and meteors. The Moon. Phases and period. The Harvest Moon. Eclipses of the Sun and the Moon.

Atmospheric refraction: Geocentric parallax. Annual parallax. Distances of Sun, Moon and Stars from the Earth. Precession, nutation and aberration. Stars and their classification. Variable and binary stars. Apparent and absolute magnitudes, clusters and nebulae. Proper motions of stars

GENERAL STATICS AND APPLICATIONS OF MATHEMATICS TO ECONOMICS AND MENTAL AND SOCIAL MEASUREMENTS.—

1. Collection and classification of statistics.
2. Graphical representation of numerical data.
3. Calculation of central tendencies and of measures of scatter.
4. Linear and parabolic curve fitting. Method of least squares.
5. Measurement of relationship between two variables. Product-moment method of determining correlation coefficient.
6. Elementary problems of sampling. (Advanced properties of the normal probability curve will not be required).
7. Expressions for utility and marginal utility. Bernoullian hypothesis. Subjective price and consumer's surplus.
8. Curves of demand and supply. Alterations in price and output for given changes in condition of supply and demand. Numerical measures of elasticity.
9. Efficiency of money. Increasing, constant and decreasing returns. Curves of integral and marginal supply. Effects of a small tax or bounty on production.
10. Conditions of monopolistic production. Compromise benefit and consumer's combinations.
11. Essentials of mental measurement. Weber's and Fechner's laws.
12. Constants of mental measurement. Their reliability measures.

Books for Study

Relevant portions of the following books :—

1. Milne : *Higher Algebra*.
2. Osgood : *First Course in Differential and Integral Calculus* (Macmillan & Co., New York).
3. Siddons and Hughes : *Trigonometry*, Parts III-IV (Cambridge University Press).
4. Askwith : *Pure Geometry*.
5. Loney : *The Elements of Co-ordinate Geometry*, Part I.
6. Bell : *Co-ordinate Geometry of Three Dimensions*.
7. Norris and Legge : *Mechanics via the Calculus*.
8. H. Subramania Iyer : *A Text-book of Astronomy* (Chitra Publishing House, Trivandrum).
9. Caradog Jones : *A First Course in Statistics*.
10. A. T. Bowley : *Groundwork of Mathematical Economics*.
11. Thompson : *Essentials of Mental Measurements*.
12. G. W. Caunt : *Elementary Calculus* (Oxford University Press.)

Book for Reference

1. Child and Barnard : *Higher Algebra* (Macmillan & Co.)

(5) GEOGRAPHY**Course of Study—****1. REGIONAL GEOGRAPHY**

(Same as for B.A.)

2. BIO-GEOGRAPHY

1. General relation between Biology and Bio-Geography—multiplication of numbers and natural expansion—struggle for existence; modes of association—limitations of the environment and adaptations to it, *e g.*, evolution, migration, isolation.

2. Plant Geography; the environment of plant life—climatic and edaphic factors—modes of edaption—dispersal and migration of plants; distribution of natural vegetation—their relations to the environments.

Cultivated plants, their distribution—forests. Their relation to climate, soil and water supply, their economic value.

3. Animal Geography; the influence of environment upon the development, habits and migration of animals

Zoo-Geographical provinces; their characteristics and distribution and their relations to the past and present physical conditions; the Geographical units within the Zoo-Geographical regions.

Aquatic life; their divisions and characteristics and their relations to environment.

Domestic animals; their distribution and characteristics. Fisheries, their physical and biological conditions.

Books for Study and Reference

1. Hardy : *Geography of Plants* (Oxford University Press).
2. Schimper : *Plant Geography on a Physiological Basis*. (Clarendon).
3. Elton : *Animal Ecology*.
4. Newbigin : *Animal Geography*

3. CLIMATOLOGY, OCEANOGRAPHY AND GEOMORPHOLOGY

1. Climatology—A study of the atmosphere, the thermal structure of the atmosphere and the principles of its circulation, study of weather maps, forecasting of weather. Classification of climates.

2. Oceanography—A study of the Hydrosphere, oceanic waters, their circulation and movements, life in the ocean, deposits

of the ocean floor, the history and methods of oceanographical survey.

3. Geomorphology—Origin and distribution of typical land forms, earth movements, their causes and effects, structure of the present land masses and development of their relief, distribution of continents and oceans.

Study and interpretation of Geological maps.

Books for Study and Reference

1. Kendrew : *Climate*.
2. Kendrew : *Climate of the Continents*.
3. A. Miller : *Climatology*.
4. Johnstone : *Oceanography*.
5. Murray : *Ocean*.
6. Woolridge and Morgan : *Physical Basis of Geography*.
7. Longwell, Knopf and Flint : *Text-book of Geology*, Vol. I.
8. Lobeck : *Geomorphology*.

4. CARTOGRAPHY

Methods of trigonometrical surveying, including triangulation, resection and traversing. Methods of photographic and aerial surveying. Heights by levelling and by Aneroid Barometer. The use of the Sextant.

Time; mean, apparent, and sidereal. International Date Line. Longitude and Azimuth by simple astronomical observations. Differences of Latitude, Longitude and Reverse Azimuths. Calculation of the times of Sunrise and Sunset.

Historical statement of the important efforts and the principles involved to determine the figure of the earth.

An advanced study of the map projections included in the compulsory subject "Practical Examination" together with Cassini's Transverse Mercator, Gnomonic, Aitoff's transverse and oblique zenithal projections. The effect of the spheroidal shape of the Earth on map projections in simple cases.

(A knowledge of elementary Trigonometry and the elements of Spherical Trigonometry is assumed).

Books for Study and Reference

1. Erwin Raisz : *General Cartography* (Mcgraw Hill).
2. Jameson and Ormsby : *Mathematical Geography*, Volumes I and II (Pitman).

ANTHROPO-GEOGRAPHY AND THE DISTRIBUTION OF MAN

(Same as for B.A.)

PRACTICAL EXAMINATION

(Same as for B.A.)

(6) PHYSICS

The subjects of the Intermediate course, and in addition, the following (the treatment to be both experimental and Mathematical, employing simple differential and integral calculus):—

Dynamics.—Dynamical units. Dimensions. Resolution and composition of vector quantities. Graphical methods applied to vectors. Uniplanar motion of a particle under constant acceleration. Simple harmonic motion. Angular motion. Moment of inertia. The compound pendulum. Work, energy, power. Impact. Equilibrium of bodies acted on by coplanar forces. Centre of mass and its determination by calculation and experiment. Simple machines. Friction.

Hydrostatics.—Fluid thrust on immersed surfaces. Centre of pressure. Conditions of stability of floating bodies. Hydrostatic appliances: pumps, gauges, presses. Capillarity: surface tension.

General Physics.—Elasticity: Elastic limit. Hooke's Law. Compressibilities of gases, liquids and solids. Rigidity. Effects of simple longitudinal stress. Young's Modulus and its connection with compressibility and rigidity. Bending of bars of simple section in one plane. Torsion. General properties of gases. Explanation of pressure exerted by a gas according to the kinetic theory. Avogadro's Law. Diffusion of gases and liquids. Osmosis: Osmotic Pressure.

Heat.—Thermometry. Calorimetry. Methods of determination of thermal constants. Relations of volume, pressure and temperature of gases, vapour and liquids. Continuity of state. Equation of Van der Waals. Critical state and critical constants. Elements of the kinetic theory of gases. Conduction of heat; determination of thermal conductivity. Diffusion of heat. Radiation and absorption. Laws of cooling. Stefan-Boltzmann Law. Distribution of energy in spectrum. Radio-meters. Elements of thermo-dynamics. Isothermal and adiabatic changes in gases. Specific heat at constant volume and at constant pressure. Reversible thermal processes. Carnot's cycle. Efficiency of thermal engines. Entropy. Absolute thermo-dynamics scale of temperature. Joule-Thomson porous plug experiment. Hampson air liquifier.

Light.—Velocity of light and its determination. Photometry. Reflection and refraction. Geometrical study of action of mirrors and thin lenses. Dispersing effects in cases of prisms and thin lenses. Direct vision spectroscope. Achromatic lens combinations. Wave theory of light. Interference. Huyghen's principle; explanation of reflection and refraction. Rectilinear propagation of light explained on the wave theory. Diffraction. Wave length of light and its determination. Diffraction grating. Resolving

power of grating. Spectrum analysis. Doppler's principle and its applications. Double refraction. Polarisation plane, circular and elliptical. Effects produced by thin crystalline plates on paralld pencils between polariser and analyser. Determination of principal directions in crystalline plates. Nicol's prism. Norrenberg's polariscope. Wave surface in uniaxal crystal. Rotation of plane of polarisation. Half-wave and quarter-wave plates Laurent's polarimeter.

Sound.—Propagation of sound in material media. Velocity of sound and its measurement. Musical sound: quality, pitch, intensity. Reflection, refraction and diffraction of sound: the common results of these. Sound as wave motion. Wavelength. Stationary waves. Resonance. Kundt's dust-tube experiment and its application. Melde's experiment. Interference.

Magnetism and Electricity.—Mutual action between magnet poles. Definition of unit pole. Action of magnetic field on pole. Magnetic intensity and its measurement. Magnetic potential. Energy of magnetic shell in magnetic field. Total normal induction. Gauss' Theorem. Magnetic induction. Simple magnetic properties of iron and steel. Permeability, susceptibility, hysteresis. Elements of terrestrial magnetism. Mutual action between electric charges. Electric intensity and its measurement. Electric potential. Dielectric coefficient. Electric induction. Capacity and its calculation in simple cases. Energy of charged conductors. Distribution of charge over surface of conductor. Electric images. Case of point charge and plane conductor. Electric currents and their effects. Magnetic field of current. Action of magnetic field on current. Galvanometers. Definition of unit current. Electromotive force. Resistance. Ohm's Law. Measurement of resistance. Wheatstone's Bridge. Conduction in electrolytes. Laws of electrolysis. Chemical actions in primary cells. Secondary or accumulator cells. Electromagnetic induction. Cell and mutual inductance. Energy of electric current. Lenz's Law. Simple forms of direct current generator and motor. Alternating currents and simple form of alternating current generator. Applications of electric currents to transmission of power. Electrical communication. Thermo-electricity. Seebeck, Peltier and Thomson phenomena. Thermo-electric diagram. Oscillating discharge of condenser. Simple facts relating to the generation and propagation of electric waves.

(7) CHEMISTRY

The matter included in the syllabus for the Intermediate course, and in addition the following:—

Inorganic Chemistry.—A study in detail of the elements and their compounds from the standpoint of the periodic classification, rare elements being omitted.

Theoretical and Physical Chemistry.—Methods of determining equivalent, atomic and molecular weight. The atomic theory. Valency. The properties of gases. Transition from gaseous to liquid state. Vapour pressure and boiling point. Solution. Osmotic pressure. Theory of electrolytic dissociation. Electromotive force in cells. Relation of chemical energy to electrical energy and heat. Electrolysis. Measurement of hydrogen in concentration. Colloidal solution. The Law of Mass Action. Speed of chemical change. Catalysis. Thermo-chemistry. Relation of physical properties to chemical constitution.

Organic Chemistry.—Elementary Organic Analysis—Methane, Ethane, Ethylene, Acetylene, Methyl iodide, Ethyl bromide, Chloroform, Iodoform—Cyclohexane, Benzene, Toluene, Naphthalene, Anthracene-Brombenzene, Nitrobenzene, m-Dinitrobenzene, Benzenesulphonic acid—Methyl alcohol, Ethyl alcohol, Glycerol, Phenol, Benzyl alcohol, Resorcinol-Ethyl Ether-Dimethyl sulphate, Ethyl acetate-Formaldehyde, Acetaldehyde, Chloral, Benzaldehyde, Acetone, Acetophenone, Quinone, Anthraquinone, Alizarin. Acids: Formic, Acetic, Stearic, Oleic, Benzoic, Cinnamic, Lactic, Salicylic, Gallic, Acetoacetic, Oxalic, Malonic Succinic, Maleic, Fumaric, Phthalic, Malic, Tartaric, Citric—Glucose, Fructose, Sucrose, Lactose, Starch, Cellulose—Acetonitrile, Benzonitrile—Methylamine, Aniline, Benzene diazonium chloride—Glycine—Phenylhydrazine-Acetanide, Acetanilide, Benzamide, Urea (Carbamide)—Magnesium methyl iodide (Grignard's reagent).

The subject (including the theoretical aspects of the above substances) is to be treated in an elementary manner. Details of preparation are not expected.

Laboratory Courses—Qualitative analysis including analysis of mixtures of mineral substances.

Volumetric analysis: the estimation of alkalis, alkali carbonates and acids by neutralisation. Determinations involving the use of the permanganate, dichromate, iodine and thiosulphate processes. Estimation of chlorides.

Gravimetric determination of iron, aluminium, silica and sulphuric acid.

Detection of elements. Reactions of aliphatic hydrocarbons, alcohols, phenols, aldehydes, ketones, acids, esters, sugars, amines and amides. Estimation of benzoic acid, phenol, glucose and urea. Simple preparations such as nitrobenzene, m-Dinitrobenzene, aniline, ethyl acetate and acetamide.

Note—In treating the above syllabus, due attention is to be paid to the historical aspect of the subject.

Books for Study

1. Sherwood Taylor : Inorganic and Theoretical Chemistry (Heinemann).
2. Caven and Lander : Systematic Inorganic Chemistry (Blackie & Son).
3. Lowry and Sugden : A Class Book of Physical Chemistry (Macmillan).
4. Firth : Physical Chemistry (University Tutorial Press).
5. Newbury : A Concise Organic Chemistry (Oxford University Press).
6. Moureu : Fundamental Principles of Organic Chemistry (Bell.)
7. Conant : Chemistry of Carbon Compounds (Macmillan).
8. Fenton : Notes on Qualitative Analysis (Cambridge University Press).
9. Caven : Quantitative Chemical Analysis, Vols. I & II (Blackie & Sons).

The following books have been prescribed as alternative texts :

- (i) *Elementary Physical Chemistry*.—by S. R. Palit (Sen Bros. & Co., College Square, Calcutta—Second Edition as an alternative text-book to Lowry and Sugden : A Class Book of Physical Chemistry).
- (ii) *Beginner's Qualitative Analysis*.—by P. S. Lakshminarayana, Lecturer, American College, Madura, 1941, as an alternative text-book to Fenton : *Notes on Qualitative Analysis*.

(8) GEOLOGY

Physiology and Cosmical Aspects of Geology.—Various hypothesis as to the origin of the earth. Probable condition of the earth's interior. Methods of determination of the shape, size and density of the earth. Age of the earth. Evolution of surface features such as mountains, valleys, plains, etc. Isostasy.

Crystallography.—Study of the various types of holohedral crystal forms found in the several systems. Methods of crystal notation according to Weiss, Naumann and Miller. Hemihedral and hemimorphic crystal forms and combinations under each of the crystal systems. The more important types of twins and twinning. Use of the Contact Goniometer. Drawing of the more important types of holohedrons, hemihedrons and twins.

Mineralogy.—The chief characteristics of all the more abundant and more important rock-forming minerals and ores. Their modes of occurrence, alteration, products and uses, with special reference to examples of isomorphism. Paramorphism, Pseudomorphism and Dimorphism. The practical determination of the chief physical and chemical properties of the common ores and minerals including the use of the blow-pipe.

Petrology.—A detailed study of the origin and classification of the important types of rocks, their composition, texture, structure and mode of occurrence. Contact and regional metamorphism. The macroscopic and microscopic examination of rocks including the determination of the simple optical characters of the chief rock-forming minerals in parallel polarised light. Drawing of sketches to represent features observed in rock sections under the microscope. Construction and use of a simple petrological microscope.

Structural and Field Geology.—The origin of the more important lithological and structural features of rocks and their field relationships. Illustration by diagrammatic sketches. Origin and nature of mineral veins. Construction and interpretation of geological maps and sections. Tracing of outcrops. Simple problems in structural geology. Laboratory exercises in reading topographical and geological maps.

Note.—The above to be substantiated by actual observations in the field during the geological excursions to parts in and outside Mysore for nearly a month.

Stratigraphy and Palæontology —Principles of correlation of strata. Homotaxis. Causes for the imperfection of the geological record. The chief lithological and palæontological characters of the various geological systems and their chief sub-divisions with special reference to their Indian representatives. Probable physical conditions under which they were formed. A detailed study of the geological history of Mysore.

The classification, characters and distribution of the more important types of fossils, especially Indian. Drawing, description and identification of fossils. The study of fossils in relation to the problem of evolution.

The knowledge of the candidate in accordance with the syllabus will be tested also by practical examinations. *Viva voce* questions may be asked.

(9) ZOOLOGY

A study of the main types illustrative of habits, structure and life-history including a knowledge of classification, affinities and Palæontological history of the following groups:

(1) Protozoa, Sponges, Coelentera, Platyhelminia, Nemotoda;

(2) Rotifera, Annelida, Polyzoa, Brachiopoda, Sipunculoidea ;

(3) Echinoderma, Arthropoda, Mollusca and Chordata.

A general knowledge of the principal theories of organic evolution, heredity and geographical distribution of animals.

Note—Students are required to make collections of animals during excursions and holidays and maintain notes of such collections.

Practical Work.—The practical work will include dissection of all the types including marine organisms (while on excursion), examination of skeletal material, description and identification of specimens and preparations, and ability to prepare microscopical slides.

(10) BOTANY

1. The main points of structure, life history, development, and taxonomic relationship of the following groups in general and the genera in particular :

Myxomycetes.—**Bacteria**—**Cyanophyceæ.** Oscilloria Nostoc, Rivularia and Scytonema—**Diatomaceæ.**—**Chlorophyceæ,** Chlamydomonas, Pandorina, Eudorina, Volvox, Ulothrix, Oedogonium, Ulva, Enteromorpha, Coleochæte, Protococcus, Scenedesmus, Hydrodictyon. Cadophora, Vaucheria, Caulerpa, Botrydium, Spirogyra, Zygnema and Desmids.—**Characeæ,** Chara or Nitella.—**Phæophyceæ,** Ectocarpus, Fucus, Sargassum—**Rhodophyceæ,** Liagora, Batrachospermum, Polysiphonia.—**Gracilaria, Amphiroa**—**Fungi,** Xhycomycetes, Pythium, Phytophthora, Mucor or Rhizopus, Pilobolus, Saprolegnia, Gystopus.—**Ascomycetes** Saccharomycetes, Eurotium Pencillium Erysiphe, Peziza, Xylaria.—**Besidiomycetes,** Ustilago, Puccinia, Poliporus, Agaricus. Lycoperdon, Phallus.—**Lichens**—**Bryophytes,** Riccia, Merchantia—**Anthoceros**—**Funaria,** or Polytrichum.—**Pteridophytes,** Lycopodium, Selaginella, Isoetes.—**Equisetum, Ophioglossum, Gleichenia, Osmunda, Angiopteris, Trichomanes Pleopeltis, Adiantum, Marsillia, Gymnosperms, Cycas, Pinus.**

2. The morphology and development of the reproductive organs of angiosperms.

3. The external morphology of angiosperms and the general principles of classification and the distinguishing characters of the following families as used in the flora of British India :—

Magnoliaceæ, Anonaceæ, Mymphæaceæ, Cruciferae, Caparideæ, Malvaceæ, Sterculiaceæ, Tiliaceæ, Geraniaceæ, Rutaceæ, Meliaceæ, Rhamnææ, Sapindaceæ, Anacardiaceæ, Leguminosææ, Rosaceæ, Combretaceæ, Myrtaceæ, Lytharaceæ, Cucurbitaceæ, Umbelliferæ, Rubiaceæ, Compositæ, Sapotaceæ, Oleaceæ,

Apo, cynaceæ, Asciopiadaceæ, Boragineæ, Convolvulaceæ, Solanaceæ, Scrophularineæ, Acanthaceæ, Verbinaceæ, Labiateæ, Amaranthaceæ, Loranthaceæ, Euphorbiaceæ, Urticaceæ, Hydrocharideæ, Orchideæ, Scitamineæ, Amaryllideæ, Liliaceæ, Commelinaceæ, Palmeæ, Aroideæ, Cyperaceæ, Gramineæ.

4. *Physiology*.—The chemical composition of the plant. Materials of the plant food and their sources. The nature of the soil and importance of its constituents and micro-organisms. Movements of water and gases. Assimilation of carbon and nitrogen. Transpiration and translocation of the assimilated products. Parasitism and other modes of nutrition. Metabolism. Respiration. The influence of light, heat and gravity. Growth, movements and irritability in plants. Sexual reproduction and its significance. Vegetative reproduction, the phenomenon of cross-fertilisation. Variation, heredity and mendelism theories of evolution and origin of species.

5. *Histology*.—The structure and mode of division of the cell. The nature of cell-contents. The nature and mode of origin of plastids, cell-sap and other cell-contents. The physical and chemical properties of protoplasm and cell-wall. The origin nature and development of plant tissues. Primary and secondary tissues and their distribution in the plant body.

6. *Ecology*.—Structural adaptation to environment. Plant communities.

Practical Work.—Candidates are expected to be able to make preparations illustrating the form and structure of any plant of the groups mentioned in the syllabus and describe it with sketches sufficient for its identification; to make dissections with the simple microscope of the floral parts of angiosperms; to make drawings; to construct floral diagrams and refer them to their families; to describe in technical language plants belonging to any of the groups in the syllabus.

At the practical examination, each candidate must submit his laboratory note-books, a collection of named plants collected and preserved by himself and a record of field work showing a good acquaintance with the flora of the Mysore State.

Simple experiments in plant physiology.

SCHEME OF EXAMINATION

[Vide Ordinance 241 (b).]

I. Compulsory English.				Max. Marks
1.	English Composition I	...	3 hours	100
2.	English Composition II	...	"	100
Total ...				200

II. Second Language.

				Max. Marks
(Other than French and Latin)				
Composition and Translation*	...	3 hours		100
<i>Or</i>				
Translation in respect of Classical Language	...	...	...	100

French

				Max. Marks
Prescribed Texts, Grammar and Translation from English into French and from French into English	...	3 hours		100

Note.—Passages for translation from French into English shall be chosen from the prescribed texts.

Latin

Prescribed Texts, Grammar, Translation from English into Latin	...	3 hours		100
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III. Optional Subjects.**(1) ECONOMICS AND STATISTICS***(a) Economics*

1. General Economics I	...	...	3 hours	150
2. General Economics II	...	...	„	150
3. Elements of Statistics	}	...	„	150
<i>Or</i>				
Recent Economic History of India				
Total ...				450

(b) Mathematical Statistics and Economics

1. Mathematical Statistics	..	...	3 hours	125
2. Mathematical Economics	...	...	„	125
3. Mathematics	}	...	„	150
<i>Or</i>				
Social Measurements				
Total ...				400

				Max. Marks
*Composition	...	...	...	75
Translation from English to the Second Language	...	...	...	25
Total ...				100

(c) *Mathematics*Max.
Marks.

1.	Pure Mathematics I	...	...	3 hours	125
2.	Pure Mathematics II	...	...	"	125
3.	Applied Mathematics—				
	<i>Either</i> Dynamics, Statics and Astro- nomy				
	<i>Or</i>				
	General Statistics and Application of Mathematics to Economics and Mental and Social Measurements			"	150
Total					400

(d) *Sociology*

1.	Principles of Sociology I	...	...	3 hours	150
2.	Principles of Sociology II	...	...	"	150
3.	Anthropology	...	...	"	150
Total					450

(2) PSYCHOLOGY

(a) *Experimental Psychology*

1.	Experimental Psychology of Attention, Perception, etc. (Theory)	...	3 hours	150
2.	Experimental Psychology of Reasoning, Impulses, etc. (Theory)	...	"	150
3.	Experimental Psychology (Practical)	...	"	100
Total				400

(b) *Child Psychology and Educational Psychology*

1.	General Psychology	...	3 hours	150
2.	Child Psychology	...	"	150
3.	Educational Psychology	...	"	150
Total				450

(c) *Mathematical Statistics*

1.	Theory of Measurements and Statistical Methods	...	3 hours	150
2.	Pure Mathematics I	...	"	125
3.	Pure Mathematics II	...	"	125
Total				400

(3) SOCIOLOGY

Max.
Marks

1. Principles of Sociology I	...	...	3 hours	150
2. Principles of Sociology II	...	...	"	150
3. Anthropology	...	...	"	150
Total				450

(4) MATHEMATICS

1. Pure Mathematics I	...	...	3 hours	125
2. Pure Mathematics II	...	...	"	125
3. Applied Mathematics—				
Dynamics, Statics and Astronomy			}	" 150
<i>Or</i>				
General Statistics and Application of Mathematics to Economics and Mental and Social Measurements				
			Total	400

(5) GEOGRAPHY

(c) Examination			
1. Paper I:			
(a) Regional Geography of India and	}	3 hours	150
(b) Any <i>two</i> of the Continents: Europe, Asia and North America			
2. Paper II : Optional Subject		„	150
3. Paper III : Practical Examination	...		100
Total			400

(6) PHYSICS

1. Physics I	...	...	3 hours	150
2. Physics II	...	...	"	150
3. Practical Physics	...	...	"	100
Total				400

(7) CHEMISTRY

1. Chemistry I	...	...	3 hours	150
2. Chemistry II	...	...	"	150
3. Practical Chemistry	...	...	"	100
Total				400

(8) GEOLOGY Maxs
Mark.

1. Geology I	...	3 hours	150
2. Geology II	...	"	150
3. Practical Geology	...	"	100
Total			... 400

(9) ZOOLOGY

1. Zoology I	...	3 hours	150
2. Zoology II	...	"	150
3. Practical Zoology	...	"	100
Total			... 400

(10) BOTANY

1. Botany I	...	3 hours	150
2. Botany II	...	"	150
3. Practical Botany	...	"	100
Total			... 400

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinances 82 to 84]

B.Sc. (Hons.) DEGREE EXAMINATION

CONDITIONS OF ADMISSION*

[*Vide* Ordinance 12]

COURSES OF STUDY (GENERAL)

[*Vide* Ordinances 89 to 91]

COURSES OF STUDY (DETAILED)

[*Vide* Ordinance 240 (c)]

I. Compulsory English

Text-books shall be the same as those prescribed for Paper I for the B.A. Degree Examination.

*No one is allowed to enter for the B.Sc. (Hons.) Degree Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

II. Second Language

(1) KANNADA

Text-books in Modern Kannada to be prescribed.

(2) TELUGU

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(3) TAMIL

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(4) URDU

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(5) HINDI

Same as for the B.A. Degree Examination.

(6) SANSKRIT

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(7) PERSIAN

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(8) ARABIC

Text-books shall be the same as those prescribed for the B.A. Degree Examination.

(9) FRENCH

Same as for the B.A. Degree Examination.

(10) LATIN

Same as for the B.A. Degree Examination.

III Optional Subjects

(1) MATHEMATICS

PAPER I—ALGEBRA.

Ideas of group, ring, field, linear vector space, hyper complex systems with illustrations from symmetric group, complex numbers and quaternions—Determinants—linear equations—Matrices, linear transformations, quadratic forms, reduction to canonical form, maximum and minimum properties.

Polynomials over a field (division algorithm, G.C.F., question of reducibility)—symmetric functions—algebraic extensions of a field—solution in radicals of the cubic and the quartic—roots of unity, location of roots.

Elementary theory of numbers; Congruences, primitive roots, quadratic residues, complex integers, Lagrange's theorems *re* the expression of an integer as sum of two and four squares. Continued fractions, the equation $X^2 - Dy^2 = k$.

PAPERS II AND III—ANALYSIS.

Real numbers—elements of point-set theory—function—sequence—inequalities—continuity—differential coefficient—mean value theorems—implicit functions

Riemann theory of integration—multiple integrals—Green's and Stokes' theorems.

Infinite series—Power series—Fourier series—infinite products—infinite integrals, evaluation in standard cases—elementary transcendental functions—Beta and Gamma functions.

Cauchy's theorem and contour integration.

Properties of standard curves—curve tracing.

Successive differentiation—partial differentiation—transformations, Jacobians—Euler's theorem on homogeneous functions—maxima and minima of functions of one and several variables, Lagrange's λ —method.

Indefinite integrals—evaluation of multiple integrals—applications to areas, volumes, centres of gravity, and moments of inertia.

Ordinary differential equations of the first and second order—general linear equation with constant coefficients and types reducible to them—standard types of higher order equations. Simultaneous and partial differential equations of simple types.

PAPER IV—GEOMETRY.

1. (a) Elements of synthetic projective geometry of conics.

Ranges and pencils, homography, involution, cross-ratio—line and plane at infinity, circular points and circle at infinity—Charles-Reye generation of conics and properties derived therefrom—theorems associated with pencils of conics—Foci and confocal conics—Reciprocation.

- (b) Coaxial circles and spheres; inversion.

- (c) General ideas of the following:—

Linear-vector or Euclidean affine space E_n of n dimensions—subspace of E_n ; join and intersection, dimensions, parallelism, duality; topological properties of E_n .—The same topics treated for a projective space P_n of n dimensions—Geometry from the Group-theoretic point of view with particular reference to Euclidean, affine, and projective transformations.

- 2 Detailed treatment of the Analytical Geometry of quadrics in two and three dimensions

Invariants and covariants of one and two quadrics. Classical treatment with cartesian and homogeneous co-ordinates in the case of conics—properties of a pencil of conics, and its invariants and covariants—analytical treatment of topics in 1 (a)

Detailed treatment with cartesian co-ordinates of the analytical geometry of quadrics in three dimensions—pencil of quadrics.

PAPER V—APPLIED MATHEMATICS 1.

KINEMATICS

Vectors, velocity, acceleration, angular velocity—moving axes; special resolutions of velocity and acceleration for motion in a plane, in polar co-ordinates along tangent and normal, along radius and tangent.

PARTICLE DYNAMICS

Central forces; law of inverse squares, planetary motion disturbed orbits—Hamilton's theorem regarding laws of force under which the orbit is a conic—Bonnet's theorem—Constrained motion, motion in a circle, motion on a cycloid, Brachistochrone, particle in a rotating tube, motion of chains—motion in a resisting medium—motion with varying mass—oscillations, simple harmonic motion, damped and forced vibrations.

STATICS

Equilibrium of Coplanar forces (advanced problems including friction)—graphic statics (reciprocal figures and frameworks)—application of the principle of virtual work to questions of equilibrium and stability—equilibrium of strings and chains—forces in three dimensions, central axis, wrenches and screws, null systems, conjugate forces—elasticity, bending moments and shearing force, bending of bars, theorem of three moments, thin rod bent in one plane, Euler's strut, loaded columns.

PAPER VI—APPLIED MATHEMATICS 2.

GENERAL PRINCIPLES

Newton's laws of motion—work and energy—virtual work, D'Alembert's Principle—Principles of conservation of energy, momentum, and angular momentum,—Impulsive forces—generalised co-ordinates—Lagrange's equations—Hamilton's principles—Principle of least action—Hamilton's canonical equations (treatment of topics for conservative holonomic systems, and with illustrations from well-known cases).

RIGID DYNAMICS

Moments of inertia, momental ellipsoid, principal axes, equi-momental systems—Motion about a fixed axis, compound pendulum, impulsive forces—motion of cone on a rough inclined plane—motion in two dimensions under finite and impulsive forces.

ASTRONOMY

Diurnal motion—the earth—atmospheric refraction—annual motion of the earth round the sun—time—planets—parallax—aberration—precession and nutation—moon and eclipses—stars, double stars, magnitude, spectral classes, surface temperature, luminosity, diameter, Hertzsprung-Russell diagram—Stellar motions, solar motion, proper motion, radial velocities, star streaming—Clusters and nebulae.

PAPER VII.—MATHEMATICAL PHYSICS.

1. ANALYTICAL PRELIMINARIES

Vector analysis in three dimensions—elementary notions of four dimensional analysis, four-vectors and six-vectors—curvilinear co-ordinates, expression for grad, div, rot, div grad in general curvilinear co-ordinates.

2. METHODS FOR THE SOLUTION OF SPECIAL PROBLEMS.

(a) Laplace's equation.

Application of Green's theorem ; uniqueness of solution, etc.—spherical harmonics—Bessel functions—spheroidal and confocal co-ordinates—method of images and conformal representation ; illustrative problems from potential theory, electrostatics, and hydrodynamics.

(b) One dimensional problems in heat conduction—Fourier series and Fourier integral.

(c) The wave equation—Poisson's solution.

3. GENERAL THEOREMS.

(a) Normal orthogonal systems ; orthogonalisation, Bessel's inequality, completeness relation, Laguerre and Hermitian polynomials.

(b) Calculus of variations, the Eulerian differential equation—problem of small oscillations—the Sturm-Liouville problem—Eigen-values and Eigen-functions.

(c) General theory of partial differential equations of the first order.

(d) Linear partial differential equations of the second order—elliptic differential equations—Green's function and its properties—Reduction of the differential equation to an integral equation.—the Poisson integral—mean value theorems.

List of Special Subjects

Any two from the following list, one at least being from A.

A

1. Theory of Functions of a Real Variable.
2. Modern Algebra.
3. Theory Groups.
4. Theory of Numbers.
5. Theory of Functions of a Complex Variable.
6. Differential Equations.
7. Calculus of Variations.
8. Higher Geometry.
9. Differential Geometry.
10. Topology.
11. Theory of Probability.
12. Theoretical Statistics.

B

1. Advanced Dynamics.
2. Hydrodynamics.

3. Aerodynamics
4. Theory of Elasticity.
5. Theory of Potential.
6. Electro-magnetic Theory.

Books for Study and Reference

ALGEBRA.

1. Barnard and Child : *Higher Algebra*.
2. A. A. Albert : *Introduction to Algebraic Theories*.
3. A. A. Albert : *Modern Higher Algebra*.
4. B. L. Van d. Waarden : *Modern Algebra 1*.
5. W. L. Ferrar : *A Text-Book of Matrices, Determinants and Algebraic Forms*.
6. L. E. Dickson : *New First Course in the Theory of Equations*.
7. L. E. Dickson : *Modern Elementary Theory of Numbers*.
8. Weber : *Lehrbuch der Algebra*, Bd. 1.

ANALYSIS.

1. G. H. Hardy : *Pure Mathematics*.
2. Bromwich : *Infinite Series*.
3. Osgood : *Functions of a Real Variable*
4. De la Vallee Poussin : *Course d'Analyse*. Vols. 1 and 2.
5. Cesaro : *Lehrbuch der Analyse*.
6. Courant : *Differential and Integral Calculus*, 1 and 2.
7. Goursat : *Mathematical Analysis*, Vol 1.
8. Gibson : *Advanced Calculus*.
9. Forsyth : *Treatise on Differential Equations*
10. Whittaker and Watson : *Modern Analysis*.
11. Polya and Szego : *Aufgaben u. Lehrsätze*, Bd. 1 and 2.
12. Mahajan : *Lessons in Analysis*.

GEOMETRY.

1. Salmon : *Conic Sections*.
2. Salmon : *Analytical Geometry of Three Dimensions*, Vol. 1.
3. Graustein : *Higher Geometry*.
4. Schreier u. Sperner : *Analystische Geometrie*, Bd. 1 and 2.
5. Askwith : *Analytical Geometry of Conic Sections*.
6. Bell : *Co-ordinate Geometry of Three Dimensions*.
7. Hilbert : *Foundations of Geometry*.
8. Th. Reye : *Geometrie der Lage*, 1 and 2.
9. Durell : *Plane Geometry for Advanced Students*, Vols. 1 and 2.

APPLIED MATHEMATICS.

1. Ramsey : *Dynamics*, 1 and 2.
2. Love : *Theoretical Mechanics*.
3. Webster : *Dynamics*.
4. Lamb : *Higher Mechanics*.
5. Loney : *Treatise on Dynamics*.
6. Loney : *Statics*.
7. Routh : *Statics*, Vol. 1.
8. Ramsey : *Statics*
9. Ball : *Spherical Astronomy*.
10. Smart : *Spherical Astronomy*.
11. Russel-Dugan-Stewart : *Astronomy*.
12. G. V. Ramachandran : *Text-Book of Astronomy*.

MATHEMATICAL PHYSICS.

1. Courant-Hilbert : *Methoden d. Math. Physik*
Vols. 1 and 2.
2. Webster-Plimpton : *Partial Differential Equations of Mathematical Physics*.
3. Frank u. V. Mises : *Diff. u. int. Gleichungen d. Physik*.
4. Kellogg : *Foundations of Potential Theory*.
5. Jeans : *Electricity and Magnetism*.
6. Fraenkel : *Electrodynamik*, 1 and 2.

(2) STATISTICS

PAPER I—MATHEMATICS 1.

1. Number, irrational number, sequences, infinite series, absolute and uniform convergence, power series, infinite products.
2. Function, differential coefficient, successive differentiation, partial derivatives, transformation, functional determinants, divergence, curl, of a vector.—Mean value theorems, indeterminate forms, expansions, maxima and minima of functions of one and several variables, geometrical applications, curvature, envelopes, pedal curves, curve tracing. Riemann theory of integration, infinite integrals, multiple integrals, areas, volumes, centres of gravity, etc.
3. Differential equations: Ordinary, simultaneous and partial.

PAPER II—MATHEMATICS 2.

1. Complex numbers, De Moivre's theorem and applications.

2. Solution of the cubic and quartic, symmetric functions of the roots of an equation—Determinants—linear equations and transformations.
3. Vectors, scalar and vector products of two and three vectors, simple applications of vector analysis, definition of a tensor.
4. Cross-ratio properties, Projection. Principle of duality. Reciprocation and inversion by synthetic methods.
5. Analytical Geometry of two and three dimensions confined to reduction, tangency, polarity of linear and quadratic forms.
6. Curves in space, Serret Frenet formulæ.

PAPER III—MATHEMATICS 3.

Analytic functions, complex integration, Cauchy's theorem, singularities, residues, contour integration. Fourier series, Fourier integral theorem. Euler's formula for the Gamma function, the multiplication theorem of Gauss and Legendre, Logarithmic derivatives of the Gamma function, Hankel's expression of $P(z)$ as a contour integral, B-Function in terms of F-functions.

The Zeta function of Riemann expressed as a contour integral, values of the Zeta function (s, a) when s is an integer, Relation between Zeta (s) and Zeta $(1-s)$.

Hypergeometric function $F(a, b, c, l)$ in terms of P-functions.

Legendre's polynomials, Rodrigue's formula, Legendre's differential equation, Integral properties, Recurrence formulæ, Expression of any polynomial as a series of Legendre polynomials.

The Bessel coefficients, Bessel's differential equation, Bessel's function $J_n(z)$ when n is not an integer. Recurrence formulæ, Bessel's integral, Contour integral for $J_n(z)$. Zeroes of Bessel functions.

Tschebycheff's polynomials, Hermitian polynomials Orthogonal properties

PAPER IV—STATISTICS 1.

Theory of attributes, Frequency distributions and constants—Moments and cumulants—Binomial, and Poisson distribution, Normal distribution—Non-normal curves and Pearsonian distributions—Method of least squares and curve fitting—Errors of random sampling and statistical inference χ^2 square test—Regression, linear and non-linear—correlations, coefficient, ratio—multiple and partial

correlations, biserial and tetrachoric correlations—Coefficient of contingency—Estimation of parameters for large samples.

PAPER V—STATISTICS 2

K"—Statistics—Charlier Series—A and B—Normal correlation surface in n dimensions—Maximum likelihood—Analysis of variance—Small sample distributions—"t" and "z"—Principles of experimental design; factorial design and orthogonality—The Latin Square—Confounding—Non-orthogonal data—The technique of controlled experimentation.

PAPER VI—STATISTICS 3.

1. Elements of the theory of probability—Mathematical Expectation—Problems involving the use of the binomial distribution—Law of large numbers—Inverse probability and Bayes' theorem—Geometric probability—Fiducial limits.
2. Interpolation with equal and unequal intervals of the argument—Central difference formulæ and applications—Legendre's principle and deduction of normal equations in the method of least squares—Numerical integration and summation. Numerical solution of equations and evaluation of determinants.
3. The numerical process of smoothing of data, analytical formulation of graduation—Practical Fourier Analysis and search for periodicity.
4. Solution of linear difference equations—Difference-differential equation.

PAPER VII—ECONOMETRICS.

1. Functions and diagrams in economic theory. Curves and demand functions. Indifference curves for consumers goods and for flow of income over time; total revenue functions and cost functions.
2. Utility as a quantity—mechanical analogies common with economic ideas—simple exchange of two commodities—multiple exchange.
3. Elasticity as a general conception, and as illustrated with normal conditions of demand, supply and cost.
4. Production—factors of production; law of substitution; supply curves—nature of returns.

Joint and alternate demand for factors—supply and demand of the factors of production and share of factors.

5. General equations of supply and demand in a stationary population—stability of equilibrium and alternative demand—prices and quantities under competition and monopoly of different kinds—joint and composite demand and supply; derived demand.
6. Monopoly problems in economic theory including duopoly.
7. Surplus value, rent and taxation—in competition and in producers' monopoly.
8. Quantity theory of money, explanation of Fisher's and Keynes's equations; purchasing power parity; index numbers—national income and its distribution.
9. General demand and supply functions—Partial elasticities. Use of implicit functions.
10. General and Dynamic equilibrium—Imperfect competition.
11. Competitive and complementary demand and supply—Elasticity of substitution—Effects of differential taxation.
12. Theories of Wages, Interest, Money, and Foreign Exchange.

List of Special Subjects.

PAPERS VIII & IX—Two from the following, one from A and one from B.

A

1. Modern Algebra.
2. Theory of Functions of a Complex Variable.
3. Calculus of Variations.
4. Higher Geometry.
5. Advanced Theory of Probability.

B

1. Factor Analysis.
2. Biometrics.
3. Special Statistical Methods in Agriculture.
4. Special Statistical Methods in Industry.
5. Special Statistical Methods in Psychology and Education.
6. Actuarial Science.

Books for Study and Reference

MATHEMATICS.

1. Bernard and Child: *Higher Algebra*.
2. L. E. Dickson: *New First Source in the Theory of Equations*.
3. N. R. C. Dookeray: *Elementary Treatise on Pure Mathematics*.

4. G. H. Hardy : *Pure Mathematics*.
5. Bromwich : *Infinite Series*.
6. K. Knopp : *Theory and Applications of Infinite Series*.
7. Goursat : *Mathematical Analysis*, Vol. 1.
8. Courant : *Differential and Integral Calculus*.
9. Mahajani : *Lessons in Analysis*.
10. H. T. H. Piaggio : *Differential Equations and Their Applications*.
11. T.M. MacRobert and W. Arthur : *Trigonometry*, Part 3.
12. Askwith : *Analytical Geometry of the Conic Sections*.
13. D. M. V. Sommerville : *Analytical Conics*.
14. Askwith : *A Course of Pure Geometry*.
15. C. V. Durrell : *Plane Geometry for Advanced Students*.
16. Bell : *Co-ordinate Geometry of Three Dimensions*.
17. E. T. Whittaker and G. N. Watson : *Modern Analysis* (Chapters. 6, 9, 12, 13, 14, 15, 17)
18. H. S. Carslaw : *Theory of Fourier Series and Integrals*.
19. E.C. Titchmarsh : *Theory of Functions* (Chaps. 2 and 3).
20. G. N. Watson : *Complex Integration and Cauchy's Theorem*.
21. E. Lindelof : *Calcul des Residues*.
22. C. Jordan : *Statistique Mathematique* (Chapter 2).

STATISTICS.

1. L. H. C. Tippet : *The Methods of Statistics*.
2. G. U. Yule and M. G. Kendall : *Introduction to the Theory of Statistics*.
3. G. W. Snedecor : *Statistical Methods*.
4. R. A. Fisher : *Statistical Methods for Research Workers*.
5. R. A. Fisher : *Design of Experiments*.
6. H. L. Rietz : *Hand-book of Mathematical Statistics*.
7. H. L. Rietz : *Mathematical Statistics*. (Carus Monographs).
8. Alan E. Treluor : *An Outline of Biometric Analysis*.
9. G. H. Goulden : *Methods of Statistical Analysis*.
10. W. P. Elderton : *Frequency Curves and Correlation*.
11. Whittaker and Robinson : *Calculus of Observation*.
12. L. M. Milne : Thompson : *Calculus of Finite Differences*
13. H. C. Plummer : *Probability and Frequency*.
14. A. Fisher : *Mathematical Theory of Attributes*.
15. J. V. Uspensky : *Introduction to Mathematical Probability*.
16. *Biometrika*—Vols. 1, 2, 7, 8.
17. A. C. Aitken : *Mathematical Statistics*.
18. C. Jordan : *Statistique Mathematique*.

ECONOMETRICS.

1. R. G. D. Allen : *Mathematical Analysis for Economics*.
2. G. C. Evans : *Mathematical Introduction to Economics*.

3. Moore : *Synthetic Economics*.
Mathematical appendices of the following books :—
4. J. M. Keynes : *General Theory of Employment, Interest and Money*.
5. A. C. Pigou : *Economics of Stationary States*¹
6. J. R. Hicks : *Value and Capital*²

(3) PHYSICS

Major Subject—

Group A

1. Properties of Matter and Sound
2. Heat and Thermo-Dynamics.
3. Light.
4. Electricity and Magnetism
5. Mathematical Physics
6. Chemical Physics.

Group B

7. Practical Physics.
8. Practical Chemical Physics.

Minor Subject—

Mathematics as in the Pass Course.

The following is the detailed course of study in
Chemical Physics :—

THEORY

The gaseous state : densities of gases and vapours, vapour pressure, molecular weight, dissociation.

The liquid state : solution, osmotic pressure, electrolytic dissociation, molecular association in liquids, liquid mixtures.

Surface phenomena : adsorption, surface tension, orientation of molecules at surfaces.

The colloidal state : sols, gels and emulsions.

The solid state : amorphous solids and crystals ; crystal symmetries, space lattices, simple types of crystal structure and their chemical significance. X-rays and crystals.

Evidence of molecular reality : number, weight and size of molecules. Molecular form, elements of stereo-chemistry, structure of simple carbon compounds.

Nature of the chemical bond : valency and its electronic interpretation, polar and non-polar linkages.

Dielectric constant, temperature effect, Debye equation, dipole moment. Molecular association. Molecular refraction and dispersion.

Light scattering : Raman effect. Infra-red spectra. Simple band spectra, heat of dissociation. Photo-chemical action.

Optical activity, Faraday effect, verdet constant. Molecular magnetism and its chemical significance.

Homogeneous reactions. Affinity. Homogeneous and Heterogeneous equilibria.

Electrolytic conduction, ionic equilibria. Strong electrolytes. E.M.F. of cells.

PRACTICAL

Simple qualitative analysis.

Purification of substances by physical processes.

Testing purity of samples.

Simple volumetric analysis.

Conductometric and potentiometric titration.

Simple gravimetric analysis.

Densities of gases and of vapours.

Determination of molecular weight of substances in solution by the freezing and the boiling point methods.

Osmotic pressure.

Partition coefficient.

Vapour pressures of liquids.

Critical points of liquids and liquid mixtures.

Preparation of colloidal solutions and study of their properties.

Refractivity, dispersion and their temperature variation.

Optical rotation, Faraday effect and Verdet constant.

Conductivity of electrolytes, transport numbers, ionic velocities, electro-chemical equivalents, E.M.F. of concentration cells.

Measurement of di-electric constants.

Measurement of magnetic susceptibilities.

Measurement of Raman frequencies.

Analysis of simple crystals by X-rays.

Heats of combustion and of neutralisation.

Velocity of chemical reactions—Catalysis.

Strength of acids and bases.

Adsorption.

(4) CHEMISTRY

Major Subject—

Group A

1. Inorganic.
2. Physical.
3. Organic.
4. (a) Plant Chemistry I*

Or

- (b) Colloid Chemistry I.

* Common to Botany and Chemistry.

5. (a) Plant Chemistry II.

Or

(b) Colloid Chemistry II—Practical.

Group B

6. Practical Chemistry I : Inorganic.
7. Practical Chemistry II : Physical.
8. Practical Chemistry III : Organic.

Minor Subject—

Physics as in the Pass Course.

The courses of study in Chemistry shall consist of a comprehensive treatment of the following divisions of the subject:—

- (1) Inorganic Chemistry.
- (2) Physical Chemistry.
- (3) Chemistry of carbon compounds.

The laboratory course shall include qualitative analysis of minerals and mixtures of inorganic substances; volumetric and gravimetric analysis; the determination of carbon, hydrogen, nitrogen and chlorine in organic compounds; inorganic and organic preparations; and the more important physico-chemical measurements.

The course shall include visits to chemical factories involving large scale operations.

Books for Study

1. Lowry : *Text-Book of Inorganic Chemistry* (Macmillan).
2. Parkes and Mellor: *Mellor's Modern Inorganic Chemistry* (Longmans).
3. Mee: *Physical Chemistry* (Heinemann).
4. Getman and Daniels : *Outlines of Theoretical Chemistry* (John Wiley & Sons).
5. Kipping and Kipping: *Perkin and Kipping's Organic Chemistry* (Chambers).
6. Karrer : *Text-Book of Organic Chemistry* (Nordemann Publishing Co.)
7. Kolthoff and Sandell : *Text-Book of Quantitative Analysis* (Macmillan).
8. Reesensfeld and Ray: *Manual of Practical Inorganic Chemistry* (Chuckerberty Chatterjee & Co., Calcutta).
9. Spencer : *Experimental Course of Physical Chemistry* (Bell).

10. Kamm : *Organic Qualitative Analysis* (Wiley).
11. Dey and Raman : *Laboratory Manual of Organic Chemistry* (Srinivasachari & Sons, Madras).

Books for Reference

1. Ephraim : *Inorganic Chemistry* (Gurney & Jackson).
2. Glasstone : *Recent Advances in General Chemistry* (Churchill).
3. Glasstone : *Recent Advances in Physical Chemistry* (Churchill).
4. Taylor : *Treatise on Physical Chemistry* (Macmillan).
5. Gattermann and Wieland : *Practical Methods of Organic Chemistry*.

Colloid Chemistry.

Books for Study

1. Weiser : *Colloid Chemistry* (Chapman and Hall).
2. Holmes : *Laboratory Manual of Colloid Chemistry* (John Wiley).

Plant Chemistry.

1. Onslow : *Principles of Plant Bio-Chemistry* (Cambridge University Press).
2. Onslow : *Practical Plant Bio-Chemistry* (Cambridge University Press).

(5) GEOLOGY

Major Subject—

Group A

1. General and Structural Geology.
2. Crystallography and Mineralogy.
3. Petrology.
4. Stratigraphy and Indian Geology.
5. Palæontology.

Group B

6. Practical Geology.

Minor Subject—

Zoology or Botany or Chemistry as in the Pass Course.

The following is the detailed course of study in Geology :—

In addition to a fuller and more detailed study of the subjects mentioned in the syllabus for the B.Sc. Degree, the following subjects shall be studied :

Physiography and Cosmical Aspects of Geology.—Discussion of the relative merits of the various hypotheses relating to the origin of the Earth. Theory of isostasy. Wegener's hypothesis. Evolution of climate. Glacial epochs and their origin.

Crystallography.—The thirty-two types of crystal symmetry. Theories of crystal structure. Zonal characters, crystal projections and drawings. General mathematical relations of crystals and measurement of crystal angles. Use of the Reflecting Goniometer.

Mineralogy.—Study of the chief rock-forming minerals and ores with special reference to their genesis, economic value, and mode of occurrence. Descriptions and determination of minerals by chemical and physical tests. A course of lectures and practical work in Mineral Chemistry.

Petrology.—The study and discussion of the principles underlying the genesis of rocks. Recent methods in petrological classification. Mechanical separation of rock constituents. Examination of sands. Methods of the preparation of rock sections for the microscope. Optical properties of crystals. Practical determination of the optical characters of the chief rock-forming minerals with the petrological microscope, including the use of the convergent light. Determination of the nature and history of the rocks by means of the microscope.

Economic Geology.—Relation of Geology to industry, commerce and political economy. A study of the principles governing the formation of the various types of mineral deposits. Occurrence and distribution of mineral deposits with special reference to India. Their relation to the structure of the enclosing rock masses. Their deformation, superficial alteration and enrichment. Methods of determination of the probable extent and value of the workable deposits. Prospecting, sampling and ore valuation in Mysore.

Building materials. Ornamental and decorative stones. Natural abrasives. Mineral points, Refractory materials and other miscellaneous mineral products.

Structural and Field Geology.—The relationship of structure to relief and underground water supply.

The course of practical work in this subject will include both field and laboratory work. The field work (*excursions to areas in and outside Mysore for nearly three months during the course*) will consist mainly of making topographic maps and sketches with special reference to the relations between Topography and Geology. The laboratory work includes the correlation of field notes and the preparation of final maps and reports.

Each candidate will be required to map and describe from his own personal observation, the geology of an area selected by him with the approval of the professor.

Stratigraphy, Indian Geology and Palæontology.—The study of the chief sub-divisions of each system with characteristic fossils

Physical Geography and vulcanicity of the different periods. Geology of India brought up to date. Life in the ocean and factors which control its distribution, such as temperature, pressure, depth, and food supply. A brief account of the more important groups of animals living in the sea with special reference to their hard parts, their nature, origin and function. General distribution of the existing fauna and flora and their relation to those of former geological periods. Conditions favouring the work of animals as rock builders. The chief groups of animals that have served as rock builders during the different periods of the Earth's history—each of these groups to be studied mainly with reference to their hard parts which commonly constitute rock masses. Chief examples of rocks built up by each of these groups, their thickness rate of deposition, and stratigraphical distribution with special reference to Indian examples. Study of the past history of particular groups of animals and plants to illustrate problems of evolution.

The knowledge of the candidate will be tested also by practical examinations. *Viva voce* questions may be asked.

(6) ZOOLOGY

Major Subject—

Group A

1. Invertebrate Zoology.
2. Vertebrate Zoology.
3. Cytology and Embryology.
4. General Principles and Palæontology
5. General Cytology.
6. Mammalian Embryology.

Group B

7. Practical Zoology.

Minor Subject—

Botany or Geology or Chemistry as in the Pass Course.

The following is the detailed course of study in Zoology :—

The scheme of subjects for the B.Sc. Degree will be treated more completely and further amplified by the inclusion of minor groups like the Dicyemidæ, Orthonectidæ, Nemertea, Nematomorpha, Acanthocephala, Priapulida and Phoronidea.

Outlines of animal histology and cytology with a course of laboratory work.

The main facts concerning invertebrate and vertebrate embryology with special reference to the development of an orthopterous or lepidopterous insect: echinus, frog, chick and rabbit, with correlated laboratory practice.

Outlines of Palæo-Zoology.

As part of systematic Zoology, students are required to make collections of animals belonging to any one group and maintain notes on their occurrence, general habit, morphological and anatomical features and the main facts of life-history. Any single genus may be selected for a more detailed study. Observational notes of field and marine Zoology will be required to be submitted to the examiners. (At least three weeks during summer or other suitable vacation will be spent at a seaside place to enable students to acquaint themselves with marine Plankton.)

Practical Work.—The practical work will include dissection of as many types as are studied by the candidates, their identification with the aid of manuals, acquaintance with the modern microscopic technique, ability to deal with embryological material and to report on Zoological collections.

Candidates are expected to possess a working knowledge of German or French.

Book for Study

1. Sedgwick, A: *Students' Text-book of Zoology*, Vols. 1-3.

Books for Reference

1. Camb: *Nat. History*, Vols. 1 to 20.
2. Lankester: *Oxford Treatise on Zoology*, Vols. 1-8
3. Lang, A.: *Text-Book of Comparative Anatomy*.
4. Kingsley: *Comparative Anatomy of Vertebrates*.
5. Weidersheim: *Comparative Anatomy of Vertebrates*.
6. Kellicott: *Chordate Development*.
7. Jenkinson: *Vertebrate Embryology*.
8. Kerr: *Vertebrate Embryology*.
9. MacBride: *Invertebrate Embryology*.
10. Schafer: *Essentials of Histology*.
11. Hegner: *Germ Cycle*.
12. Agar: *Cytology*.
13. Don Castor: *Cytology*.
14. Woods: *Invertebrate Palæontology*.
15. Woodward: *Vertebrate Palæontology*.
16. Lull: *Organic Evolution*.
17. Poulton: *Essays on Evolution*.
18. Thomson: *Heredity*.
19. Kellog: *Darwinism To-day*.
20. Newman: *Readings in Genetics, Evolution, etc.*

21. Romans : *Darwin and After Darwin*.
22. Russel : *Form and Function*.
23. Dahlgreen and Kepner : *Animal Histology*.
24. Klein : *Animal Histology*.
25. Cowdry : *Cytology*.
26. Wilson : *Cell in Development and Inheritance*.
27. Bateson : *Problems in Genetics*.
28. Morgan . *Mechanism of Mendelian Inheritance*.
29. Ward and Whipple : *Fresh Water Biology*.
30. Needham : *General Biology*.
31. Morgan : *Experimental Zoology*.
32. Przibram : *Experimental Zoology*.
33. Jenkinson : *Lectures on Experimental Embryology*.
34. Dendy : *Evolutionary Biology*.

(7) BOTANY

Major Subject—

Group A

1. Algæ, Fungi and Bryophytes.
2. Pteridophytes and Gymnosperms.
3. Physiology, Histology and Ecology.
4. General Principles, Taxonomy, Economic Botany and History of Botany.
5. (a) Plant Chemistry.*
(b) Genetics.
6. Special Morphology of Angiosperms.

Group B

7. Practical Botany.

Minor Subject—

Zoology or Geology or Chemistry as in the Pass Course.

The following is the detailed course of study in Botany :—

(1) *External Morphology of Pteridophytes and Spermatophytes*.—The root and its modifications. Its equivalents in the lower plants. The stem, its modifications and its equivalents in the lower plants. The leaf and its modifications. The inflorescence. The flower and its modifications. The origin and evolution of reproductive organs, and the advantages of floral structures. Pollination and fertilisation. Self- and cross-pollination. Post-fertilisation changes. Fruits and seeds and their dispersal.

* Common to Botany and Chemistry

(2) *Internal Morphology (Anatomy and Histology)*.—The cell and its contents. Methods of division. The cytology of the cell. Origin and development of plant tissues. Primary and secondary tissues. Various kinds of conducting tissues in the different groups. Structure of different parts of the plant body in the different groups of the plant kingdom. Structure of the reproductive organs. Division of reproductive cells. Internal changes attendant on fertilisation.

(3) *Plant Physiology*.—(a) *The Physiology of the Living Cell*.—Physical and chemical properties of protoplasm and the cell wall. Organic and inorganic substances in the living plant. Distinction between colloids and crystalloids and their special properties. Principal types of chemical actions in the plant body including enzymatic reactions. General principles of physico-chemical equilibrium of vital reactions. Liebig's law of minimum and Blackman's law of limiting factors.

(b) *The Gain of Matter by the Plant Body*.—The substances required by the plant. Their composition and sources of supply. The soil and atmosphere. Processes of absorption by the roots. Absorption of gases by plant organs. The mechanism of gaseous exchange. The theory of selective absorption and antagonism of salts. Absorption by special organs.

(c) *Movements of Substances in the Plant Body*.—Root pressure. Movement of water and the transpiration current. Cellular diffusion of gases and other substances. Permeability of the protoplasm and the cell walls. Movement and storage of organised substances.

(d) *Constructive Metabolism*.—Gain of potential energy. Ultimate source of energy and the quantity absorbed by the plant. Processes of CO_2 assimilation. Assimilation of nitrogen supply and assimilation of heterotrophic plants.

(e) *Destructive Metabolism*.—Respiratory process in various organisms, such as sulphur, iron nitrate and nitrate bacteria. Respiration in higher plants. Factors that influence respiration. Anaerobic respiration and alcoholic fermentation. Respiration in succulents. Energy liberated in respiration and the energy balance sheet of the plant. Waste products of destructive metabolism and their dispersal by the plant. The material balance sheet of the plant.

(f) *Work done by the Plant*.—Growth. Mechanism of differentiation and development. Irritability. Mechanism for perception and conduction of stimulus. Reaction to stimulus. Movements. Protoplasmic, reversible and growth movements. Autonomic and paratonic reproduction. Sexual and asexual conditions favouring these. The physiology of reproduction.

(g) *Organism and Environment*.—Adjustment and adaptation. Reaction of the individual to environment. Different

ecological types (Xerophytes, Mesophytes, etc.). Plant communities (associations and formations). Plant successions. Methods of study of vegetation Principles of plant distribution in space, Endemism.

(4) *Variation, Heredity and Evolution*.—The physical basis and mechanism of inheritance. Theories of origin of species. Mendelism and its applications.

(5) *Classification of Plants*.—A general knowledge of the principles of systematic arrangement of flowering plants. Artificial, natural, and phylogenetic systems of classification. A general knowledge of the flowering plants of India with a fuller knowledge of those of South India, not only with regard to their systematic relationships, but also to their ecology, distribution, and relationships with those of the neighbouring areas.

(6) A detailed study of the structure, development, life-history and taxonomic relationship of the following groups :—

Thallophyta (fungi: especially with reference to their economic importance), Bryophyta, Pteridophyta and Gymnosperms. A knowledge of Palæobotany, especially with reference to the relationship of modern groups.

(7) The sources and commercial applications of the chief economic plant products of India.

Practical Work

The practical examination will include—

(1) The identification of plants belonging to South India with or without the help of a flora ;

(2) The preparation of material for microscopic examination ;

(3) Experiments in Plant Physiology.

Every candidate will be required to submit—

(1) A collection of named plants, collected and preserved by himself ;

(2) His laboratory note-books ;

(3) Microscopic preparations ;

(4) A record of field work covering a period of at least nine weeks during the course and any other evidence of work done by him.

(8) ECONOMICS

Major Subject—

1. Essay.
2. Economic Principles.
3. Economic Organization.
4. Currency and Banking and International Trade.
5. Public Finance.

6. Mathematical Analysis
7. Economic History.
8. Principles of Accountancy

Minor Subject—

1. Advanced Statistics.
2. Mathematical Economics and Social Measurements

Books for Study and Reference

Mathematical Analysis

1. Brown, H. G. : *Higher Mathematics for Engineers and Economists.*
2. Caradoc-Jones : *Mathematical Analysis.*

(9) PSYCHOLOGY

Major Subject—

1. General Psychology.
2. Abnormal Psychology.
3. Animal Psychology.
4. Experimental Psychology of Attention, Perception, Imagery, Association, etc. (Theory).
5. Experimental Psychology of Reasoning, Impulses, Emotions, Will, Hypnosis, etc. (Theory).
6. Practical.
7. A prescribed original work of an experimental character, or treating of a new view-point in Psychology, *e.g.*, I. P. Pavlov's "Conditioned Reflexes," Thorndike's "Measurement of Intelligence," Spearman's "Abilities of Man," Sherrington's "Integrative Action of the Nervous System," Head's "Aphasia and Kindred Disorders," Kohler's "Mentality of the Apes," Piaget's "Language and Thought of the Child," Watson's "Behaviourism," Gestalt Psychology, etc.

Minor Subject—

1. Child Psychology.
2. Educational Psychology.
3. Statistical Methods and Theory of Measurements.
4. Mathematical Analysis.

Note.—The practical examination shall include the valuation of class records of laboratory work. The practical examination shall, in addition, include a *viva voce* test.

Books for Study and Reference**Major Subject—****(i) General Psychology****Books for Study**

1. McDougall, W. : *An Outline of Psychology*.
2. Spearman, C. : *The Nature of Intelligence and the Principles of Cognition*.

Books for Reference

1. Stout : *Manual of Psychology*.
2. Koffka, K. : *Perception—An Introduction to the Gestalt Theory*.
3. Watson, J. B. : *Psychology from the Behaviourist Standpoint*.
4. Robinson and Robinson : *Readings in General Psychology*.

(ii) Abnormal Psychology**Books for Study**

1. Bernard Hart : *Psychology of Insanity*.
2. McDougall, W. : *An Outline of Abnormal Psychology*.

Books for Reference

1. Rivers, W. H. R. : *Instinct and the Unconscious*.
2. Freud, S. : *Lectures on Psycho-Analysis*.
3. Rivers : *Conflict and the Dream*.
4. Bradby : *Logic of the Unconscious Mind*.

(iii) Experimental Psychology**Books for Study**

1. Collins and Drever : *Experimental Psychology*.
2. Foster : *Experiments in Psychology*.

Books for Reference

1. Myers, C. S. : *A Text-Book of Experimental Psychology*.
2. Kline : *Psychology by Experiment*.

(iv) Animal Psychology**Books for Study**

1. Thomson, J. A. : *The Mind of Animals*.
2. Kohler : *The Mentality of Apes*.

Books for Reference

1. Washbourne, M. F. : *Animal Mind*.
2. Lloyd Morgan : *Animal Behaviour*.
3. Alverdes : *Social Life in the Animal World*.

4. Watson, J. B. : *Behaviour An—Intorduction to Comparative Psychology.*
5. Wheeler, W. M. : *Social Life among the Insects.*
6. Loeb, J. : *Forced Movements, Tropisms and Animal Conduct.*
7. Pycraft, W. P. : *The Courtship of Animals.*

Minor Subject—**(i) Child Psychology****Books for Study**

1. Waddle, C. W. : *An Introduction to Child Psychology.*
2. Gessel, A. : *Psychology of the Pre-School Child.*

Books for Reference

1. Stern, W. : *Psychology of Early Childhood.*
2. Koffka, K. : *Growth of the Mind.*
3. Miller, H. C. : *The New Psychology and the Parent.*

(ii) Educational Psychology**Books for Study**

1. Ward, J. : *Psychology Applied to Education.*
2. Fox, C. : *Educational Psychology.*

Books for Reference

1. Sandiford, P. : *Educational Psychology.*
2. Ogden, R. M. : *Educational Psychology.*
3. Gaster and Skinner : *Readings in Educational Psychology.*

SCHEME OF EXAMINATION

[Vide Ordinance 241 (c)]

(A) PRELIMINARY EXAMINATION**I. Compulsory English**

				Max. Marks
English Composition I*	...	...	3 hours	100

II. Second Language

(Other than French and Latin)

Composition and Translation†	...	3 hours	100
Or			
Translation in respect of Classical Languages	...	...	100

* Same as the first paper for B.A. (Honours) Preliminary.

† Composition ... 75

Translation from English to the Second Language ... 25

Total ... 100

*French*Max.
Marks

Prescribed Texts, Grammar and Translation from English into French and from French into English	... 3 hours	100
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Note.—Passages for translation from French into English shall be chosen from the prescribed texts.

Latin

Prescribed Texts, Grammar, Translation from English into Latin	... 3 hours	100
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III. Minor Subjects**(1) PHYSICS**

1. Physics I	... 3 hours	150
2. Physics II	... "	150
3. Practical Physics	... "	100
Total		400

(2) MATHEMATICS

1. Pure Mathematics I	...	...	3 hours	125
2. Pure Mathematics II	...	...	"	125
3. Applied Mathematics— Dynamics, Statics and Astronomy or General Statistics and Application of Mathematics to Economics and Mental and Social Measurements	}		"	150
Total			...	400

(3) CHEMISTRY

1. Chemistry I	... 3 hours	150
2. Chemistry II	... "	150
3. Practical Chemistry	... "	100
Total		400

(4) BOTANY

				Max. Marks.
1.	Botany I	...	3 hours	150
2.	Botany II	...	"	150
3.	Practical Botany	...	"	100
Total				400

(5) ZOOLOGY

1.	Zoology I	...	3 hours	150
2.	Zoology II	...	"	150
3.	Practical Zoology	...	"	100
Total				400

(6) ECONOMICS

1.	Advanced Statistics I	...	3 hours	150
2.	Advanced Statistics II	...	"	150
3.	Mathematical Economics	...	"	150
4.	Social Measurements	...	"	150
Total				600

(7) PSYCHOLOGY

1.	Child Psychology	...	3 hours	150
2.	Educational Psychology	...	"	150
3.	Statistical Methods and Theory of Measurements	...	"	150
4.	Mathematical Analysis	...	"	150
Total				600

(B) FINAL EXAMINATION

(1) MATHEMATICS

Group A

1.	Paper I—Algebra	...	3 hours	100
2.	Paper II—Analysis I	...	"	100
3.	Paper III—Analysis II	...	"	100
4.	Paper IV—Geometry	...	"	100
5.	Applied Mathematics I	...	"	100
6.	Applied Mathematics II	...	"	100
7.	Mathematical Physics	...	"	100
Total, Group A				700

Group B				Max. Marks
1. Special Subject I	...	...	3 hours	100
2. Special Subject II	...	...	"	100
Total, Group B				200
Class Examinations	...	...		100
Total				1,000

(2) STATISTICS

Group A				
1. Mathematics I	...	...	3 hours	100
2. Mathematics II	...	...	"	100
3. Mathematics III	...	...	"	100
4. Statistics I	...	...	"	100
5. Statistics II	...	...	"	100
6. Statistics III	...	...	"	100
7. Econometrics	...	...	"	100
Total, Group A				700

Group B				
1. Special Subject I	...	...	3 hours	100
2. Special Subject II	...	...	"	100
Total, Group B				200
Class Examinations	...	...		100
Total				1,000

(3) PHYSICS

Group A				
1. Physics I: Properties of Matter and Sound	...	...	3 hours	100
2. Physics II: Heat and Thermo-Dynamics	...	...	"	100
3. Physics III: Light	...	...	"	100
4. Physics IV: Electricity and Magnetism	...	...	"	100
5. Mathematical Physics	...	...	"	100
6. Chemical Physics	...	...	"	100
Total, Group A				600

Group B				Max. Marks
1.	Practical Physics I	...	4 hours	100
2.	Practical Physics II	...	"	100
3.	Practical Chemical Physics	...	"	100
Total, Group B				300
Class Work				100
Class Examinations				100
Total				1,100

(4) CHEMISTRY

Group A				
1.	Chemistry I : Historical and Inorganic	(a)	3 hours	100
2.	Chemistry II : Inorganic	(b)	"	100
3.	Chemistry III : Physical	(a)	"	100
4.	Chemistry IV : Physical	(b)	"	100
5.	Chemistry V : Organic	(a)	"	100
6.	Chemistry VI : Inorganic	(b)	"	100
Total, Group A				600
Group B				
1.	Practical Chemistry I : Inorganic	...	6 hours	100
2.	Practical Chemistry II : Physical	...	"	100
3.	Practical Chemistry III : Organic	...	"	100
Total, Group B				300
Class Work				100
Class Examinations				100
Total				1,100

(5) GEOLOGY

Group A				
1.	Geology I :	General Geology and Principles of Stratigraphy	3 hrs.	100
2.	Geology II :	Indian Geology and Palæontology-	"	100
3.	Geology III :	Mineralogy	"	100
4.	Geology IV :	Petrology	"	100
5.	Geology V :	Economic Geology	"	100
Total, Group A				500

Group B				Max. Marks
1. Practical Geology I	...	...	3 hours	100
2. Practical Geology II	...	...	"	100
3. Practical Geology III	...	...	"	100
4. Practical Geology IV	...	...	6 hours	100
Total, Group B				400
Class Work	...	...		100
Class Examinations	...	...		100
Total				1,100

(6) ZOOLOGY

Group A				
1. Zoology I: Invertebrate Zoology	...	...	3 hours	100
2. Zoology II: Vertebrate Zoology	...	...	"	100
3. Zoology III: Cytology and Embryology	...	...	"	100
4. Zoology IV: General Principles and Palæontology	...	...	"	100
5. Zoology V: General Cytology	...	...	"	100
6. Zoology VI: Mammalian Embryology	...	...	"	100
Total, Group A				600

Group B				
1. Practical Zoology I	...	...	3 hours	100
2. Practical Zoology II	...	...	"	100
3. Practical Zoology III	...	...	"	100
Total, Group B				300
Class Work	...	...		100
Class Examinations	...	...		100
Total				1,100

Note.—Consequent on the introduction of the Geology-Botany-Zoology Group for the Intermediate Course in Science, the scheme of examination for B.Sc. Honours in Geology, Botany and Zoology is revised as follows:—

PAPER V—

General Cytology or Palæozoology (General Cytology for Zoology Major and Botany Minor).

Palæozoology for Zoology Major and Geology Minor.

(7) BOTANY

Group A			Max. Marks
1. Botany I : Algæ, Fungi, Bryophytes	3 hours		100
2. Botany II : Pteridophytes and Gymnosperms ...	"		100
3. Botany III : Physiology, Histology and Ecology ...	"		100
4. Botany IV : General Principles, Taxo- nomy, Economic Botany and History of Botany	"		100
5. Botany V : (a) Plant Chemistry I* } Or (b) Genetics }	"		100
6. Botany VI : Special Morphology of Angiosperms ...	"		100
Total, Group A ...			600

Group B

1. Practical Botany I	...	3 hours	100
2. Practical Botany II	...	"	100
3. Practical Botany III	...	"	100
Total, Group B ...			300
Class Work ...	...		100
Class Examinations	...		100
Total ...			1,100

(8) ECONOMICS

1. Essay	...	3 hours	125
2. Economic Principles	...	"	125
3. Economic Organisation	...	"	125
4. Currency and Banking and International Trade	...	"	125
5. Public Finance	...	"	125
6. Mathematical Analysis	...	"	125
7. Economic History	...	"	125
8. Principles of Accountancy	...	"	125
Class Work (Examination and Essays)	...		100
Total ...			1,100

*Common to Botany and Chemistry.

(9) PSYCHOLOGY

				Max. Marks
1.	General Psychology	...	3 hours	125
2.	Abnormal Psychology	...	"	125
3.	Animal Psychology	...	"	125
4.	Experimental Psychology of Attention, Perception, Imagery, Association, etc. (Theory)	...	"	125
5.	Experimental Psychology of Reasoning, Impulses, Emotions, Will, Hypnosis, etc. (Theory)	...	"	125
6.	Practical, First Paper	...	"	125
7.	Practical, Second Paper	...	"	100
8.	A prescribed original work...	...	"	100
	Class Work ...	...		150
Total ...				1,100

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[Vide Ordinances 92 to 96]

MASTER'S DEGREE EXAMINATION

CONDITIONS OF ADMISSION *

[Vide Ordinance 99]

COURSES OF STUDY (GENERAL)

[Vide Ordinances 98 to 100]

COURSES OF STUDY (DETAILED)

[Vide Ordinance 240 (d) and (e)]

(a) Master of Arts

(1) ENGLISH

The course of study shall comprise :—

1. Special Period—Poetry and Prose.

2. Special Author—General and Prescribed Texts.

There will be a general study of the special period, and particular reference to particular texts but no annotation work.

*No one is allowed to enter for the Masters Degree Examination as a private candidate unless such a candidate has completed his attendance before appearing for the examination.

The list of special authors is: Spencer, Milton, Wordsworth, Shelley.

In the study of the special author, there will be a comprehensive study of his life and English works, and a detailed verbal study (involving annotation questions) of certain prescribed works.

(2) KANNADA

The course of study shall comprise:—

1. Kannada Literature: Study of a selected writer or a special period.
2. Kannada Poetics and Prosody, with a comparative study of Sanskrit and other Dravidian systems.
3. Comparative Dravidian Philology with special reference to Kannada.
4. Essay.

(3) SANSKRIT

The course of study shall comprise:—

1. *Veda*: (a) Detailed study of prescribed books representing the various stages of the Vedic Literature.

(b) A critical enquiry into the growth and value of the Vedic Literature in general (including the Vedangas).

2. One of the following:—

Darsana: (a) A detailed study of prescribed books relating to one of the Darsanas.

(b) A critical enquiry into the growth and value of Darsana Literature in general.

Vyakarana: (a) A detailed study of the prescribed books relating to Vyakarana Sastra.

(b) A critical enquiry into the growth and value of Vyakarana Literature.

Alankara: (a) A detailed study of prescribed books relating to Alankara Sastra.

(b) A critical enquiry into the growth and value of Alankara Literature.

Philology: (a) History of Sanskrit Language.

(b) Elements of Indo-German Philology.

(4) URDU

The course of study shall comprise:—

PAPER I—History of Urdu Language and Literature.

PAPERS II and III—Any two of the following periods:—

(a) Old Urdu up to 1750 A.D.

(b) Middle period from 1750 to 1800 A.D.

(c) Age of Fort William College and contemporary writers.

(d) Age of Sir Syed.

(e) Modern Period—From Iqbal to the present day.

PAPER IV—Essay on any topic connected with Urdu Language and Literature.

Or

Any special author prescribed from time to time.

Books Recommended

(1) HISTORY OF URDU LANGUAGE AND LITERATURE

(with special reference to the development of Urdu in the Deccan).

1. Taraporewala : *Elements of the Science of Language*.
2. Nasiruddin Hashimi : *Dakkran Men Urdu* (III edition.)
3. Nasiruddin Hashimi : *Madras Men Urdu*.
4. Dr. Zore : *Hindustani Phonetics*.
5. Abdul Hai : *Gul-e-Rana*.
6. Shaifta : *Gulshan-e-Bekhar*.
7. Mahmud Shirani : *Panjab Men Urdu*.
8. Ram Babu Seksena : *History of Urdu Literature*.
9. Prof. Ejaz Husain : *Tarikh-e-Adabe-Urdu*.
10. Garcin de Tassy : *Khutbat* (Anjuman-e-Tarraqi-e-Urdu).
11. Azad : *Ab-e-Hyat* : (Introduction only).
12. *Insha-Darya-e-Latafat*.

(2) SPECIAL PERIODS

(a) OLD URDU :

1. Dr. Zore : *Kullhat-e-Mohd. Quli Qutub Shah*
2. A. Q. Sarvani : *Qissa-e-Benazir*.
3. Abdul Haq : *Mirajul Aashaqeen*.
4. Wajhi : *Qutub Mushtari*.
5. Ghawwasi : *Tuti Nama*.
6. Dr. Zore : *Urdu Shahpare*.
7. Shamsullah Qadri : *Urdu-e-Qadim*.

(b) MIDDLE PERIOD :

1. Hatim : *Diwan*.
2. Mir : *Kullhat*.
3. Sauda : *Kullhat*.
4. Dard : *Diwan*.
5. Asar : *Khab-O-Khayal*.
6. Mushafi : *Masnawi-e-Bahrul Mohabbat*.
7. Nasikh : *Diwan*.
8. Aatish : *Diwan*.
9. Mir Hasan : *Masnawi-e-Sehr-ul-Bayan*.

10. Nasim : *Gulzar-e-Nasim*.
11. Anis : *Ruhe Anis*.
12. Dabir : *Saba Masani*.
13. Nowab Mirza Shaoq : *Zahr-e Ishq*.
14. Amanat : *Indar Sabha*.
15. Tahsin : *Nao-Tarze Murassa*.

(c) AGE OF FORT WILLIAM COLLEGE AND CONTEMPORARY WRITERS :

1. Mir Amman : *Bag-o-Bahar*
2. Dr. Gilchrist : *Qisas-e-Mashreqi*.
3. Nehalchand Lahori : *Mazhab-e-Ishq*.
4. Surur : *Fasana-e-Ajaeb*.
5. Ghalib : *Urdu-e-Moalla*.
6. Syed Mohd : *Arbab-e-Nasr-e-Urdu*.
7. Faqir Mohd. Khan Goya : *Bostan-e-Hikmat*.
8. Ghulam Iman Shahid : *Insha-e-Bahar-e-Be Khizan*.

(d) AGE OF SIR SYED :

1. Sir Syed : *Mazamin* (compiled by Prof. Saleem).
2. Hali : *Hayate Javid*.
3. Nazir Ahmad : *Fasana-e-Mubtela* (Mohsanet).
4. Mehdi Ali : *Adabi Mazamin* (Tahzibul Aqlaq).
5. Mushtaq Husain : *Adabi Mazamin* (Tahzibul Aqlaq).
6. Sar Shar : *Fasana-e-Azad*.
7. Sharar : *Ayyam-e-Arab*.
8. Akbar : *Kullhat, Part II*.
9. Shaoq : *Aalam-e-Khayal*.

(e) MODERN PERIOD :

1. Iqbal : *Zarb-e-Kaleem*.
2. Dr. Yusuf Husain Khan : *Ruh-e-Iqbal*.
3. Josh : *Shola-o-Shabnam*.
4. Hasrat Mohani : *Kullhat*.
5. Jigar : *Shola-e-Tour*.
6. Asghar : *Sarud-e-Zindagi*.
7. Azamutullah Khan : *Surele Bol*.
8. Fani : *Irfaniyat*.
9. Amjad : *Rubaiyat, Part I*.
10. Srur : *Khumkhana*.
11. Niaz : *Shahab-ki-Sarguzasht*.
12. Abdul Haq : *Moqaddamat*.
13. Prof. Mohd. Mujib : *Kimiagar aur digar Afsane*.
14. Masood Hasan Razvi : *Hamari Shæri*.

(5) PERSIAN

The course of study shall comprise :—

1. History of Persian Literature with special reference to the Moghul Period.

2. Development of Persian Literature in India.
3. Any *two* of the following:—
 - (1) Indo-Iranian Philology.
 - (2) A critical study of Sufistic Mysticism.
 - (3) The Development of Persian Odes and Mathnawi.
 - (4) The Historical and Biographical Literature.
 - (5) The Development of Persian Literature in India from 1200 to 1700 A.D.

(6) HISTORY

The course of study shall consist of four papers and a *viva voce* or a thesis and a *viva voce*. The subjects for the examination in papers are :—

1. Historic Method.
2. Indian Historical Research.
3. A Special Subject

Note.—There will be two papers under item 2 covering research since about 1884, one on a prescribed period of Indian History before 1800 and the other on a prescribed period of Indian History after 1800.

(7) POLITICS

The course of study shall comprise :—

1. Recent developments in Political Theory and Practice.
2. Indian Constitutional Developments since 1858 with documents.
3. A Special Period in Political Thought with a Classic to be prescribed from time to time.
4. A Special Subject to be prescribed from time to time.

(8) ECONOMICS

The course of study shall comprise :—

1. Recent Developments in Economic Theory.
2. Recent Developments in Applied Economics.
3. A special subject.

(9) PHILOSOPHY

The degree to be awarded on a thesis only.

(b) Master of Science.

(1) MATHEMATICS.

The course of study shall comprise :—

Four papers, one in each subject, chosen from the following list :—

1. Symbolic Logic..
2. Set theory and transfinite numbers.

3. Theory of functions of a real variable.
4. Modern Algebra.
5. Theory of Groups.
6. Theory of group representations and invariants.
7. Theory of numbers.
8. Theory of functions of a complex variable.
9. Calculus of variations.
10. Integral equations and functional analysis.
11. Riemannian Geometry
12. Topology.
13. Analytical Dynamics.
14. Hydrodynamics.
15. Aerodynamics.
16. Theory of Elasticity.
17. Statistical Mechanics and Thermodynamics.
18. Astronomy and Astro-Physics.
19. Theory of Relativity.
20. Quantum Mechanics.

(2) STATISTICS.

The course of study shall comprise :—

Four papers, one in each subject, chosen from the following list :

1. Theory of functions of a real variable.
2. Modern Algebra.
3. Theory of Groups.
4. Theory of functions of a complex variable.
5. Differential equations.
6. Integral equations and functional analysis.
7. Higher Geometry.
8. Topology.
9. Difference equations.
10. Combinatory analysis.
11. Sampling theory.
12. Principles of estimation.
13. Design of experiments.
14. Biometry and Anthropometry.
15. Genetic studies.
16. Advanced Econometrics
17. Psychometrics.
18. Quality control and specification problems in Industry.

(3) PHYSICS.

The course of study shall comprise :—

Compulsory

Modern Physics.*

Optional

Any *one* of the following :—

1. X-rays.
2. Wireless.
3. Spectroscopy.
4. Scattering of Light.
5. Cosmic Rays and Nuclear Physics.
6. Wave Mechanics and the Quantum Theory.

(4) CHEMISTRY.

The course of study shall comprise :—

1. General Chemistry (Inorganic, Physical and Organic).
2. Inorganic Chemistry.
3. Physical Chemistry.
4. Organic Chemistry.

Candidates who offer a thesis will do General Chemistry and one of the other three.

(5) BOTANY.

The course of study shall comprise :—

Compulsory

Recent advances in Botany as could be gathered by a study of the following Journals from 1920 :—

1. *Annals of Botany*.
2. *New Phytologist*.

* The following is the scope of the examination :—

Discharge of Electricity through gases.
 The Electro-Magnetic Field. The Electron Theory.
 Optical Spectra.
 Light Scattering.
 Thermionics.
 Photo-electricity.
 The Metallic state.
 Magnetic properties of atoms and molecules.
 Low temperature phenomena.
 Dipole Moments.
 X-rays. Cosmic Radiation.
 Radio-activity.
 Nuclear Physics.
 Electric Oscillations and Waves.
 Special Theory of Relativity.
 Elements of Quantum Mechanics.

3. *Botanical Gazette.*
4. *American Journal of Botany.*
5. *Journal of the Indian Botanical Society.*
6. *Memoirs of the Department of Agriculture.*

Optional

Any two of the following subjects :

1. Special Morphology of Angiosperms.
2. Special Morphology of Gymnosperms.
3. Special Morphology of Pteridophytes.
4. Special Morphology of Bryophytes.
5. Special Morphology of Algæ.
6. Special Morphology of Fungi.
7. Econological Anatomy.
8. Anatomy, Morphology and Distribution of Lichens.
9. Special Cytology.

(6) GEOLOGY.

The course of study shall comprise :—

Compulsory

Recent advances in Geology.

Optional

Any one of the following :—

1. Petrology.
2. Mineralogy and Crystallography.
3. Stratigraphy and Palæontology.

(7) ZOOLOGY.

The course of study shall comprise :—

Compulsory.

A course covered by the following :—

1. *Cytology*—W. E. Agar.
2. *Cell in Development and Inheritance*—E. B. Wilson.
3. *Text-book of Embryology*—E. W. McBride
4. *Text-book of Embryology*—J. W. Jenkinson.
5. *Text-book of Embryology*—Graham Kerr.
6. *Structure and Development of Vertebrates from the Developmental Standpoint*—E. S. Goodrich.
7. *Orders of Mammals*—W. K. Gregory

Optional

Any *one* of the following groups and of the literature bearing on the subject of study not earlier than 1922;—

1. Land Planarians.
2. Fresh Water Crustacea.
3. Scorpionida.
4. Land and Fresh Water Mollusca of Mysore (S. India)
5. Hirudinea.
6. Oligochæta of Mysore (S. India).
7. Fresh Water Fishes of Mysore (S. India).
8. Amphibia of Mysore (S. India).
9. Reptiles of Mysore (S. India).
10. Mammalian Embryology.
11. Comparative Anatomy of Domesticated Animals.

In respect of the compulsory course, the candidates are required to submit a set of slides illustrative of not less than six stages of the developmental features of any vertebrate and the cytology of the glandular and germinal cells. They should produce notes giving a description of slides studied by them.

In respect of the optional course, the candidates of any year shall offer only *one* of the groups. They are required to present their collection of material and evidence of the study of the forms collected.

SCHEME OF EXAMINATION.

[*Vide* Ordinance 241 (*d*) and (*e*)]

(a) Master of Arts

(1) ENGLISH.

			Max. Marks.
1.	Special Period—Poetry	... 3 hours	100
2.	Special Period—Prose ...	... „	100
3.	Special Author—General	... „	100
4.	Special Author—Texts ...	... „	100
5.	<i>Viva voce</i> ...	... „	100
Total ...			500

(2) KANNADA

1.	Literature	... 3 hours	100
2.	Poetics and Prosody ...	... „	100
3.	Comparative Dravidian Philology with special reference to Kannada	... „	100
4.	Essay	... „	100
5.	<i>Viva voce</i>	... „	100
Total ...			500

(3) SANSKRIT

Max.
Marks.

1.	Veda I	...	...	3 hours	100
2.	Veda II	...	...	"	100
3.	and 4. One of the following groups :—				
	(i) Darsana I	...	...	"	200
	Darsana II	...	...	"	
	(ii) Vyakarana I	...	...	"	200
	Vyakarana II	...	...	"	
	(iii) Alankara I	...	...	"	200
	Alankara II	...	...	"	
	(iv) Philology I	...	...	"	200
	Philology II	...	...	"	
5.	Viva voce	...	...		100
Total ...					500

(4) URDU

1.	History of Urdu Language and Literature	...	...	3 hours	100
2 & 3.	Any two of the following periods :—				
	(a) Old Urdu up to 1750 A.D.	...	...	"	200
	(b) Middle Period from 1750 to 1800 A.D.	...	...	"	
	(c) Age of Fort William College and Contemporary Writers	...	...	"	
	(d) Age of Sir Syed	...	...	"	
	(e) Modern Period : From Iqbal to the present day	...	...	"	
4.	Essay (on any topic connected with Urdu Language and Literature).				

Or

	A Special Author to be prescribed	...	...	"	100
5.	Viva voce	...	...		100
Total ...					500

(5) PERSIAN

1.	History of Persian Literature	...	3 hours	100
2.	Development of Persian Literature in India		"	100

				Max. Marks
3. and 4.	Any two of the following :—			
(i)	Indo-Iranian Philology ...	3 hours	}	200
(ii)	A Critical Study of Sufistic Mysticism ...	"		
(iii)	The Development of Persian Odes and Mathnawi ...	"		
(iv)	The Historical and Biographical Literature ...	"		
(v)	The Development of Persian Literature in India from 1200 to 1700 A.D. # ...	"		
Viva voce	...	...		100
Total ...				500

(6) HISTORY

1.	Historical Methods	...	...	3 hours	100	
2.	Indian Historical Research I	...	...	,,	100	
3.	Indian Historical Research II	...	...	,,	100	
4.	A Special Subject	...	...	,,	100	
5.	Viva Voce	...	...		100	
				Total	...	500

(7) POLITICS

1.	Recent Developments in Political Theory and Practice	...	3 hours	100
2.	Indian Constitutional Developments since 1858 with documents	..	,,	100
3.	A Special Period in Political Thought with a Classic to be prescribed from time to time	...	..	100
4.	A Special Subject	...	..	100
5.	Viva Voce	...	...	100
Total				500

(8) ECONOMICS

1.	Recent Developments in Economic Theory	...	...	3 hours	100
2.	Recent Developments in Applied Economics	...	...	"	100
3.	Special Subject I	...	...	"	100
4.	Special Subject II	...	...	"	100
5.	<i>Viva voce</i>	...	...		100
				Total	500

(9) PHILOSOPHY

Max.
Marks

1.	Thesis	...	...	...	400
2.	<i>Viva voce</i>	...	...	...	100
Total					500

(b) Master of Science

(1) MATHEMATICS

1.	Paper I	...	...	3 hours	100
2.	Paper II	...	...	"	100
3.	Paper III	...	...	"	100
4.	Paper IV	...	...	"	100
5.	<i>Viva voce</i>	...	...		100
Total					500

(2) STATISTICS

1.	Paper I	...	...	3 hours	100
2.	Paper II	...	...	"	100
3.	Paper III	...	...	"	100
4.	Paper IV	...	...	"	100
5.	<i>Viva voce</i>	...	...		100
Total					500

(3) PHYSICS

(a) *Compulsory*

1.	Modern Physics I	...	...	3 hours	100
2.	Modern Physics II	...	...	"	100

(b) *Optional*

3 and 4. One of the following groups :—

(i)	X-rays I	...	...	3 hours	}
	X-rays II	...	...	"	
(ii)	Wireless I	...	...	"	

				Max. Marks
	Wireless II	...	3 hours	
(iii)	Spectroscopy I	...	"	200
	Spectroscopy II	...	"	
(iv)	Scattering of Light I	...	"	
	Scattering of Light II	...	"	
(v)	Cosmic Rays and Nuclear Physics I	...	"	
	Cosmic Rays and Nuclear Physics II	...	"	
(vi)	Wave Mechanics and the Quantum Theory I	...	"	
	Wave Mechanics and the Quantum Theory II	...	"	
5.	Viva voce	...		100
			Total	500

(4) CHEMISTRY

1.	General Chemistry	...	3 hours	100
2.	Inorganic Chemistry	...	"	100
3.	Physical Chemistry	...	"	100
4.	Organic Chemistry	...	"	100
5.	Viva voce	...		100
			Total	500

(5) BOTANY

(a) Compulsory

1.	Recent Advances in Botany I	...	3 hours	100
2.	Recent Advances in Botany II	...	"	100

(b) Optional

3. and 4. Any two of the following :—

(i)	Special Morphology of Angiosperms	...	3 hours	}
(ii)	Special Morphology of Gymnosperms	...	"	
(iii)	Special Morphology of Pteridophytes	...	"	
(iv)	Special Morphology of Bryophytes	...	"	

				Max. Marks
(v)	Special Morphology of Algæ	...	3 hours	200
(vi)	Special Morphology of Fungi	...	"	
(vii)	Econological Anatomy	...	"	
(viii)	Anatomy, Morphology and Distribution of Lichens...	...	"	
(ix)	Special Cytology	...	"	100
5.	<i>Viva voce</i>	...	...	
Total ...				500

(6) GEOLOGY

(a) *Compulsory*

1.	Geology I	...	...	3 hours	100
2.	Geology II	...	...	"	100

(b) *Optional*

3. and 4. One of the following groups:—

(i)	Petrology I	...	...	3 hours	200
	Petrology II	...	...	"	
(ii)	Mineralogy and Crystallography I	...	...	"	
	Mineralogy and Crystallography II	...	...	"	
(iii)	Stratigraphy and Palæontology I	...	...	"	100
	Stratigraphy and Palæontology II	...	...	"	
5.	<i>Viva voce</i>	...	...	...	100
Total ...					500

(7) ZOOLOGY

(a) *Compulsory*

1.	Zoology I	...	...	3 hours	100
2.	Zoology II	...	...	"	100

(b) *Optional*

3. and 4. One of the following groups:—

(i)	Land Planarians I	...	3 hours	}
	Land Planarians II	...	"	
(ii)	Fresh Water Crustacea I	...	"	
	Fresh Water Crustacea II	...	"	

				Max. Marks
(iii)	Scorpionida I	...	3 hours	} 200
	Scorpionida II	...	"	
(iv)	Land and Fresh Water Mollusca of Mysore (S. India) I	...	"	
	Land and Fresh Water Mollusca of Mysore (S. India) II	...	"	
(v)	Hirudinea I	...	"	
	Hirudinea II	...	"	
(vi)	Oligochæto of Mysore (S. India) I	...	"	
	Oligochæto of Mysore (S. India) II	...	"	
(vii)	Fresh Water Fishes of Mysore (S. India) I	...	"	
	Fresh Water Fishes of Mysore (S. India) II	...	"	
(viii)	Amphibia of Mysore (S. India) I	...	"	
	Amphibia of Mysore (S. India) II	...	"	
(ix)	Reptiles of Mysore (S. India) I	...	"	} 100
	Reptiles of Mysore (S. India) II	...	"	
(x)	Mammalian Embryology I	...	"	
	Mammalian Embryology II	...	"	
(xi)	Comparative Anatomy of Domesticated Animals, I	...	"	} 100
(xii)	Comparative Anatomy of Domesticated Animals, II	...	"	
5.	<i>Viva voce</i>	...	...	100
Total ...				500

Note.—A thesis may be offered in lieu of all the four papers.

RULES RELATING TO THE SUBMISSION AND PUBLICATION OF THESIS OFFERED FOR THE MASTER'S DEGREE EXAMINATION.

A. Submission of Thesis

1. Four copies of the thesis shall be sent in a sealed cover on or before the prescribed date, written in ink, typed or printed. Notes, drawings, maps and other appendices referred to in the thesis shall also be submitted in quadruplicate.

2. The thesis shall embody the results of research or investigation carried out by the candidate.

3. It shall be accompanied by a statement indicating the sources from which the candidate has derived information or guidance for the work and the extent to which he has availed himself of the work of others and the portions of the thesis which he claims as original.

4. It shall be accompanied by a declaration to the effect that the thesis is not substantially the same as any that has already been submitted for a degree in this or any other University.

5. It shall be accompanied by a report from the Professor of the University under whom the work of the candidate was conducted.

Note.—(i) A candidate for the M.A. or M.Sc. Degree may offer as part of his thesis results of work completed by him and published before the year of study for the degree and he shall also be permitted to publish the result of the work done by him during the year before the thesis is submitted to the University.

(ii) A candidate offering a thesis for the examination for the Master's Degree not successful in the examination and offering an amended or amplified thesis at a subsequent examination shall furnish with the thesis a note indicating the amendments or the extent of the amplification or both; and in addition, a certificate to the effect that the thesis has not been submitted for a degree in any other University either in its original or in its amended or amplified form.

B. Publication

1. The thesis shall be the property of the University.

2. The University shall have the right to publish any thesis in such manner as it deems fit.

3. Permission of the University Council shall be obtained in each case for publishing it.

4. The University may suggest any modification in regard to the thesis which should be effected before permission is granted for publishing it.

5. In publishing a thesis, it shall be mentioned that the thesis was offered for the Master's Degree of this University.

B. T. DEGREE EXAMINATION

CONDITIONS OF ADMISSION*

[*Vide Ordinance 102*]

COURSES OF STUDY (GENERAL)

[*Vide Ordinance 103*]

COURSES OF STUDY (DETAILED)

[*Vide Ordinance 240 (f)*]

(1) Principles of Education

1. The need for an adequate Philosophy of Life and Education. The changing nature of the present day world. The

* No one is allowed to enter for the B.T. Degree Examination as a private candidate unless such a candidate has completed his attendance before appearing for the examination.

demands on education. The problems of life and education in India. Relation between them.

2. The aims of Education. A historical and critical survey of some educational aims : narrow aims. Mind, body, intellect, character, practical efficiency—personal culture, knowledge, mental power. Comprehensive aims. Harmonious development of the individual, personal and social growth, education as continuous reconstruction of experience Aims in terms of human wants.

3. The Agencies of Education. The Family. The Community. The Church. The State The School. Their interdependence.

4. Data of Education : innate tendencies of the child. Social inheritance. Nature and nurture. Individual differences and their educational implications.

5. Materials of instruction : the various stages of child development and the curriculum for different stages.

6. The curriculum : principles of curriculum construction. Objectives, a basis for curriculum construction. School studies, their values and their classification.

7. The method of instruction : general principles.

8. Outcomes of the educational process : knowledge, meanings, facts, principles ; habits, skills ; and ideals and attitudes.

9. The method of appraisal : general principles.

10. Recent developments in educational practice. The Project Method. The Dalton Plan, the Howard Plan, the Winnetka Plan, the Gary Plan. The Platoon School, Nursery Education.

Books for Study

1. Raymont, T.: *Principles of Education*
2. Dewey, J. : *Democracy and Education*.

Books for Reference

- 1 Kilpatrick, W. H. : *Education for a Changing Civilization*.
2. Nunn, T. P. : *Education—its Data and First Principles*.
3. Burton, W. H. : *Introduction to Education*.
4. Russel, B. : *Education and the Social Order*.
5. Bode, B. H. : *Modern Educational Theories*.
6. Adams, J. : *Modern Developments in Educational Practice*.
7. Thorndike, E. L., and Gates, A. I. : *Elementary Principles of Education*.
- 8 Findlay, J. J. : *The Foundations of Education*, Vols. I and II.
9. Jeevanayakam, D. : *Theory and Practice of Education*.

(2) *Educational Psychology including Mental and Educational Measurements*

I. EDUCATIONAL PSYCHOLOGY

A. *Introductory*

Scope of educational psychology. Methods of psychological study and investigation as applied to educational problems.

The biological background of education—Laws of heredity. The part played by environment in the development of innate traits. Are acquired traits inheritable?

B. *The Acquisition of Knowledge and Skills*

1. The learning process: Forms of learning. Laws of learning. The problem of *transfer of training*. Motivation of learning.

2. Attention: Its nature and types. Causes and symptoms of inattention. Favourable conditions for securing sustained attention.

3. Fatigue: Types, symptoms and causes of fatigue. Preventive and remedial measures for school fatigue.

C. *The Inculcation of Right Habits of Thinking.*

1. Thought and its relation to language. Growth of language mechanisms from childhood.

2. Empirical and scientific thinking. Common errors in thinking. The cultivation of the scientific attitude of mind.

3. What is intelligence? Growth and maturity of intelligence. Is intelligence innate?

D. *Psychology of Character Training*

1. The shaping of the basic impulses of Curiosity, Escape Pugnacity, Appeal, Parental protection, Herd, Sex, Laughter, Play, etc., for purposes of character building.

2. The problems of Freedom, Authority and Discipline from the psychological standpoint.

3. The educational applications of Psycho-analysis

II. MENTAL AND EDUCATIONAL MEASUREMENTS

A. *Introductory*

1. Inaccuracies in the current system of marking and examinations. Unreliability of estimates of intelligence and character traits. Essentials of valid measurement.

2. Some simple statistical concepts and devices such as the Normal Curve of Distribution, the Median, the Semi-interquartile

Range, the Probable Error and the Foot-rule method of correlation.

B. Mental Measurements

1. Tests of general ability : Individual, Group, Performance and Pre-School tests of intelligence.
2. Principles of test construction. Limitations of intelligence tests. The value of intelligence tests for the teacher.
3. Objective methods of diagnosing personality traits.

C. Educational Measurements

1. Tests suitable for the Primary and Middle Schools such as Reading, Spelling, Grammar, Composition, Arithmetic, etc.
2. Attainment tests suitable for High School grades for subjects such as History, Geography, Science, etc.
3. Principles of educational test construction. Establishment of norms. The value and limitations of new examination methods.

Books for Study

1. Sandiford : *Educational Psychology*.
2. Ward, J. : *Psychology Applied to Education*
3. Russel, B. : *On Education*.
4. Ballard : *Group Tests of Intelligence*.
5. Symonds : *Measurements in Secondary Education*.
6. Gessel : *Infancy and Human Growth*.

Books for Reference

1. Gast and Skinner : *Readings in Educational Psychology*.
2. Watson : *Psychological Care of the Infant and Child*.
3. Dewey : *How We Think*.
4. McDougall, W. : *Outlines of Psychology*.
5. Ballard : *Mental Tests*.
6. Ballard : *The New Examiner*.
7. Monroe : *Measuring Results in Teaching*.
8. Levine and Marks : *Testing Intelligence and Achievement*.
9. Dreyer : *Performance Tests of Intelligence*.

(3) General Methods and Methods of Teaching English (Compulsory)

I. GENERAL PRINCIPLES OF METHOD

1. The meaning of Method broad and narrow.

2. The process of teaching; general principles of teaching and learning.

3. The planning of Instruction; Teaching units; Lesson plans and notes of lessons.

4. The Method of Instruction. The maxims of method; their uses and limitations. Different types of lessons and their applicability to classroom teaching.

5. Devices of Teaching; text-books, their uses and abuses. Collateral reading. Questions and Answers, Examinations. Illustrations Note Books

II. METHOD OF TEACHING ENGLISH (COMPULSORY)

1. Language in human life. General principles of teaching and learning languages.

2. Ancient and Modern languages. Mother-tongue and foreign tongue — Principles applicable to their teaching.

3. Aims of language teaching :

(1) Comprehension.

(2) Expression.

(3) Appreciation—linguistic and aesthetic.

4. The language problem in India Position of Modern Indian languages and of English.

5. Methods of teaching;

(1) Direct Method;

(2) Translation Method;

(3) Comparative Method;

(4) West's New Method.

6. Teaching of Reading, Handwriting, Spelling, Grammar and Composition.

7. Teaching of English prose and poetry. Cultivation of understanding and appreciation.

Books for Study

General:

1. Burton, W. H.—*The Nature and Direction of Learning*.

2. Reeves, C E.—*Standards for High School Teaching*.

3. Strayer, G. O.—*A Brief Course in the Teaching Process*.

4. Hughes and Hughes.—*Learning and Teaching*.

English (compulsory):

1. Thompson and Wyatt—*The Teaching of English in India*

2. Ballard, P.B. *Teaching of the Mother Tongue*.

Books for Reference

General:

1. Board of Education: *Handbook of Suggestions for Teachers*.

2. Adams, J.—*The New Teaching*.
3. Welton, J.—*Principles and Methods of Teaching*.
4. Stormzand, M. J.—*Progressive Methods of Teaching*.

English (Compulsory):

1. Ballard, P. B.—*Thought and Language*.
2. Ryburn, W. M.—*Suggestions for Teaching of English in India*.

(4) *Methods of Teaching Special Subjects*.

A. English (Optional).—

1. Phonetics, Reading and writing of phonetic matter, Speech training
2. Rhetoric and style, principles of effective narration, description and exposition Examples from literature.
3. Literary forms in—
 - (1) Prose;
 - (2) Poetry. Discussion with examples.
4. Methods of teaching Literature with special reference to the higher classes in the High school.

B. History.—

1. The Nature and Scope of History.
2. The aims of teaching History:
 - (1) Knowledge and search for truth.
 - (2) Understanding the present in the light of the past.
 - (3) Development of civic and national consciousness.
 - (4) Development of international understanding and sympathy.
 - (5) Development of critical and ethical judgment.
3. Methods of Teaching History. Their comparative values and their suitability to different grades of schools.
 - (1) The Chronological Method.
 - (2) The Retrospective Method.
 - (3) The Concentric Method.
 - (4) The Biographical Method.
 - (5) The Source Method.
4. Teaching appliances and their use.

C. Geography.—

1. The Nature and Scope of Geography.
2. The aims of teaching Geography:
 - (1) Knowledge of Man's Physical and Social environment. Regional Geography.
 - (2) Application of scientific knowledge to the explanation and understanding of natural phenomena. Rational Geography.
 - (3) Cultivation of geographical imagination and reasoning.

3. Methods of teaching Geography and their suitability to different grades of schools :—

- (1) The Observational Method.
- (2) The Descriptive Method.
- (3) The Regional Method.

4. Teaching appliances and their use

D. Mathematics.—

1. Aims of teaching Mathematics.

- (1) Practical ;
- (2) Cultural ;
- (3) Social.

2. Place of Mathematics in Science.

3. The distinctive characteristics of the different branches of Mathematics.

4. Methods of Teaching .

- (1) The Inductive and the Deductive
- (2) The Analytical.
- (3) The Practical and the Graphic.
- (4) The Heuristic.

5. Appropriateness of the different methods in different grades of schools.

6. The Beginnings of Algebra.

7. The place of definitions, axioms, postulates. etc., in the teaching of Geometry.

8. Methods of developing the concepts of Trigonometrical Ratios.

E. Science.—

1. The meaning of Science.

2. Aims of teaching Science :

- (1) Practical ;
- (2) Cultural ;
- (3) Social

3. Unity of Sciences.

4. Methods of Teaching :

- (1) The Inductive and the Deductive Methods.
- (2) The Heuristic Method.
- (3) The Demonstration and the Laboratory Methods.
- (4) The Topical Method.

5. Laboratory—its equipment and management.

Books for Study

General —

1. Burton, W. H. : *The Nature and Direction of Learning.*
2. Reeves, C. E. : *Standards for High School Teaching.*
3. Strayer, G. O. : *A Brief Course in the Teaching Process.*

4. Hughes and Hughes : *Learning and Teaching*,

English (Compulsory).—

1. Thompson and Wyatt : *The Teaching of English in India*.
2. Ballard, P. B. : *Teaching of the Mother Tongue*.

English (Optional).—

1. Jones, D. : *The Pronunciation of English*.
2. Hudson, W. H. : *Introduction to the Study of English Literature*.
3. Palmer : H. E. : *Principles of Language Teaching*.

History.—

1. Johnson, H. : *The Teaching of History*.
2. Keatinge, M. W. : *Studies in the Teaching of History*.
3. Ghote, V. D. : *Suggestions for the Teaching of History*.

Geography.—

1. Bamard, H. : *Principles and Practice of Geography, Teaching*.
2. Fairgrieve, J. : *Geography in School*.

Science—

1. Westaway, F. W. : *Science Teaching ; What it was ; What it is ; and What it might be*.
2. Brown : *Teaching of Science*.
3. Rennies : *Aims and Methods of Nature Study*.

Books for Reference

General—

1. Board of Education : *Handbook of Suggestions for Teachers*.
2. Adams, J. : *The New Teaching*.
3. Welton, J. : *Principles and Methods of Teaching*.
4. Stormzand, M. J. : *Progressive Methods of Teaching*.

English (Compulsory).—

1. Ballard, P. B. : *Thought and Language*.
2. Ryburn, W. M. : *Suggestions for the Teaching of English in India*.

English (Optional).—

1. Bradley : *The Making of English*.
2. Saintsbury : *A Short History of English Literature*.

History—

1. Rushbrook Williams : *Handling of Historical Material*
2. Hapgood, F. O. : *The Approach to History*.

Geography—

1. Dudley Stamp : *How to Teach Geography in the Schools of India.*
2. Macnee, E. A. : *Suggestions for the Teaching of Geography*

Mathematics —

1. Nunn, T. P. : *The Teaching of Algebra.*
2. Potter : *The Teaching of Arithmetic.*
3. Lanslaw : *Teaching Mathematics.*
4. Godfrey and Siddons : *The Teaching of Elementary Mathematics.*

Science—

1. Smith and Hall : *Teaching of Physics and Chemistry.*
2. Von Wyss : *The Teaching of Nature Study.*

(5) Comparative Study of Educational Systems**(i) Introductory—**

The aims of a national system of education. The remarkable growth of national systems in the 19th century. Brief survey of Pre-British Education in India—Maktabs, Patasalas, Mutts and Madrasahs. History of British Education in India. The problem of a national system of education for India.

(ii) Educational Administration—

Central and Local Control of Education. Advantages and disadvantages.

England : (1) Central Control : The Board of Education. Its Organisation and Function. The Inspectorate.

(2) Local Control : The Borough and County Councils. Education Committee—their powers and responsibilities. Relation of central and local authorities.

United States of America : The Federal Agencies for Education. Decentralisation. Recent tendencies towards centralisation within each State. Local bodies in each State.

India : (1) Central Control : Centralisation of control within each Province. The Minister of Education. The Director of Public Instruction. The Inspectorate.

(2) Local Control : District Boards and Municipalities—their powers and responsibilities.

(iii) Educational Organisations—

Diversity of practices in England. England more a political than a social democracy. Democratic system of education in the United States of America. The Common School. Tendencies in India.

(General organisation of the school systems in England, United States of America and India.

(iv) Elementary Education—

Aim, organisation, curriculum, staff, methods and tendencies of elementary education in England and United States of America.

India: Problem of illiteracy and Educational Mortality. Compulsory Education. Difficulties of enforcement. Present state of legislation and practice in various provinces.

(v) Post-Elementary Education—

Post-Elementary Education different from Secondary Education

England: The Senior Elementary Schools and the Central Schools.

United States of America: The Junior High School.

India: The present tendency of all elementary education leading to Secondary Education. Senior vernacular and higher elementary schools—Need for greater development.

(vi) Secondary Education—

England: The Public Schools, Grammar Schools. Council Schools and Private Secondary Schools. Marked Features of English Secondary Education.

U.S.A.: The Junior and Senior High Schools. Special Features of American Secondary Education.

India: Present Organisation of Secondary Education. Defects of Grant-in-aid System. The problem of medium of instruction. Uniformity of type. Need for diversity of institutions. Introduction of vocational courses.

(vii) Vocational Education—

England: Junior and Senior Technical Schools. The Polytechnics.

U.S.A.: The Federal Board for Vocational Education. Part-time and Full-time Vocational Schools. Senior High Schools. Technical Colleges.

India: The literary and non-practical character of Indian Education. Hartog Committee recommendations. Need for and problems of Vocational Education.

(viii) Women's Education—

A brief survey of the development of educational facilities for women in England and U.S.A. together with the special features of women's education in those countries.

India: Problems of women's education. Modern Ideals of Indian Womanhood. The problem of co-education, aim, organisation, curriculum and present tendencies in women's education.

(ix) Training of Teachers—

England: Importance given to Teacher Training. The Training Colleges and the University Training Departments. Refresher Courses.

U.S.A.: The Normal Schools and the Training Colleges of Universities. Summer courses.

India: The Undergraduate and Graduate Training. Nature and period of training.

(x) Adult Education—

Aim, contents, methods and organisation of Adult Schools in England and U.S.A. The problem in India with special reference to methods of rapid literacy and propaganda regarding the value of education. Social and liberal nature of adult education.

Book for Study

1. Kandel, I. L. : *Studies in Comparative Education*.

Books for Consultation

1. Mayhew, A. : *The Education of India*.
2. Hartog Committee Report.
3. *Year-Books of the International Institute*, Columbia University.
4. Roman, F. W. : *New Education in Europe*.
5. Begtrup, Lund and Manniche : *The Folk High Schools of Denmark*.
6. *Year-Books of Education* (Lond.)
7. Anderson : *Progress of Education in India, 1927-32*, Tenth Quinquennial Review.
8. *The Quinquennial Reviews of Mysore*.
9. *The Decennial Survey of Mysore*.

(6) *School Organisation and Management*

A. The Social Aspect of School Life—

The social life of the school. The problem of school discipline. Government and management of social life in school. Organisation and management of extra-curricular activities. Civic and moral instruction as a means of social adjustment. The problems of religious instruction. Sex education as a factor in social adjustment. Extraneous motives to conduct—Reward and Punishment.

B. The Intellectual Aspect of School Life—

Classification and promotion of pupils. Co-education of boys and girls. Daily programmes of work. Appraisalment of work. School records and reports.

C. The Health Aspect of School Life—

Health instruction. Physical education. Healthful school conditions—school building, equipment, etc. Health service and supervision

D. General—

The headmaster and teacher in relation to school organisation and management. School inspection and direction. The school, the home and the community.

Books for Study

1. M. S. Mohiyuddin and M. Siddalingaiya : *School Organisation and Management*.
2. Douglas, H. R. : *Organisation and Administration of Secondary Schools*.
3. Lyster, R. A. : *The Hygiene of the School*.
4. Harris, P. E. : *Changing Conceptions of School Discipline*.

Books for Reference

1. Otto, H. J. : *Elementary School Organisation and Administration*.
2. Sears, J. B. : *Classroom Organisation and Control*.
3. Ryburn, W. M. : *Suggestions for the Organisation of Schools in India*.
4. Jonson, F. W. : *Administration and Supervision of the High School*.
5. Marshall, F. J. C., and Rees, W. R. : *Physical Education in Boys' Schools*.
6. Board of Education . *Handbook of Suggestions for Teachers* (Revised edition).
7. Dewey, J. : *Moral Principles in Education*.
8. Ballard, P. B. : *The Changing School*.

9. Association for Education in Citizenship : *Education for Citizenship in Secondary Schools.*
10. Bigelow, M. A. : *Sex Education.*

SCHEME OF EXAMINATION

[*Vide* Ordinance 128 (f)]

					Max. Marks
<i>Group A : Theory—</i>					
(i) Principles	...	...	3 hours		100
(ii) Educational Psychology, including Mental and Educational Measure- ments	...	...	...	„	100
(iii) General Methods and Methods of Teaching English (Compulsory)	...	...	...	„	100
(iv) Methods of Teaching Special Subjects.	...	...	3 hours		100
(v) Comparative Study of Educational Systems with Special Reference to Problems of Indian Education	...	...	...	„	100
(vi) School Organisation and Management	...	...	...	„	100
Total					600
(vii) Class Records in Mental and Educational Measurements	...	...	...	...	50
Total, Group A					650
<i>Group B : Practice in Teaching—</i>					
Examination	...	...	...	...	200
Class Work	...	...	...	...	50
Total, Group B					250

Note.—No separate minimum will be required in respect of class marks in Mental and Educational Measurements, the marks in which will count towards the aggregate of Group A.

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinances 104 and 105]

B.E. DEGREE EXAMINATION

CONDITIONS OF ADMISSION*

[*Vide* Ordinances 12 and 106]

COURSES OF STUDY (GENERAL)

[*Vide* Ordinances 107 to 109]

COURSES OF STUDY (DETAILED)

[*Vide* Ordinance 240 (*g*)]

First Examination in Engineering

ALGEBRA AND CALCULUS

Algebra.—Elementary Tests of Convergence of Series. Binomial, Exponential and Logarithmic Series.

Relations between roots and coefficients of algebraic equations. Transformations of Equations. Reciprocal equations. Multiple roots. Numerical solutions of equations. Newton's and Horner's methods.

Calculus.—Differentiation. Standard Forms. Rates, approximations and small errors. Maxima and minima (elementary discussion). Integration. Standard Forms. Definite Integrals. Volumes of Revolution (simple cases). Simpson's formulæ.

Mensuration.—Areas and volumes of Prisms. Pyramids, Cylinders and Cones. Frusta of solids, Prismoidal formula. Elementary geometry of the sphere. Areas and volumes of sphere, spherical shell and spheriod. Great and small circles. Latitude and longitude.

Elements of Mechanics.—Composition and Resolution of Vectors. Newton's Laws of Motion. Work, Energy, Power, Forces acting at a point. Parallel forces. Equilibrium of coplaner Forces. Centre of gravity. Simple machines.

*No one is allowed to enter for the B. E. Degree Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

ANALYTICAL GEOMETRY AND TRIGONOMETRY

Trigonometry.—De Moivre's Theorem. Series for Sine and Cosine. Hyperbolic functions.

Analytical Geometry.—The straight line, pairs of lines, the circle, parabola, ellipse and hyperbola referred to rectangular axes. Polar co-ordinates.

Direction Cosines. Equations of the plane and the straight line.

ENGINEERING PHYSICS

General Physics.—Units and dimensions. Simple harmonic motion. Angular motion. Moment of inertia. The compound pendulum. Gravity and its variation.

Acoustics.—Pitch, intensity and quality. Resonance and sharpness of resonance. Reflection of sound. Interference. Absorption of sound. Measurement of absorption coefficients for building materials. Acoustics of auditoria. Time of reverberation and Sabine's formula. Methods for reducing reverberation. Noise and its insulation.

Heat.—Specific heats of gases at constant pressure and at constant volume. Change of state. Vapour pressure. Critical state. Liquefaction of gases. Hygrometry. Isothermals and 'adiabatics. First and Second laws of thermodynamics. Absolute scale of temperature. Entropy. Conduction of heat. Pyrometry.

Light.—Dispersion. Direct vision spectroscopy and its uses. Achromatisation of telescopic objectives and eyepieces. Elements of photometry. Polarised light and its applications. The polaroid.

Magnetism.—Terrestrial magnetism. Horizontal intensity, dip and declination. Magnetic maps. B-H curves. Permeability. Hysteresis loop. Magnetic circuit. Relation between m.m.f., reluctance and flux. Relation between ampere-turn and c.g.s. unit of m.m.f.

Electricity.—Charge, potential and capacity. Condensers in series and parallel. Di-electric coefficient and its determination. Ohm's law. Kirchhoff's, circuit laws. Application to D.C. Currents. Magnetic effects of a current. Field associated with current in a straight wire, a circular coil, and a solenoid. Force on current in a magnetic field. Ballistic galvanometer. Resistance thermometer. Electromagnetic induction: The induction coil.

Discharge of electricity through gases. The electron as a common constituent of matter. Structure of atoms. X-rays and their applications. Thermionic valve and its uses. Photoelectric cells and their applications.

PRACTICAL PHYSICS COURSE.

Moment of inertia of a fly-wheel. Comparison of moments of inertia. The compound pendulum.

Sonometer. Resonance column and resonance bottle. Kundt's tube.

Thermal conductivities of metals and bad conductors. Mechanical equivalent of heat. Regnault's calorimeter. Latent heat using Bertholet's spiral. Vapour pressure measurement. Ratio of the specific heats of a gas.

Dispersive powers of glasses. Photometry.

Heating effect of a current. Mechanical equivalent of heat and the determination of the specific heat of a liquid. Determination of the terrestrial magnetic elements. Tangent galvanometer. Electrolysis. Ballistic galvanometer. Comparison of capacitances. Dielectric co-efficients. Resistance thermometer. Study of the hysteresis loss of magnetic materials by the magnetometer method.

ENGINEERING CHEMISTRY.

Metals.—Study of the following metals and their alloys from the engineer's view point: copper, zinc, mercury, aluminium, tin, lead, chromium, tungsten, manganese, iron and nickel.

Technology of Water.—Impurities in water and their removal. Temporary and permanent hardness. Production of scale, corrosion and foaming. Softening. Base exchange process. Treatment of water for town-supply and for industrial purposes. Boiler compounds. Action of water on lead pipes. Elements of water analysis.

Refractory Materials.—Acid, basic and neutral refractory materials and their use in furnace practice.

Plasters and Limes.—Plaster of Paris. Chemical analysis of limes. Theories of setting of plasters and mortars.

Portland Cement.—Composition. Theories of setting of cements. Factors affecting the setting. Corrosion of concrete and reinforced concrete and its prevention.

Grinding Materials.—Carborundum, emery and other abrasives in common use. General properties and uses of abrasives.

Paints and Varnishes.—General properties of pigments. Vehicles for paints and varnishes.

Lubricants.—Theory of lubrication. Common lubricants. Testing of lubricants.

Elements of Physical Chemistry.—Osmotic phenomenon. Theory of electrolytic dissociation treated in an elementary manner. Electromotive force of cells. Electro-plating and electro-refining of metals.

Corrosion of metals and its prevention. Anti-corrosive paints, enamelling, tin-plating and galvanising. Corrosive action of lubricants.

Colloids.—Fundamentals of Colloid Chemistry. Adsorption. Coagulation by electrolytes. Colloidal properties of clay.

Practical Chemistry.—Systematic qualitative analysis of inorganic substances.

Volumetric analysis. Acidimetry and alkalimetry. Determination of hardness of water. Simple titrations involving the use of permanganate, dichromate and thiosulphate. Estimation of chloride, calcium and iron.

Gravimetric estimation of silica, alumina and the sulphate radical.

ECONOMICS.

- I. Stages in the Evolution of Modern Industry.
- II. Demand and Supply.
Valuation of commodities, Marginal Utility and Marginal cost. National Income. Rent, Interest, Wages and Profits.
- III. Common commodities—
 - (1) Circumstances affecting their production and carriage.
 - (2) Their chief places of production.
 - (3) Food supply: wheat, rice, meat, coffee and tea, sugar.
 - (4) Raw materials: Cotton, wool, jute, iron, silk, hides and skins.
 - (5) Sources of power: Coal, oil, water.
- IV. Economic Organization—
 - (a) Farming, (b) Mining, (c) Manufacturing, (d) Transport, (e) International Trade, (f) Money and Banking.
- V. Forms of Business—
 - (a) Capitalistic—Proprietary: Partnership: Joint Stock; (b) Co-operative; (c) Socialistic.
- VI. Characteristics of Modern Industry—
 - (a) Division of Labour, (b) Localisation, (c) Mass Production, (d) Combinations, (e) Risk-bearing, (f) Organised Markets, (g) Advertising, (h) Labour Problems.
- VII. State in relation to Economic Life—
 - (a) Forms of State Aid, (b) Free trade versus Protection, (c) Public Revenue and Expenditure.

BUILDING MATERIALS.

Stones.—Classification and characteristic qualities of building Stones. Quarrying and blasting. Dressing stone. Artificial stones.

Bricks and Tiles.—Brick and tile earths. Preparation of bricks and tiles by ordinary methods and by use of machinery.

Burning in clamps and kilns. Hoffman's kiln. Improved types of kilns. Characteristics of good bricks and tiles. Earthen and stoneware products.

Limes, Cements, Sand and Surki Mortars.—Source of supply, properties, preparation and use. Ordinary and hydraulic mortars, Portland cement, its manufacture and use. Practical tests of limes and cements. Composition, mixing and laying of concrete (plain and reinforced). Plastering, pointing and white washing Gypsum and Plaster of Paris.

Timber—Growth and felling. Natural and artificial seasoning. Preservation of timber. Defects in timber. Destructive agents and decay of timber. Characteristics of good timber. Principal uses. Important varieties in use in India. Timbers suitable for special purposes.

Preservative Coating of Materials.—Distemper, oil paint, colour wash, paints, varnishes and miscellaneous materials as papering, putty, glazing. Composition, preparation and use.

Definition of terms used in a building.—Foundation, plinth, basement, floor, superstructure, parapet wall, arches, piers, pillars, pilasters and balustrade.

METALLURGY AND ELEMENTARY MECHANICAL ENGINEERING.

(a) Metallurgy.

Pig Iron.—Manufacture, composition and uses.

Cast Iron.—Composition of several kinds of cast iron and their physical properties. Effect of impurities in cast iron.

Mild Steel.—Manufacture by Bessemer, open hearth, electric and duplex processes. Characteristics and uses.

Wrought Iron.—Manufacture, properties and uses.

Special Steels.—Effect of nickel, chromium, silicon, manganese, molybdenum, vanadium, tungsten, and carbon, on steels.

Other Metals.—Strength and properties of copper, lead, brass, zinc and their alloys.

Heat Treatment of Metals.—Solid solutions, hardening, annealing, tempering and welding of metals.

(b) Mechanical Engineering.

General—Strength, properties and testing of materials used in the construction of machines.

Simple Machine Parts—Strength and proportions of rivets and riveted joints, bolts and nuts, pipes and pipe joints, keys and cotters.

Transmission of Power.—Velocity ratio in friction and simple toothed gears. Simple and compound bevel and worm gears. Velocity ratio in belt and rope gearing. Simple types of couplings and bearings.

DRAWING.

(a) Free-hand and Model Drawing.

Neat and accurate copies of plates containing simple curves to a larger or smaller scale without any mechanical aids. Drawing of objects of simple form as they appear to the eye from any point of view.

(b) Isometric and Perspective Drawing.

Construction of Isometric Scale. Isometric projection of simple objects. Rules and definitions of elementary perspective drawing. Perspective representation of simple geometrical solids and simple objects in any given position with reference to the ground and picture planes.

(c) Practical Solid Geometry and Geometrical Drawing.

Plane Geometry.—Use of drawing instruments. Lettering and conventions used in drawing.

Construction and use of plain scales, proportional scales, diagonal scales, scale of chords and vernier scales.

Curve tracing. Ellipse, parabola, hyperbola, cycloidal curves, involute of a circle, spiral and helix.

Solid Geometry.—Projection of points, lines and planes. Projection of simple solids, such as prisms, pyramids, cylinders and cones with varying positions and with alterations of the ground line. Sections of solids.

Interpenetration of solids. Intersection of two cylinders, a cylinder and a cone, a prism and a pyramid, and a prism and a cone. Development of plane and curved surfaces.

SURVEYING—THEORY AND PRACTICE.

(a) Theory.

Chain Surveying.—Units of measurement. Measuring instruments, cross staff, optical square, and line ranger. Their use and adjustments. Arrangement of surveying lines. Running of survey lines. Field operations, notes and records. Errors and how to minimise them. Plotting and finishing of plans from field records.

Compass Surveying.—The main feature of the survey. Construction of the Surveyors' and Prismatic Compasses. Testing and adjusting the instruments. Use of the compass in conducting surveys. Traversing. Advantages and limitation of the compass. Booking field work. Plotting a survey plan.

Plane Table Surveying.—Principles involved. The instrument. Field work. Several methods of conducting the survey. Standard problems. Errors in field work. Remedies and precautionary measures adopted. Accuracy to be obtained in topographic surveys.

Pantograph and its uses.

(b) Practice.

Each student will be given practical training in the field regarding the handling of all the instruments and conducting the above surveys. Each student is required to prepare and submit notes and drawings relating to the practical work done by him.

WORKSHOP PRACTICE.

(Any two out of the following shops for mechanical and electrical students. Fitting and carpentry shops for civil engineering students).

(i) *Fitting*.—Chipping, filing, scraping, groove cutting and key fitting, screwing and tapping. Use of scribing block, surface gauge and square in marking out work.

(ii) *Carpentry*.—Sawing, chipping and planing. Mortice, tenon and dove-tail joints.

(iii) *Smithy*.—Sledge hammer practice. Drawing out tapers. Bending at right angles. Making links. Forging of key, bolt nut and simple parts. Welding rods and rings.

(iv) *Foundry*.—Levelling, Moulding simple objects with or without patterns. Moulding by turning over method. Core making. Machine moulding. Casting.

Second Examination in Engineering.

(Common to all branches.)

MATHEMATICS

1. Successive Differentiation, Leibnitz's theorem.
2. Partial Differentiation—elementary discussion. Euler's formulæ on Homogeneous functions.

3. Geometrical applications of Differentiation :—

- (a) Tangents and normals.
- (b) Curvature, Involutives and Evolutives.
- (c) Envelopes.
- (d) Curve Tracing. Asymptotes and singular points (brief discussion).

4. Rolle's Theorem. Taylor's Theorem. Taylor's Series and Expansion of functions. Maxima and Minima (one independent variable). Points of Inflexion. L' Hospital's Rule.

5. *Integration*.—Integration of rational functions, elementary irrational, trigonometric and transcendental functions. Reduction formulæ for standard algebraic and trigonometric integrals. Definite Integrals, and their simple properties. Determination of lengths of arc, and areas of plane curves in Cartesian and polar co-ordinates. Calculation of areas and volumes of surfaces of revolution.

6. *Differential Equations*.—Equations of the first order. Linear equations with constant co-efficients, and homogeneous linear equations. Easy cases of linear equations of the second order. Simultaneous equations. Numerical solutions of ordinary equations.

7. *Statics*.—Moments. Couples. Equilibrium of Forces in one plane. Friction. Centre of Gravity. Virtual work. Stable and unstable equilibrium.

HYDRAULICS.

Hydrokinetics.—The flow of a fluid. Movements of water. Total energy of flowing water. Bernoulli's Theorem. Venturi-meter.

Discharge from Orifices and Mouth-Pieces.—Flow through small orifices. Co-efficients. Measurement of water. Application of Bernoulli's Theorem to flow from orifices. External and internal mouth-pieces. Large vertical orifices. Partially submerged and drowned orifices. Losses of head in flowing water. Sudden enlargement, contraction and obstruction. The time of emptying vessels through orifices.

Notches and Weirs.—Rectangular, triangular and trapezoidal notches. Velocity of approach. Drowned and broad crested weirs. Afflux and backwater. Formulæ: Francis and Bazin. Principle of similarity. Separating weirs. Time of emptying reservoirs by weirs. Discharge from irregular basins. Practical cases of discharge from orifices and notches: anicuts, tank cases, tank and canal sluices, bridge openings and canal locks.

Flow Through Pipes.—General laws. Froude's experiments. Hydraulic gradient and hydraulic mean radius. Loss of head due to friction and other causes. Losses at bends and elbows. Darcy's co-efficients. Flow through long and short pipes. Syphon.

Kutter's Formula. Box's formula.

Hydraulic gradient in pipes of variable diameter. Pipes connecting two reservoirs and delivering water *en route*. Parallel flow through pipes. Pipes not running full. Dupuit's equation. Water hammer.

Flow in Channels and Rivers.—Uniform and steady flow in channels of constant slope and section. Velocity of flow. Surface fall. Formulæ to be adopted for channels in practical design. Rectangular, trapezoidal and circular channels. Economic sections. Channels for variable discharge. Egg-shaped and ovoid conduits.

Parabola of discharge, the points of maximum and minimum velocity in a section. Losses of head at entry and bends. Standing wave.

Characteristics of river flow. River bends and regime of rivers.

Gauging of Flow in Rivers and Channels.—Estimation of discharges. Various methods and their comparative merits. Direct method of measuring velocity. Surface floats and velocity rods. Current meters. Rating of meters. Pitot tube. Hydrodynamometer. Rainfall and run off calculations for maximum discharge from catchment.

APPLIED MECHANICS LABORATORY.

Tests on mild steel, cast iron, brass, copper, gunmetal, wood, etc., for tension, compression, shear and torsion. Determination of strength and elastic constants. Use of extensometer and autographic recorder. Tests for fatigue of materials. Bending, hardness and impact tests.

MACHINE DRAWING.

Riveted Joints.—As used in the construction of steel trusses, steel tanks, bridge work.

Pipe Joints.—Flange joints, expansion joints, spigot and socket joints.

Cottered Joints.—For tension and compression rods.

Simple Engine Parts :—Cylinders, Pistons, etc.

Civil Branch.

MECHANICAL ENGINEERING

General.—Friction, lubricants and lubrication.

Fuel.—Types of fuel: Solid, liquid and gaseous. Their advantages and disadvantages.

Boilers.—Important types of boilers. Lancashire, Cornish, water tube and smoke tube boilers. Oil firing of boilers.

Simple Thermodynamics.—Properties of gases and steam. Entropy and entropy diagram. Carnot's cycle and Rankine cycle.

Internal Combustion Engine.—Principles of operation and maintenance of gas, oil and petrol engines.

Steam Engines.—Operation and care of road rollers, portable engines, simple and compound engines, turbines and pumps. Types of condensers

Hydraulic Appliances—(a) *Pumps.*—General description and methods of working reciprocating, centrifugal and deep well pumps. Their merits and simple calculation of power consumption. Pulsometer pumps and hydraulic rams.

(b) *Prime Movers.*—Description and uses of important types of water wheels and turbines.

(c) *Simple Hydraulic Machines.*—Jack, press, accumulator and intensifier.

(d) *Lifting Machinery.*—Hoists, cranes and winches.

Elementary principles of hydro-electric development.

Engineering Laboratory.—Use of indicator. Determination of horse power and efficiency. Standard tests on gas and oil engines and the more common steam and hydraulic machinery.

ELECTRICAL ENGINEERING.

Measurements and Measuring Instruments.—Conductors (metals and alloys) and insulators. Elementary principles of moving coil, moving iron and dynamometer ammeters, voltmeters and wattmeters. Construction and working of induction type energy meters.

D. C. Machines.—Elementary principles and construction of series, shunt and compound wound generators and motors. Their characteristics, and direct applications. Starters for d. c. motors.

Alternating Currents.—Virtual values and vector representation of alternating currents and voltages. Calculation of simple a. c. circuits. Power in a. c. circuits. Simple measurements of capacity, inductance and power.

A. C. Machines.—Elementary principles and characteristics of synchronous generator and motor, transformer and induction motor. Compensators and starting switches for induction motors.

Accumulators.—Lead and nickel storage batteries. Chemical action during charge and discharge.

Illumination.—Candle power, lumen and foot-candle. Simple characteristics of arc, incandescent and luminous discharge lamps. Standards of illumination required for various purposes.

Principles of internal wiring of buildings and simple overhead distribution. Lightning conductors.

GEOLOGY.

General Geology.—General principles of dynamical geology in relation to earth sculpture. Action of air as a dynamical agent. Action of surface waters, including rivers, lakes and seas. Underground water, its circulation and geological action. Artesian

wells. Landslides, their causes and effects. Glacial deposits, their origin and structures. Volcanoes and earthquakes.

Petrology.—Description and identification of the common rock-forming minerals, classification into igneous, sedimentary and metamorphic rocks. The leading types in each group, their description and identification. Physical properties of rocks, such as durability, toughness, porosity, thermal conductivity, etc. Alteration and weathering of rocks. Formation of clays. Factors which determine the suitability of rocks as building stones. Building, ornamental and decorative stones of India, with special reference to Mysore.

Structural Geology.—The leading structures of rock masses and their importance in geological processes. Quarrying of rocks. Geological structure in relation to problems for dams, reservoirs, tunnels, shafts. Construction and interpretation of geological maps and section drawing.

Practical.—Identification of minerals from a study of their physical characters.

Description and identification of the chief types of igneous, sedimentary and metamorphic rocks, with special reference to their alteration and weathering. Use of the petrological microscope.

Study of geological maps with a view to interpret the underground structure of the rocks. Exercises in section drawing.

WORKSHOP THEORY.

Carpentry Tools.—Hand tools for cutting wood. Axe, adze, chisel, gouge, draw knife, spokeshave, jackplane, smoothing plane moulding plane, wood scraper. Saws.

Boring Tools.—Bradawl, gimlet, auger, brace.

Wood Working Machine.

Fitter's Tools.—Cold and hot chisel, hammer and file. Scraping. Use of surface gauge, scribing block.

Tapping and Screwing.—Standard threads, pipe threads and gas threads. Tapping. Dieing. Details of taps and dies. Using them on steel, cast iron, brass. Drifts. Reamers.

Fitting Appurtenances.—Spanners. Chain pipe wrench, pipe vice, clamp. Screw jack and vice.

WORKSHOP PRACTICE.

Smithy.—Drawing out tapers. Bending at right angles. Bending chain links. Making keys, bolts and nuts. Lap and ring welding.

Foundry.—Levelling. Moulding simple objects with or without pattern. Moulding straight pipes and elbows. Core making.

Machine Shop.—Plane turning. Groove cutting. Cutting square thread.

MECHANICAL LABORATORY.

Efficiency tests on Internal Combustion Engine. Steam Engines and Pumps.

ELECTRICAL LABORATORY.

Measurement of resistance by Wheatstone's bridge, voltmeter and ammeter and megger. Measurement of voltage, current and power in simple d. c. and a. c. circuits. Energy meters. Characteristics of d.c. generators. Starting, speed regulation, reversing and determination of characteristics of d. c. motors. Measurement of inductance and capacity by voltmeter and ammeter. Simple transformer tests. Starting, reversing and running under load of induction motor. Study of fan motors.

CIVIL ENGINEERING (FOR MECHANICAL AND ELECTRICAL

BRANCHES).

(a) *Building Construction.*

Foundations.—Safe bearing power of soils ordinarily met with. Masonry footings and ordinary mass concrete foundation. Foundations for heavy machinery and electric motors. Holding down bolts and anchor plates. Vibration, its cause and effects. Isolating heavy machinery. Grillage and raft.

Brick Work Masonry.—Terms and bonds in brick work.

Stone Masonry.—Safe load. Uncoursed and coursed rubble and ashlar work. Bonds, Lewis, dowel, joggle, cramp joints, Template, Shears. Dressings, such as window sills, window and door jambs and reveals. Sinking of wells. Masonry lining for wells.

Plastering.—Materials. Plaster grounds. Plastering mixtures. Stucco, plain and rough cast.

Wood Work.—Teakwood wrought and put up. Joints, such as halving, lapping, notching as applied to wall plates, floors, ceilings, partitions, screens and posts.

Roof-Frames.—Couple rafters and King and Queen Post trusses. Simple iron frames, purlins, hips, valleys, eaves, ridges and gables.

Doors and Windows.—Ledged, braced, framed. Battened, planked, panelled and glazed. Framing and hanging. Venetians and louvres.

Staircase.—Plain, dog-legged and newel staircases of wood, metal and reinforced concrete.

Roofs.—Sloping flat. Pan and Mangalore pattern tiles. Varieties of tiles. Reinforced concrete. Madras and jack-arched terraces. Sawtooth roof.

Arches.—Definitions of terms used in archwork: gauged, relieving and inverted arches.

Rolled Steel Sections.—Sizes of rolled steel joints and girders.

Flooring.—Plaster, tile, Cuddapah and burnt stone slab, cement and granolithic floors.

Reinforced Concrete Construction.—Nature, use, properties, advantages and disadvantages over other methods of construction. Practical use of reinforced concrete work in beams, floors and columns. Water and oil tanks. Fireproof construction.

Design of Buildings.—Principles of economic design of residential and public buildings and factories with special reference to selection of site, construction of walls, damp-proof courses, water, supply drainage, ventilation and lighting.

(b) *Surveying.*

Levelling—Simple, compound, check and reciprocal levelling. Hand levels and Clinometers. Varieties of levels. Comparative merits and the methods of using them. Fly levels, longitudinal and cross sections. Errors in levelling. Methods of avoiding and minimising them. Permissible error. Problems in levelling.

The permanent adjustment of a level. Theory and practice.

The Theodolite.—Construction of the theodolite. Setting up of a theodolite and measurement of horizontal and vertical angles. Running and prolonging of straight lines. Setting out of centre lines for installing machinery, buildings and simple curves.

Practical.—Handling the above surveying instruments and conducting surveys in the field. Each student is required to prepare and submit notes, records and drawings pertaining to field work done by him.

ELECTRICAL TECHNOLOGY.

Dynamic pull in electromagnets. Determination of B-H curve and hysteresis loop. Flux meter. Bar and yoke magnetometer. Laws of hysteresis and eddy current losses. Magnetic materials. Magnetic circuit. Magnetic leakage.

Electro-magnetism.—Self and mutual inductance. Rise and decay of current in inductive circuits. Charge and discharge of condensers, curves.

Theory of Alternating Currents.—Alternating quantities. r.m.s. and mean values of simple harmonic waves. Form factor and amplitude factor. Vector diagrams. Symbolic method and vector algebra. Reactance and capacitance. Series and parallel

circuits. Resonance. Power and power factor. Complex wave forms. Polyphase systems. Measurement of power in single and polyphase circuits.

Measuring Instruments and Measurements.—Principles of indicating instruments of the moving iron, moving coil, dynamometer, electro-static, hot-wire, thermo-junction and induction types. Recording instruments. Energy meters of the mercury motor and induction types. Frequency and power factor meters. Megger.

Electric Furnaces and Welding.—Principles, construction and their applications.

Distribution.—Internal wiring of buildings. Elementary principles of transmission and distribution. Comparison of different systems. Simple overhead lines. Cables. Simple switchgear.

THEORY AND DESIGN OF MACHINES.

Kinematics.—Definition of a machine. Machine elements and pairs. Laws of motion. Mechanisms obtained by inversion.

Friction.—Laws of friction. Friction circle, friction axis of a link. Friction in sliding and turning pairs. Friction in pivots and toothed gearing. Brakes and dynamometers.

Transmission of Power.—Design of belts, ropes and pulleys. Design of shafts, couplings and bearings. Forms of wheel teeth. Design of spur gears.

Lubricants.—Mineral, vegetable and animal lubricants and their properties. Testing lubricants. Types of lubricators and methods of lubrication.

Glands and stuffing boxes. Packing and jointing materials.

BUILDING DRAWING AND ESTIMATING.

Preparing drawings accurately to scale with additional views and sections from measurements of actual buildings and from given sketches. Making proportionate sketches of works.

Estimating.—Taking out quantities with costs from drawings of buildings. Calculating and writing out of cost.

Third Examination in Engineering.

MATHEMATICS (Common to C. M. & E).

1. *Calculus.*—Line integrals, Theory of Planimeter, Elementary double and triple Integrals. Simple interpolation formulæ (Newton's and Gregory's). Approximate integration. Fourier's Series and elementary harmonic analysis.

2. *Statics*.—Centre of gravity. Conditions of equilibrium in three dimensions. Equilibrium of strings and chains.

3. *Dynamics*.—Relative velocities. Projectiles. Impact. Simple Harmonic Motion. Constrained Motion.

Moments of Inertia. Principal axes for a lamina. D'Alembert's principle. Motion about a fixed axis. Compound pendulum. Motion of a rigid body in two dimensions. Impulsive forces.

4. *Hydrostatics*.—Conditions of equilibrium. Centre of pressure. Resultant thrust on a surface. Equilibrium of Floating Bodies. Metacentre.

APPLIED MECHANICS AND GRAPHIC STATICS (COMMON).

Simple Stresses and Strains.—Modulus of elasticity, permanent set, elastic limit, yield point, ultimate strength, resilience and fatigue of metals. Modulus of rigidity. Bulk modulus. Effects of temperature changes.

Dead and Live Loads.—Working stresses and factors of safety. Launhart and Weyrauch's formula, the dynamic and other formulæ and results of experiments. Effect of impact. Stresses due to suddenly applied loads. Resilience.

Compound Stresses and Strains.—Ellipse of stress. Principal planes and principal stresses. Moments of inertia and radius of gyration. Analytical and graphical methods.

Theory of Simple Bending.—Transverse stress in beams, girders and cantilevers. Graphic and analytical methods of calculating bending moments and shearing forces and stresses in individual members of the frame work of structures loaded at the joints, both for steady and moving loads. Graphical methods of drawing bending moments and shear force diagrams for a travelling load system by graphical methods. Influence lines and their application to bending.

Moment of Resistance.—Strength and stiffness of beams. Modulus of rupture. Beams of uniform resistance.

Shear distribution in cross section of a beam. Graphical methods.

Deflection.—Relationship between curves of loading, shear force, bending moment, slope, curvature and deflection. Analytical and graphical methods of determining the deflection of various cases of loading and supports.

Fixed and Continuous Beams.—Analytical and graphical methods of determining bending moments and shearing forces. Encastre beams and continuous beams. Theorem of three moments.

Design of Struts and Columns.—Use of standard formulæ such as Euler's, Rankine's, Gordon's, Johnson's and straight line, formulæ in the design of struts. Curves showing comparatively the strength of struts obtained by various formulæ.

Theory of Torsion.—Strength of shafting.

Springs.—Spiral, volute and carriage springs.

Stresses in thin and thick cylinders.

Principles of Graphic Statics.—Graphical methods of dealing with forces and reactions. General principles of force and equilibrium polygons for determining stresses in simple trussed or fabricated structures.

Vector quantities. The triangle and parallelogram of forces. The vector polygon. Funicular polygon. Bow's notation. Conditions of equilibrium of concurrent and non-concurrent forces. Definition of a structure. Simple and compound structures. Perfect, imperfect and redundant frames with examples.

Graphical methods for determining moment, centroid and momental ellipse. Graphical solutions of bending moments and shear diagrams. Influence lines. Solution of stresses in framed structures by (i) Clerk-Maxwell's reciprocal figure method, (ii) Method of sections, and (iii) resolution.

Frames of different kinds of roofs under different conditions of loading. Stresses in individual members of simple roof trusses, frames and girders. Derric, Tripod, King Post, Queen Post and French roof truss. Station roof truss. Crescent roof. Three pinned arch. North light roof truss. Bollman and Fink roof trusses. Effect of fixing of ends.

Warren, N. Girder, Pratt, Whipple Murphy Trus—Bow String Girder.

Civil Branch

BUILDING CONSTRUCTION.

Foundations.—Safe bearing power of soils ordinarily met with. Masonry footings and ordinary mass concrete foundations. Foundations for heavy machinery and electric motors. Holding down bolts and anchor plates. Vibration, its cause and effects. Isolating heavy machinery.

Natural and artificial foundations. Piles and pile driving. Friction and bearing piles. Wells and tubular foundations. Reinforced concrete rafts and substructure. Grillage and raft.

Plinth, Basement, Floor.—Vertical and horizontal damp-proof courses. Dry area to basement. Hollow walls.

Brick Work.—Terms and bonds in brick work. Walls, piers, pilasters, fireplaces and flues. Chimneys and retaining walls. Scaffolding, derrick, gantry and reinforced brick work.

Stone Masonry.—Uncoursed and coursed rubble and ashlar work. Bonds. Lewis bolts, Dowel Joggle and cramp joints. Template. Shears. Stone dressing. Masonry lining for wells.

Coping, throating and cornice. Quoin. Squint quion. Pointing.

Plastering.—Materials Plaster grounds. Plastering mixtures: stucco, plain and rough cast.

Hard, smooth, shell lime and gypsum plasters. Wood and metal laths. Cornices and mouldings. Fibrous plaster and ornamental plaster.

Wood Work.—Teakwood wrought and put up. Joints such as halving, lapping, notching, as applied to wall plates, floors, ceilings, partitions, screens and posts.

Roof Frames.—Couple rafters. King and Queen post trusses. Purlins, valleys and ridges, hips, gables and eaves. Simple iron frames.

Roof frames for long spans. Girder and arch frames. French and English system of bracing.

Doors and Windows.—Ledged, braced, framed, battened, planked, panelled and glazed. Framing and hanging. Venetians louveres.

Paneling, moulding and veneering. Double doors, swing doors, door jamb linings, ventilators and fanlights. Architraves, skirtings and picture rails. Sash and casement windows. Skylights and lanterns.

Construction in Metal.—Rolled steel sections, sizes of rolled steel joists and girders, Built up stanchions, struts and girders.

Wrought and cast iron ornamental work, grillage and iron gates. Cast iron columns.

Staircase.—Plain, dog-legged and newel staircases of wood, stone, metal and reinforced concrete. Cut and close strings, hand rails, balusters and newels.

Roofs.—Varieties of tiles. Sloping and flat roofs. Slate and reinforced concrete roofs. Jack arches and Madras terraces. Saw tooth roofs.

Arches and Arch Work.—Definitions of terms used in arch-work. Relieving and inverted arches. Centring. Segmental and elliptical arches.

Flooring.—Plaster, tile, Cudappah burnt stone slab, cement and granolithic floors. Wooden flooring.

External Plumbing.—Lead work or zinc sheets in valleys, flats and flashings, gutters and dormer windows. Drip moulding.

Painting and Decoration.—Oil painting and varnishing. Enamel painting. Calcarium and distemper wash. Wall papering and stencilling.

Reinforced Concrete Construction.—Nature, use, properties, advantages and disadvantages over other methods of construction. Practical use of reinforced concrete work in beams, floors, columns, water and oil tanks.

Fire Proof Construction.—Reinforced concrete, hollow block, and bulk timber construction.

Design of Building.—Principles of economic design of residential and public buildings and factories with special reference to selection of site, construction of walls, damp-proof courses, water supply, drainage, ventilation and lighting.

ARCHITECTURE.

(a) *Principles of Architecture.*

Introductory.—Aim and importance of architecture. Independence of thought its essential feature. The methods of study. The advantage of the historical method. Architecture as a fine art. The technic, æsthetic and phonetic arts. The varying proportions necessary for perfection in every fine art. The place of architecture among the fine arts.

Principles.—(1) Convenience of general arrangements, (2) Beauty and (3) Truth.

Qualities.—(1) Strength: stability and durability, (2) Vitality, (3) Restraint, (4) Refinement, (5) Repose, (6) Grace, (7) Unity of conception, (8) Breadth, (6) Scale, (10) Pictorial setting and (11) Expression of purpose

Factors.—(1) Mass, (2) Form, (3) Proportion, (4) Decorative ornament, (5) Light and shade, (6) Decorative colour, (7) Solids and voids, (8) Uniformity, (9) Balance and symmetry, (10) Materials, (11) Construction, and (12) Sculpture and painting.

Influences of association, tradition, climate, topography, religion, and social customs and aspirations of the time.

Classic orders and their details. Architectural composition.

(b) *Development of Architecture.*

Making proportionate sketches of characteristic outlines or features of such examples from the following Historical Styles as are representative of the practical needs, local conditions, sense of proportion and the culture of the times :—Early Christian, Gothic, Renaissance, Dravidian, Chalukyan, Indo-Saracenic and Modern.

BUILDING DRAWING.

Preparing drawings accurately to scale with additional views and sections from measurements of actual buildings and from given sketches. Making proportionate sketches of works, Designing and drawing small buildings in full to conform to given accommodation or at specified cost. Making out large scale drawings of building parts.

ESTIMATING.

Taking out quantities with costs from drawings of buildings. Calculating and writing out of cost. Preparing specifications and data of materials and labour for the items of works required for buildings.

SURVEYING—THEORY AND PRACTICE

Plane Tabling.—Theory and use of the stadia method of plane-tableing in topographic surveys.

Levelling.—Simple, compound, check and reciprocal levelling. Hand levels and Clinometers. Varieties of levels. Comparative merits and methods of using them. Fly levels, longitudinal and cross sections. Errors in levelling. Methods of avoiding and minimising them. Permissible error. Problems in levelling.

The permanent adjustments of a level. Theory and practice.

The Sextant and Theodolite.—Construction of Hadley's and Box sextants and the Theodolite. Setting up of a theodolite and measurement of horizontal and vertical angles. Running and prolonging of straight lines. Use of the Theodolite and Sextant in surveys. Conducting a traverse by Gale's method and plotting the results. Setting out of simple curves.

Different types of Theodolites and their adjustment. Errors in Theodolite work and remedies adopted.

Advanced Levelling.—Barometric and hypsometric levelling. Contours and use of contour plans in engineering projects. Use of the Level, the Clinometer, the Theodolite and Plane Table in making contour plans. Setting out of grades and use of boning rods.

Tacheometric Surveying.—Introductory principles. The stadia system and the constants of the tacheometer. Analytic lens. Field work and records of field work. The tangential system of surveying. Principle and use of Range Finder. Planimeter and its uses.

Practical.—Handling the above surveying instruments and conducting surveys in the field. Each student is expected to prepare and submit notes, records and drawings as evidence of field work done by him.

Mechanical Branch.

THEORY OF DIRECT CURRENT MACHINERY.

Direct Current Machinery.—Component parts. Induced e.m.f. Armature windings. Armature reaction. Commutation Interpoles. Performance characteristics of shunt, series and compound-wound generators. Losses, efficiency and temperature

rise. Parallel operation, Regulators. Third brush and Rosenberg generators. Boosters and balancers.

Torque in a motor. Performance characteristics of shunt, series and compound-wound motors. Principal applications of each type. Design of starter. Speed control Series-parallel, multi-voltage and Ward-Leonard systems of speed control.

Efficiency tests of generators and motors.

Accumulators.—Lead-acid cell. Physical and chemical changes during charge and discharge. Formation of Plante and Faure plates. Installation and maintenance of batteries. Charging equipment—End Cells Sulphation. Care of idle battery. Capacity, efficiency and cadmium tests.

Alkaline Cells.—Theory, performance and application of cells. Comparison with acid cells.

Illumination.—Applications of filament, arc and gaseous discharge lamps. Polar curves. Shades, reflectors and globes. Effects of absorption and reflection Design of interior and street lighting Illumination required for different purposes Choice of type. Arrangement and spacing of lamps. Calculation of illumination.

WORKSHOP THEORY.

(a) Carpentry

Carpentry Tools.—Hand tools for cutting wood. Axe, adze, chisel, gouge, draw knife, spokeshave, jackplane, smoothing plane, moulding plane, wood scraper, Saws

Boring Tools.—Brad-awl, gimlet, auger, brace. Sharpening tools and saws.

Wood working machines.

(b) Fitting

Fitter's Tools.—Cold and hot chisel, hammer and file Scraping. Use of surface gauge, scribing block, etc.

Tapping and Screwing.—Tapping. Standard threads. Pipe threads. Gas threads. Dieing. Details of taps and dies. Using them on steel, cast iron, brass, etc. Drifts. Reamers.

Fitting Appurtenances.—Spanners, chain or pipe wrench, pipe vice, clamp, etc. Screw jack and vice.

(c) Foundry.

Pattern Making.—Selection of timber. Allowances. Joints. Loose pieces, cores, drawbacks, strickle boards. Loam patterns and loam cores. Plaster of Paris and metal patterns. Make-shifts. Pattern shop machinery and maintenance.

Foundry Work.—General principles of moulding. Materials used. Judging quality of materials. Foundry tools. Dry sand, green sand and loam moulding with typical example of each class of work. Methods of moulding. Venting and pouring arrangements. Cores and core boxes. Use of chills in moulding. Brief description of the cupola. Hard and soft mixtures. Defects in castings and their remedy. Machine moulding. Centrifugal castings.

(d) *Smithy.*

General arrangement of smithy. Stock fire and open fire. Supply of blast. Smith's tools. Operations in forging. Upsetting, drawing down, cutting out. Theory of welding. Forms of welded joints. Butt, scarf, splice, stud and shaft welds. Strength of welded joints. Power hammer.

(e) *Dies and Die Making.*

Bending and forming dies.—Hand bending fixtures, forming small clips, wire handles, etc. Curling tools, seaming dies, etc.

Punching, shearing and blanking.—Punching dies, shearing dies blanking dies, punch and die for wrenches, washers, etc. Cutting off tools.

Sheet Metal Working.—Hand tools for sheet metal working, shearing machine for sheet metal (hand-operated, foot-operated and power-driven machines). Slitting and rotary shears.

Folding Machines.—Bar folder, sheet iron folder, pipe folder.

Forming Machines.—Hand-operated and power-driven.

Flanging Machines.—Soldering, brazing and welding.

Making of Dies.—Blanking and forming dies, stripping arrangements. Force required to strip work from punches. Methods of holding punches in place, etc.

(f) *Machine Tools.*

General.—Difference between rotary and reciprocating tools and their merits. Vertical and horizontal tools. Automatic machinery and their common features.

Lathes.—Bed, headstock, spindle, speed gearing, feed control, carriage, apron, tail stock, etc. Cutting speeds. Different types of lathes. Screw cutting in the lathe. Chuck work. Turret lathe work.

Planing Machines.—Planer beds, table, housings, etc., Reversing gear. Feed mechanism. Cutting speed.

Shaping and Slotting Machines.—Columns, ram and tool head. Cross rail, table, driving gear, feed mechanism, etc.

Drilling and Boring Machines.—Upright drills, radial drills and multiple drills. Speeds and feeds. Power required for drilling. High speed drilling. Characteristics of a drill. Several types of drills.

Milling Machines.—Vertical and horizontal milling machines. Universal milling machines. Description of parts of the universal miller. Dividing heads. Index drum, tail, stock, raising block, swivel, vice, steady rest and other attachments. Characteristic operations. Influence of cutter diameters. Assembling cutters, collets, collars, etc. Feeds and speeds. Cutting action of face, side and end mills. Examples of milling, face milling, slot milling, boring, facing, keyseating and fluting, and gear cutting. Segment and spot finishing, hobbing a worm wheel, cutting bevel and miter gears, helical grooving milling cutters.

Grinding Machines.—Grinding operations. Dry grinder and attachments, disc grinder, wet grinder, universal cutter grinder, reamer grinder and drill grinder. Principles and advantages involved in cylindrical and conical grinding. Feeds and speeds. Lapping. Abrasives and abrasive wheels.

(g) Heat Treatment of Steel.

Theory underlying heat treatment. Constitution of steel. Upper and lower ranges of transformation. Explanation of hardening, tempering, annealing, case-carburising, chilling, etc., by this theory. Consideration of low carbon and high carbon steels. Eutectoid, hypoeutectoid and hypereutectoid. Alloy steels. Tool steels for high speed work. Practical methods of heating, etc., for hardening, tempering, annealing, etc., of the steels.

(h) Design of Workshops.

Layout of different shops. Details of ventilation, lighting, etc.

HEAT ENGINES (MECHANICAL).

(a) Fuels.

Solid Fuels.—Wood, charcoal, coal, coke, etc. Manufacture of charcoal. Formation, nature and source of coal. Classification of coal. Carbonisation of coal and manufacture of coke.

Liquid Fuels.—Formation, nature and source of petroleum. Distillation of petroleum and manufacture of petrol, kerosene oil, etc. Manufacture of alcohol, shale oil, benzene and tar oils, Atomisers suitable for burning oils under boilers.

Gaseous Fuels.—Natural and blast furnace gases. Manufacture and nature of coal gas, producer gas, water gas semi-water

gas, suction gas, etc. By-product recovery plants. Surface combustion of gas under boilers.

(b) *Engines*!

General.—B. H. P. I. H. P. Dynamometers. Indicators. Mechanical and thermal efficiencies.

Laws of Thermodynamics.—Laws of permanent gases, internal energy and total heat of a gas. Entropy. Laws of thermodynamics. Adiabatic and isothermal expansion and work done during adiabatic and isothermal expansion. Carnot's cycle and principal conditions for maximum efficiency.

Internal Combustion Engines.—Combustion of gases and velocity of flame propagation. Cycles of operation of internal combustion engines. Constant volume and constant pressure addition of heat. Four stroke and two stroke engines. Effect of strength of mixtures. Ignition. Effect of advancing and retarding of ignition on efficiencies. Effect of compression on fuel economy. Constructional features of several leading types of gas, petrol, oil, Diesel, semi-Diesel and solid injection engines. Methods of governing.

Hot Air Engines.—Stirlings' engine, Ericson's engine, Joule's engine.

Air Compressors and Motors.—Work done in compressing air in compressors. Adiabatic and isothermal compression. Methods of reducing losses. Simple and multistage air compressors.

Cooling of compressors. Spray injection and inter coolers. Effect of clearance, on efficiency of compressors and motors. Compressed air tools, drills and hammers. Transmission of power by compressed air.

Dynamics of Engines.—Theory and design of governors, cams and valve gears for internal combustion engines. Crank effort and crank effort diagrams. Fly-wheels. Balancing of engines.

ELECTRICAL LABORATORY AND DRAWING

Laboratory.—Study of fuses. Measurement of low, medium and high resistances. Location of faults. Use of d.c. potentiometer. Calibration of voltmeter, ammeter, wattmeter and energy meter. Measurement of inductance and capacity by voltmeter and ammeter.

Determination of B-H curve and hysteresis loop of magnetic materials.

Open circuit and load characteristics and parallel running of d. c. generators. Efficiency test and separation of losses. Temperature rise. Starting, speed regulation and load characteristics of d.c. motors, Study of static and rotary balancers. Variation of torque with excitation and armature current. Brake test,

Drawing.—Neat dimensional sketches of parts of d. c. machinery, insulators, and pole structures for over head lines.

MACHINE DRAWING.

Assembly drawings of simple machine parts, *e.g.*, pipes and pipe joints, couplings, plumber blocks, stuffing boxes and connecting rods from detail drawings.

Drawings of riveted and other joints from design calculations.

Assembly drawings of parts of machines and engines from sketches.

WORKSHOP PRACTICE.

(Two of the four shops not done in the first year, together with the following shops.)

Foundry.—Advanced work in the foundry, such as the casting of small centrifugal pumps, cylinders of small engines, etc.,

Practice in machine moulding. Casting intricate objects. Pattern and core making.

Smithy.—Use of power hammer for drawing down, welding, forging bolts and nuts, welding heads to bolts, preparing keys and cotters. Different types of welding. Advanced work such as the forging of small crankshafts, connecting rods, hooks, spanners, etc. Acetylene welding.

Machine Shop.—Plane turning, taper turning, groove cutting, square thread (right hand), dieing, single V-thread standard bolt and nut. Double V-thread. C.I. Nut. Practice in planing machining and shaping machining involving the preparation of a small plumber block. Brass gear wheel, milling and turret lathe work.

Electrical Branch.

HEAT ENGINES.

(a) Fuels.

Solid Fuels.—Wood, charcoal, coal, coke, etc. Manufacture of charcoal. Formation, nature and source of coal. Classification of coal. Carbonisation of coal and manufacture of coke.

Liquid Fuels.—Formation, nature and source of petroleum. Distillation of petroleum and manufacture of petrol, kerosene oil, etc. Manufacture of alcohol, shale oil, benzene and Tar oils. Atomisers suitable for burning oils under boilers.

Gaseous Fuels.—Natural and blast furnace gases. Manufacture and nature of coal gas, producer gas, water gas, semi-water gas, suction gas, etc. By-product recovery plants. Surface combustion of gas under boilers.

(b) *Engines*

General.—B. H. P. I. H. P. Dynamometers. Indicators. Mechanical and thermal efficiencies.

Laws of Thermodynamics.—Laws of permanent gases. Internal energy and total heat of a gas. Entropy. Laws of thermodynamics. Adiabatic and isothermal expansion and work done during adiabatic and isothermal expansion. Carnot's cycle and conditions for maximum efficiency.

Work done in Compressing Air in Compressors—Adiabatic and isothermal compression. Methods of reducing losses. Single and multistage Air Compressors.

Internal Combustion Engines Hot Air Engines.—Combustion of gases and velocity of flame propagation. Cycles of operation of internal combustion engines. Constant volume and constant pressure addition of heat. Four stroke and two stroke engines. Effect of strength of mixtures. Ignition. Effect of advancing and retarding of ignition on efficiencies. Effect of compression on fuel economy. Constructional features of several leading types of gas, petrol, oil, Diesel, semi-Diesel and solid injection engines. Methods of governing. Stirling's engine, Ericson engine, Joule's engine.

Properties of Steam.—Generation of steam at constant pressure. Total heat. External work done. Change in the internal energy. Super-heated steam and its properties. Measurement of dryness fraction after expansion. Mollier and total heat-pressure diagrams.

Generation of Steam.—Boilers. Types of boilers, Vertical, smoke tube and water tube boilers. Super-heaters. Economiser, feed-water heaters. Air heaters. Feed pump, injectors.

Theory of the Steam Engine.—Carnot's and Rankine's cycles. Temperature-entropy diagram for Rankine's cycle. Effect of using super-heated steam. Actual indicator diagram. Wire drawing and cushioning. Initial condensation and re-evaporation. Missing quantity. Valve leakage. Steam jacket. Steam consumption. Effects of compounding on steam consumption and efficiency.

Theory of Turbines.—Flow through nozzles. Form of nozzles and blades. Function of a turbine. Impulse and reaction turbines. Compounding of turbines. Velocity and pressure compounded turbine. Cross compounded turbines. Exhaust turbines. Effects of pressure, super-heat and vacuum on efficiency. Governing of turbines.

Mechanical Refrigeration.—Properties of vapour, ammonia, carbon dioxide and sulphur dioxide. Choice of refrigerating agent. Co-efficient of performance. Cold air machine. Types of vapour compression machines. H. P. required.

Testing of power plants for efficiency.

HYDRAULIC MACHINERY.

General.—Impact of water on vanes. Work done by impact of a jet on a series of vanes fixed to a wheel. Work done expressed in terms of velocities of whirl of water entering and leaving the wheel. Jet propulsion.

Classification and Theory of Water Wheels.—Overshot, undershot, breast and Sagebien wheels. Poncelet wheel.

Classification of Turbines.—Impulse and reaction turbines. Pelton wheel. Girard turbine. Banky's turbine. Outward flow, inward flow, parallel flow and mixed flow reaction turbines. Design of turbine blades and wheels. Erection and working of turbines. Governing of turbines. Oil and water pressure governors.

Pumps.—Classification, theory and design of pumps. Force, lift and gear pumps. Air lift pumps. Centrifugal pump. Pulsometer. Humphrey's pump. Boiler feed and Worthington pumps. Hydraulic Ram. Erection and management of pumps.

Hydraulic Machines.—Hydraulic press, riveter, punching and flanging machines, crane, lift and hoist, intensifier and accumulator. Hydraulic engines and hydraulic brakes.

Hydraulic transmission of power. Joints and packing used in hydraulic work.

THEORY OF DIRECT CURRENT MACHINERY.

(Same as for Mechanical Branch.)

WORKSHOP PRACTICE.

(Two of the four shops not done in the first year, and Machine shop)

Machine Shop.—Plane turning, taper turning, groove cutting. Making square thread, right and left hand V-thread, double V-thread and standard bolt and nut. Practice in shaping and milling machines.

WORKSHOP THEORY.

Carpentry Tools.—Hand tools for cutting wood. Axe, adze, chisel, gauge, draw knife, spokeshave, jackplane, smothering plane, moulding plane, wood scraper. Saws

Boring Tools.—Bradawl, gimlet, auger, brace.

Wood Working Machine.

Fitter's Tools.—Cold and hot chisel, hammer and file. Scraping. Use of surface gauge, scribing block.

Tapping and Screwing.—Standard threads, pipe threads and gas threads. Tapping. Dieing. Details of taps and dies. Using them on steel, cast iron, brass. Drifts. Reamers.

Fitting Appurtenances.—Spanners. Chain and pipe wrench, pipe vice, clamp, etc. Screw jack and vice.

MECHANICAL LABORATORY.

Heat Engines.—Calorific value of fuels. Ash and moisture in fuels. Viscosity and flash point of fuel and lubricating oils. Lubricating quality of oils. Testing of gas, oil and Diesel engines for efficiencies.

Hydraulics.—Calibration of notches, weirs and orifices. Friction in pipes. Testing of Pelton wheel. Francis turbine, centrifugal pump, reciprocating pump, hydraulic ram, etc., for efficiency and characteristics. Testing of water meters.

MACHINE DRAWING.

Drawings from blue prints and models of some of the simple machine and engine parts, *e.g.*, pipes, pipe-joints, couplings, plumber blocks, bearings and brackets and assembled views of these.

Design and drawing of riveted and other joints.

ELECTRICAL DRAWING.

Sketches showing details of moving coil, moving iron and dynamometer instruments.

Sketches showing details of various parts of field poles, field coils, armatures, commutators and bearings of d.c. machines.

Assembly drawings from sketches of component parts of d.c. generators.

Armature winding diagrams of d.c. generators.

ELECTRICAL LABORATORY.

Study of fuses. Kelvin Balance. Measurement of voltage, current and resistance by potentiometer. Calibration of measuring instruments. Measurement of low, medium and high resistances. Measurement of inductance and capacity by bridge methods. Resonance. Location of faults. Measurement of power and energy in d.c. and a.c. circuits. Study of thermo-couples.

Determination of B-H curve and hysteresis loop. Study of leakage

Open-circuit and load characteristics of separately excited, shunt, series and compound wound generators. Parallel running of generators. Temperature rise curve. Distribution of flux in air gap with and without load.

Variation of static torque with field and armature current in d.c. motors. Load characteristics of series, shunt and compound wound motors. Speed control of motors. Brake tests on motors

Determination of efficiency of d.c. machines and separation of losses Hopkinson's test.

Study of static and rotary balancers.

Final Examination in Engineering.

Civil Branch.

IRRIGATION.

General.—Function of irrigation works and their importance. Natural facilities for irrigation in India.

Irrigation Systems.—Flow irrigation. Lift irrigation. Inundation irrigation of Upper India. Delta irrigation of South India. Comparative conditions of irrigation in the various provinces of India.

Rainfall and Run-off computations from rain gauges for calculations of yield or storage and waste weir discharges. Dicken's and Ryve's formulæ. Regulation and duty of water. Duty as realised under tanks and channels. Modules. Block system of irrigation. Financial prospects of schemes.

Reservoirs.—Isolated rain-fed tanks. Tanks in series. Tanks fed by feeder channels from rivers or streams. Losses of water by evaporation and absorption. Construction of earthen bunds, their maintenance, repairs of leaks and breaches. Tank weirs and their design and flood-absorption capacity of tanks.

Masonry Dams.—Principles of design; analytical and graphical methods. Automatic waste weir gates for dams. Stoney and other sluic gates.

Anicut.—Weirs across rivers and principles of their design. Analytical and graphical methods. Head regulators.

Canals and Rivers.—Irrigation canals in deltaic and non-deltaic country. Perennial canals. Sources of supply and general characteristics of Indian rivers. Design of the canal capacity. Alignment. Limiting velocities. Location and distribution of canal head works and cross drainage works, *viz.*, weir under-sluices, head regulators, falls, rapids, locks, aqueducts, culverts, inlets, level crossings, super-passages, escapes, cart bridges and distributors. Design of the distributary system.

Silt and Scour.—Factors influencing the nature and quantity of river silt. Measurement of quantity of silt. Quantity of silt transported to the sea by the rivers. Kennedy's silt theory. Silt deposit in reservoirs and tanks. Formation of deltas and characteristics of deltaic rivers.

WATER SUPPLY AND SANITARY ENGINEERING.

(a) *Bio-Chemistry.*

The Study of Micro-Organisms.—Methods of Cultivation and identification—ærobic and anærobic cultures. Use of Microscope. Description of species of micro-organisms important in connection with sanitation.

Bacteria.—The enteric group of organisms.

Moulds, yeasts, algae and protozoa.—General Description.

Enzymes.—General Description. Conditions of action. Classification.

Elementary principles of.—(1) Nitrification, (2) De-Nitrification, (3) Nitrogen Fixation, (4) Nitrogen cycle, (5) Sulphur cycle and (6) Carbon cycle.

Practical application of the foregoing studies.

Water—The bio-chemistry of water supply and purification. Chemical and bacteriological tests of purity of potable water. Interpretation of results.

Sewage Purification and Utilisation.—(1) Composition and methods of analysis of sewage and effluents Trade wastes. Interpretation of results.

(2) General account of changes effected during purification.

(3) Control of flies and mosquitoes as applied in sewage works.

(4) The compost

(b) *Water Supply.*

Value and Importance of Water Supply.—Development of water works. Domestic, commercial, and public requirements.

Quantity of Water.—Sources of supply. Rainfall. Evaporation and percolation. Estimation of flow of streams and ground waters.

Quality of Water.—Pollution. Water-borne diseases. Sanitary survey and conservation of catchment and basin. Water analysis. Protection of Water Supplies. Control of algæ. River pollution and its control.

Construction of Water Works.—General principles of economic construction and arrangement of the several works.

Purification of Water.—Chemical precipitation. Slow and rapid filtration. Modern methods of sterilisation and æration. Construction and maintenance of works for the above.

Pumping and Distribution.—Systems of supply. Pipes and conduits. Pumping machinery. Service reservoirs. Water towers and standpipes. Distribution systems and appliances, such as valves, hydrants and meters. Maintenance and repairs.

(c) *Sanitary Engineering, Drainage and Sewerage.*

Objects of a scheme. Surface drainage schemes for removing stagnant rain water. Underground sewerage systems and the general arrangement of the several works. Principles of design. Data to be collected. Allowance for inclusion of the foul part of the rainfall. Size, velocity, and gradients of sewers. Selection of a suitable system and evolution of a scheme. Design of the several necessary works on a sewer line.

House Drainage.—Water closets, taps, soil and other pipes, sinks, lavatories, urinals and baths.

The Sewer Line.—Laying, jointing and testing of sewers. Construction of manholes, flushing tanks, overflows, junctions, catch basins, inverted syphons, and public conveniences. Maintenance of a sewer line.

Pumping Sewage.—Pumping stations. Automatic and other types of ejectors.

Disposal of Sewage.—Treatment of sewage before disposal. Objects. Characteristics of sewage. Modern methods of treatment including diffused air and other processes. Collection and disposal of solid refuse. Screening and pulverising. Various methods of composting, utilization and disposal.

(d) *Municipal Engineering.*

Its scope and aim. Duties of a municipal engineer. Size and growth of cities. Population. The city, and its plan as determined by the streets. Design, construction and maintenance of streets, side walks, curbs, etc. Street lighting, signs and numbers. Collection and disposal of the city waste. Markets, parks cemeteries and shade trees.

(c) *Town Planning.*

General principles. Suitability of an area. Boundaries. Adaptation of design to natural features. Allocation of areas for the several classes of buildings, parks, open spaces and playgrounds. Advantages and disadvantages of private open spaces. Improvement of existing condition of cities by removing congestion. Developing garden suburbs or extensions. Beautifying of towns.

ROADS AND BRIDGES.

(a) *Roads*

Metalled Road Construction.—General economic principles of location, alignment, construction and maintenance of roads

with special regard to gradient, direction, geological considerations and drainage. Economics of highway. Types of road-ways.

Road resistances, traction and ruling gradients. Curves. Super-elevation for ordinary and motor traffic. Camber on metalled roads. Survey, design, construction and maintenance of metalled roads in plain and hilly country. Typical cross sections. Road rollers.

Road Board specifications. Traffic Census. Standard tests for various kinds of road material.

Modern Road Construction.—Camber on modern roads. Width of roads. Arterial roads and town planning. Construction and maintenance of pavements for cities.

Railway versus motor transport. Effect of wheels with steel and rubber tyres.

Types of roadways.

Hill roads, drainage and ruling gradient.

Kinds of Roadway.—Tar, bitumen, asphalt and concrete, methods of using them for road work. Specifications and methods of construction.

Wear on Roads.—Wear due to traffic. Waves and pot holes due to high speeds. Comparison of wood paving, asphalt, tar macadam and concrete. Specifications and methods of laying.

(b) Bridges.

General principles concerning the design of bridges.

Preliminary Survey.—Selection of site, location and borings.

Waterways. Determination of discharge of rivers with reference to area of watershed, and by intensity of rainfall. Depth of scour during floods.

Foundations.—Box, crate, well, pile, mass and reinforced concrete slab foundations. Cofferdams. Piers and abutments. Protection of banks and abutments during floods.

Types of Bridges.—Steel bridges and masonry arches. Rolled I-beam bridges. Plate girders and simple truss bridges of the "deck" and "through" type. Economical spans and arrangements of main girders. Systems of flooring, connection of cross to main girders, etc. Warren and simple lattice girders. General considerations in the design of suspension, cantilever, swing and steel arch bridges.

Shore protection. Revetment. Aesthetics and economy in design. Outline of span, symmetry, scale or proportion of parts.

IRRIGATION AND BRIDGE DRAWING.

The course is intended to familiarise the students with the making up of the drawings necessary in the preparation of projects

and engineering contracts and also the drawings and details requisite for the actual execution of engineering works, the usual scales for such drawings and the information to be contained in them.

Drawings from given data for works connected with bridges such as steel bridges and masonry arches, and irrigation works such as aqueducts, superpassages, syphons, drops and head regulators. Reading of Topo sheets and finding by a Planimeter the catchment areas.

STRUCTURAL DESIGN.

Masonry Structures.—Design of Gravity, Arched and Arched buttressed Dams. Design of Weirs, clear overfall and submerged. Design of domes, Rankine's theory of earth pressure, Wedge Theory. Design of Masonry Retaining walls with and without surcharge. Angles of repose for different soils. Design of arch thickness, piers, abutments.

Steel Structures.—Design of riveted joints. Wind pressures. Live and dead loads stresses. Working stresses and Factor of safety. Roof trusses, Plate girders, Perforated web girders, Bow string girders, Steel trestles.

Reinforced Concrete Structures.—General principles of Design. Design of Rectangular and 'T' section Beams, Shear Reinforcements, Floors, Parapets and Compound Walls, Retaining Walls, Square and Circular Tanks, Tanks supported on columns and allowances for wind pressure. Design of Column with Central and Eccentric Loading, Foundations of buildings and columns.

STRUCTURAL DRAWING.

Typical shop drawings of the structural frame work of steel used in buildings and other structures.

Stability diagrams of structures such as arches, retaining walls, masonry dams and piers.

Drawings relating to reinforced concrete buildings, retaining walls, arches, etc., with details.

RAILWAYS, TUNNELS AND HARBOURS.

(a) Railways.

Survey and Location.—Railroad surveys and location. Reconnaissance and principles of selection of routes. Preliminary and location surveys. Alignment details: Grades and curves including vertical and transition curves.

Construction and Operation.—Construction and maintenance of earthwork:—Formation, tunnels, and culverts for drainage.

Regulation regarding bridges and fixed structures. Permanent way. Gauge of track. Ballast, sleepers, rails, rail joints and fastenings. Laying out of the track, super-elevation and curves. Switches, crossings and turnouts. Design of station yards and sidings. Selection of station sites and approaches. Station machinery, signal systems and interlocking. Outlines of rolling stock design. Track maintenance. Renewals and repairs. Effects of curves. Wear of tyres and rails. Creep of rails.

Economics of Railroad Management.—Effect of minor and ruling grades. Use of virtual profile, humps and sags. Tractive power of locomotives. Train and other resistances. Pusher grades and balanced grades. Limit of load on wheels and weights of rails. Construction of light Railways and street Tramways.

(b) Tunnels.

Principles of Tunnel surveying and setting out; Tunnel Design. Cross section, grade, lining, shafts, and drains. Tunnel construction. Headings, enlargements, different methods of construction, ventilation, portals and Tunnel lining.

(c) Harbours.

General principles governing the design of Harbours. Effects of natural forces; tides, currents, fetch, exposure and wave power. Considerations affecting the general design of natural and artificial Harbours. Design and construction of break-waters. Signals buoys, Light-houses and illumination dry and wet docks. Slips. Drainage of Harbours.

TESTING OF MATERIALS LABORATORY.

Materials Testing Laboratory.—This course is given in conjunction with the course on structural design and includes practical tests to determine the physical properties of materials of construction.

Simple tests for limes, cements, mortars and road materials. Tests for specific gravity, porosity, elasticity, adhesion, absorption of water, hardness, abrasion, crushing strength, solubility, and weathering properties of various building stones, and bricks. Experiments for crushing strength of various kinds of stone and brick masonry.

Tests for presence of loam, clay and impurities in sand. Void tests. Sieve analysis.

Limes, Mortars and Cements.—Simple tests for specific gravity, strength under tension, compression, adhesion and shear for various proportions and for different periods of setting. Tests

on cements as per British Standard Specifications. Mortar yield for different proportions of mixtures.

Concrete.—Study of the materials used in plain and reinforced concrete. The selection of proper aggregates, their treatment for various purposes and methods of proportioning. Tests for compressive strength and modulus of rupture. Study of water-cement ratio. Slump tests.

Slab Testing.—Testing slabs of reinforced concrete, reinforced hollow brick and reinforced brick for deflection over spans of 8 to 12 feet.

Road Materials.—Testing road materials for toughness; cementation, abrasion and attrition. Grading of material and void tests.

Road Surfacing Materials—Testing tar, bitumen and asphalt for penetration, flash point and solubility.

HYDRAULICS LABORATORY

This course is given in conjunction with the course in irrigation, and includes practical tests and experiments to determine various co-efficients of discharge for irrigation modules, weirs, etc.

Notches.—Calibration of V-notches of 30°, 45°, 60° and 90° Rectangular notch and Cippoletti weir.

Orifices and Adjutages—(i) Determination of co-efficients of discharge, contraction and velocity for a circular orifice.

(ii) Time of emptying a rectangular reservoir through a circular orifice.

(iii) Determination of co-efficients of discharge through mouth-pieces of different shapes and different ratios of diameter to length, including the re-entrant type.

Irrigation Modules, Spillways for Water Works and Sluices.—(i) Gibb Module. Quantity tests to determine modular range and minimum loss of head calculations.

(ii) Ordinary Syphon. Determination of the priming depth crest. Discharge curves for various heads. Effect of raising the downstream lip (on discharge).

(iii) Standing wave flumes :—Quantitative tests to obtain formula for discharge. Determination of the co-efficient and velocity of approach.

(iv) Determination of discharge co-efficient through circular and square barrels with tapered plug openings.

Broad Crested Weirs (Experiments Conducted on Scale Models).—Determination of co-efficients of discharge over (a) straight, (b) convex and (c) concave weirs.

Experiments on scale models of the rapid and ogee types of weirs, to determine co-efficients of discharge.

Other Measuring Devices—(i) Hook gauge. Study of the construction and use of the instrument.

(ii) Pitot meter. Study of the construction and use of the instrument in determining the velocities of flowing streams

(iii) Venturimeter. Study of the construction and use of the instrument in measuring discharges. Determination of the constant for the instrument and the discharge equation.

(iv) Current meters. Study of the construction and use of the instrument.

ESTIMATING, SPECIFICATION AND ENGINEERING ECONOMICS.

General.—Methods of taking out and scheduling quantities and costs for engineering works of various kinds, such as buildings, culverts, bridges, sluices, waste weirs and irrigation works including reinforced concrete and steel structures. Drawing up specifications in regard to the qualities of materials and tests. General principles for working out the costs of the several items in an estimate.

Departmental procedure. Drawing up of departmental reports and tenders.

Earthwork.—Determination of classified quantities in excavations. Prismoidal and curvature corrections. Volumes by spot levels and contours. Mass diagrams. Calculation of haul and overhaul. Lift and lead.

Contracts.—General conditions of contract and their bearing on the responsibilities of the engineer, contractors and the principals.

Engineering Economics.—Fundamental economic principles. Cost of Engineering service. Economic Selection.

Valuation and Depreciation and ratio of depreciation

Elements of Accounting.—Double entry. Assets and Liabilities. Goodwill. Financial statements. Balance sheets. Valuation. Depreciation, Profit and Loss.

Business Administration.—Equipment, organisation and management.

SURVEYING—THEORY AND PRACTICE.

Surveying instruments:—The Zeiss and Precision Levels, the Tacheometer and Photo-Theodolite.

Errors in surveying. Principle of the method of least squares. Probable errors. Survey adjustments and geodetic computations.

Triangulation and trigonometric levelling. Major and minor triangulation and finding of heights and distances. Errors in such surveys and their elimination. Adjustment and calculation of direction. Figure of the Earth.

Underground Surveying.—Tunnel and mine surveys. Connection of surface and underground surveys. Instruments used and methods of using them.

Hydrographical Surveying.—Scope. The tides and tide gauges. Shore line surveys. Methods of sounding. Surveys of tidal currents. Stream measurement.

Geodetic Astronomy and Astronomical Surveying.—Spherical triangles and their elementary properties. Astronomical terms used. The Nautical Almanac. Instruments used:—the prismatic astrolabe and the solar attachment. Determination of time meridian, latitude and longitude.

Curves.—Vertical and transition curves. Compound and reverse curves. Diversions.

Project Surveying.—A special project survey should be undertaken during the final year course and the necessary records, calculations and plans submitted.

MECHANICAL BRANCH.

HEAT ENGINES.

Properties of Steam.—Properties of wet and superheated steam and vapours. Total heat, external work done, internal energy. Calendar's experiments and equations. Throttling. Entropy, entropy-temperature chart, Moller chart, total heat pressure diagram. Calculations of dryness fraction, total heat and available heat drop.

Steam Engines.—History of early types of engines. New-common engine. Watt's principles. Expansive working of steam. Watt's engines. Rankine cycle. Efficiency of engine working on Rankine's cycle. Effect of clearance and cushioning on efficiency. Effect of using superheated steam. Losses in actual engine due to wire-drawing, etc. Steam jacketing. Methods of reducing losses. Advantages of compounding and multiple expansion. Ratio of cylinder volumes. Effect of receiver. Indicator card and diagram factor.

Turbines.—Heat drop. Velocity of steam at throat and exit of nozzles. Nozzle designs. Injectors. Design of nozzles for impulse turbine. Compounding of impulse turbine. Velocity compounded, pressure compounded, velocity and pressure compounded, and cross compound turbines. Reaction turbines. Parson's Jungstrom and other types. Design of blades and drums

Condensers.—Heat transmission through flat plates and tubes. Effect of vacuum on efficiency of engines and turbines. Construction and maintenance of several types of condensers. Jet, barometric, ejector and surface condenser. Air pumps. Vacuum augmenter.

Boilers.—Efficiency of flat plates. Construction of boilers. Types of boilers—Lancashire, Cornish, Babcock and Wilcox, Sterling, Yarrow, locomotive, portable, marine and vertical boilers.

Stokers.—Mechanical stokers and other auxiliaries.

Governing of Engines.—Several types of governors Throttling and cut-off governors for engines and turbines.

Valve Gears.—D-slide, piston, Corliss, drop, Allen, Mayer's expansion and other valves.

Valve Diagrams.—Piston displacement curves. Rectangular, Oval, Reuleaux, Zeuner, Bilgram diagrams.

Link Motions.—Stephenson, Gooch, and other link motion gears.

Radial Valve Gears.—Hackworth, Joy's, Marshall and other valve gears.

Testing of engines, boilers, etc.

Mechanical Refrigeration.—Properties of vapour, ammonia, carbon-dioxide and sulphur-dioxide. Choice of a refrigerating agent. Co-efficient of performance. Cold air machine. Types of vapour compression machine. Horse power required. Design and erection of cold storage rooms and refrigeration plant.

Testing.—Testing of fuels, power plants, air compressors and refrigerators.

HYDRAULIC ENGINEERING

Power Generation.—Brief history of water power development. Impact of water on vanes. Impact of water on a vane when the directions of the motion of the vane and the jet are not parallel. Conditions which the vanes of hydraulic machines should satisfy. Work done on a series of vanes fixed to a wheel, expressed in terms of the velocities of whirl of the water entering and leaving the wheel. The propulsion of ships by jets of water.

Water Wheels.—Classification and theory of water wheels.

Turbines.—Classification and theory of turbines. Reaction turbines. Outward flow, mixed flow, inward flow and parallel flow turbines. Impulse wheels. Girard turbine and Pelton wheel. Banky's turbine. Design of turbine blades, rotors and casings. Regulation of turbines. Oil and water pressure governors. Erection and working of turbines.

Pumps.—Classification and theory of pumps. Centrifugal pump, reciprocating pump, boiler feed pump, Worthington high duty pump, pulsometer pump, Humphrey's internal combustion pump, air lift pump, and gear pump. Design of blades, rotors and casings of centrifugal pumps. Design of simple force and other pumps. Erection and management of pumps.

Hydraulic Machines.—Forging press. Hydraulic press. Ram. Hydraulic riveter. Hydraulic lifts. Cranes. Double Power Cranes. Hydraulic engines.

Hydraulic Transmission of Power.—Simple, differential and air accumulators. Hydraulic and steam Intensifiers. Hydraulic water mains. Transmission of hydraulic power in mains. Losses and efficiency in hydraulic power transmission. Joints and packings used in Hydraulic work.

WATER SUPPLY.

Value and Importance of Water Supply.—Development of water works. Domestic, Commercial and Public requirements.

Quantity of Water.—Sources of supply. Rainfall. Evaporation and percolation. Estimation of flow of streams and ground waters.

Quality of Water.—Pollution. Water-borne diseases. Sanitary survey and conservation of catchment area and basin. Water analysis

Construction of Water Works.—General principles of economic construction and arrangements of the several works.

Purification of Water.—Chemical precipitation. Slow and rapid filtration. Modern method of sterilisation and aeration. Construction and maintenance of works for the above.

Pumps, Pumping and Distribution.—Design of blades, motors and casings of Centrifugal pumps, Design of simple force and other pumps; Air Vessels

Systems of supply. Pipes and conduits. Service reservoirs, water towers and standpipes Distribution systems and appliances, such as valves, hydrants, etc., Maintenance and repairs.

POWER PLANT ENGINEERING.

Economics of Power Generation.—Choice of power plant. Comparative data and special features of various types of power plant. Capital and operating costs of different kinds of power plant. Factors influencing the location of power plant in relation to other equipment of factories.

Thermal Power Plants.—Small oil and gas engine stations for factory and town electrification schemes. Location. Type, size and number of units. Lay-out. Oil and cooling water systems. Switchgear and diagram of connections

Steam power stations. Location. Type, size and number of units. Lay-out of turbine or engine, boiler and switch houses. Coal and ash-handling plant. Principles of boilerhouse operation. Auxiliaries and auxiliary supply. Design of flues and chimneys.

Hydro-Electric Plants.—Hydrometric survey. Rainfall and run-off Flood discharge, storage and pondage. Hydrographs and mass curves. Carry-over calculations. Types of dams,

canals, flumes and tunnels. Systems of penstocks. Stresses in pipes. Types of pipes and pipe joints. Economic design of pipe line. Pipe track and supports. Anchor blocks, water hammer and surge tanks. Intakes, gates and valves.

Location and lay-out of hydro-electric stations. Type, size and number of units.

Transmission of Power.—Comparative costs and working data of various modes of power transmission and their special adaptabilities. Conveyors, elevators, travelling cranes, ropeways, runaways, hoists, etc.

(Lay-out drawings for an internal combustion engine station, a steam station and a hydro-electric station will be carried out as college exercises and class record marks only will be allotted for these.)

MECHANICAL LABORATORY—I

(*Fuel and Heat Engines.*)

Fuels.—Calorific values of solid, liquid and gaseous fuels. Ash and moisture in coal and oils. Viscosity. Flash point.

Heat Engines.—Mechanical equivalent of heat. Efficiency tests on oil, Gas and Diesel engines. Air compressors. Compressed air and gas meters. Testing of pressure and vacuum gauges and indicator springs, and calibrating them.

Steam Engines.—Testing of boilers and simple engines, Meyer's expansion valve engine, Bellis and Morcom high speed engine, (condensing, and non-condensing) and Curtis turbines, pulsometer, injector, ejector, steam pumps and steam meters. Testing of vapour compression refrigerating machines.

THEORY AND DESIGN OF MACHINES.

Kinematics.

Links and Chains.—Quadric cycle chain. Slider crank chain. Virtual centres. Centrodes. Relative linear and angular velocity. Displacement, velocity and acceleration diagrams. Klein's, Bennet's and Ritterhaus's construction. Pantograph. Straight line motion and indicated mechanism.

Dynamics of Machines.—Forces involved in the moving parts of machinery. Graphical and analytical methods of determining accelerating forces.

Statistics of Machine.—Conditions for static equilibrium of Machine.

Gyroscopic Action.

Design of Machine Parts.—(a) Swivel, thrust, footstep, crank-shaft, ball, roller and axle-box bearings. Pedestals, hangers, brackets and wall-boxes.

(b) Design of couplings, friction clutches and brakes.

(c) Special forms of toothed wheels.—Spiral and worm gear and bevel gearing.

(d) Transmission of power by wire-ropes, chain drives and screws.

(e) Design of hoisting gears like chain blocks, pulley blocks, etc.

(f) General principles of design of high speed shaft.

(g) Design of simple machine tool parts—parts of lathes, free analysis in friction and toggle presses, etc.

Design of High Speed Shafts.—Whirling of shafts. Critical speed of shafts for centrifugal pumps and steam turbines. Discs and impellers. Thrust blocks for high speed shafts and propellers.

Design of Steel and Iron Tanks.

Design of Engine Parts.—Design of pistons and piston rods, connecting rods, cross heads and slides, engine eccentrics, stuffing boxes and glands.

Design of Boiler Parts.—Boiler shells, flues and tubes, man-holes, safety valves, blow-offs, furnaces.

Design and construction of high pressure and vacuum vessels for service in the industries. Brief description of pipes, valves and fittings used.

ESTIMATING, SPECIFICATION AND ENGINEERING ECONOMICS.

Costs of Simple Machines.—Estimating of costs of simple machines like the drilling and slotting machines, simple presses, pumps, etc., steel framed structures, stagings, elevated tanks, columns and trusses for the various engineering shops.

Costs of Small Shops.—Estimating of costs of shops with shafting, countershafting, belting, pulleys, bearings, small machine tools, engine or motor drives, and the building.

Cost of Pipe-laying and Jointing.—Estimating of cost of rising and distribution mains of cast iron, riveted or spigot and socket pipes of steel, and for galvanised iron, water piping, gas pipe work, etc.

Specification of some of the more important construction work, e.g., boiler work, structural work and castings.

Method of drawing up reports, tenders contracts, etc., for engineering works.

Engineering Economics—Costs and cost-keeping. Methods of framing costs in the various shops. Materials. Direct and indirect charges.

Methods of valuation of plants, salvage and scrap values.

Wages.—Piecework, task work, bonus, etc. Systems of payment. Time-keeping.

Stores and stores management.

General principles of Factory, Boiler and Workmen Compensation Acts and the Law of Contracts.

MACHINE DRAWING.

Preparation of assembly drawings of machines and Engine parts from sketches.

More advanced practice in drafting work. Assembly draw, ings of machines and engines from drawings of their parts. Shop drawings of parts of engines and machines from the assembly drawings or design calculations.

MECHANICAL LABORATORY—II.

Hydraulic Machinery and Testing of Materials.

Testing of Materials.—Testing of foundry sands, cements, metallurgical examination of metals, etc.

Lubricants.—Tests for viscosity, flash point, carbon residue, moisture and lubricating qualities of cylinder and bearing oils.

Hydraulics.—Calibration of notches, weirs, horizontal and submerged orifices. Co-efficients of discharge, contraction and velocity for different orifices. Friction in pipes. Testing of pipes and meters.

Hydraulics.—Tests on reciprocating and centrifugal pumps and hydraulic ram. Impact of jet on vane. Reaction of jet. Testing of Pelton wheel, Francis turbine and axial flow turbine. Testing of various types of water meters.

STRUCTURAL DESIGN.

(Same as for Civil Branch).

THEORY OF A. C. MACHINERY.

Transformers.—Types. Mechanical construction. Flux and e.m.f. Voltage and current ratios. Vector diagram. Equivalent circuit. Open and short circuit tests for determining the transformer constants. Regulation. Effect on regulation of the constants of transformer and load power factor. Parallel operation. All day efficiency. Heating of transformers and cooling methods. Instrument transformers. Constant current transformers. Auto-transformers. Three-phase transformers.

A.C. Generators.—E.M.F. calculation. Three-phase stator windings, types and connections. Advantages of star connection. Armature reaction and synchronous reactance. Vector diagram. Regulation. Pre-determination. Synchronising methods. Synchroscope. Parallel operation. Load division. Effect of speed regulation on the sharing of load!

Synchronous Motors.—Theory and working. Variation of stator current and its power factor with field excitation. V-curves. Instability and hunting. Amortisseur windings. Starting and running. Synchronous condensers and power factor correction.

Rectifiers.—Rotary converters and Motor-generator sets. Comparison. General action. Winding connection in bipolar and multipolar rotary converters. Voltage and current ratios. Comparison of the same machine used as d.c. and a.c. generator. Voltage regulation. Parallel operation. Racing of inverted rotary. Starting.

Mercury Arc Rectifiers.—Principles and features of construction. Efficiency.

Induction Motor.—Theory of the polyphase motor. Slip. Squirrel cage and phase wound rotors. Starting torque. Effect of change of frequency and voltage on its performance. Starting methods. Speed control and power factor correction.

A.C. Commutator Motor.—Principles, operation and use of compensated and uncompensated series and repulsion motors. Application.

ELECTRICAL LABORATORY.

Charge and discharge curves of storage cells.

Measurement of candle power of various sources of illumination.

Polarity, ratio, open-circuit, short-circuit, regulation, efficiency, Sumpner and dielectric tests on transformer. Separation of core losses. Parallel operation of transformers. Wave shape of magnetising current. Dielectric test on transformer oil.

Open and short circuit test on alternators. Load test and determination of regulation with varying p.f. of load. Synchronising. Parallel operation. Determination of V-curves of synchronous motor at various loads.

No load and load tests on induction motor. Measurement of slip. Speed control by resistance, cascade and Scherbius methods.

Voltage and current ratios in rotary converters. Wave shape of currents. Voltage regulation.

Load tests on other kinds of a.c. motors.

ELECTRICAL BRANCH.

GENERATION AND HYDRO-ELECTRIC ENGINEERING.

Hydrometric survey. Rainfall and run-off. Flood discharge. Storage and pondage. Hydrographs and mass curves. Carry-over calculations. Types of dams. Canals, flumes, and tunnels. Silting. System of pipe lines and penstocks. Stresses in pipes.

Types of pipes and joints. Economic design of pipe line. Pipe track and supports. Anchor blocks. Water hammer and surge tanks. Intakes, gates and valves.

Hydro-Electric Stations.—Lay out of turbines and auxiliaries.

Thermal Stations.—Lay out of units and auxiliaries.

Electrical equipment of large power stations. Systems of excitation and main connections. Remote control. Relay protection. Overload, leakage, balanced and distance relays. Circuit breakers. Open type, metal clad and compound-filled switchgear. Current limiting reactors. Calculation of short-circuit currents. Equipment and lay-out of step-up sub-station. High tension switchgear. Earthing. Receiving Stations and Sub-stations.

TRANSMISSION AND DISTRIBUTION

Transmission Lines.—Preliminary investigation. Standard voltages. Choice of route, system of transmission, frequency, voltage, material, size and arrangement of conductors. Corona. Calculation of reactance drop and capacity current. Effect of capacity. Solution of short and long lines. Merson and Dwight charts. Split, middle and three condenser methods. Dwight's K-Formulas. Regid Solution. Use of synchronous condenser for power factor correction and voltage regulation. Circle diagram. Insulators. Lightning protective equipment. Inductive interference. Transposition.

Calculation of sag and economic span. Loads on supports. Types of towers and cross arms. Design of supports. Clearance diagrams. Location of towers.

Types of cable and their construction. Heating, capacity and voltage stress in cables.

Relays—Carrier current—distance relay. Induction type relay.

Distribution Networks.—Position of central station and feeding points. Choice and lay-out of distribution system. Estimation of load. Comparison of d.c. and a.c. systems. Voltage drop and power loss. Design of feeders. Kelvin's Law. Design of distributors. Series and parallel systems of street lighting. Design of outdoor distribution sub-stations. Important features of larger distribution schemes. Calculation of networks.

Economics of different systems of transmission and distribution. Effect of load power factor and charging current on the economics of transmission line—overhead and underground systems.

TRACTION AND COMMUNICATION.

Traction.—Direct current, single phase, three phase and split phase systems. Line and track construction. Current

collection. Characteristics of traction motors. Control gear. Locomotive, motor coach and multiple unit trains.—Mechanics of train movement. Energy and speed-time calculations. Regenerative braking. Motor-generator, Motor-converter, rotary-converter and mercury arc rectifier sub-stations. Battery locomotives. Diesel electric traction.

Communication.—Principles of thermionic valves and their uses as amplifier, rectifier and oscillator.

Principles, theory and working of wireless receiver sets, Principles of radio broadcasting.

Telephony and Telegraphy.

The principles and construction of transmitters, receivers, repeat coils, impedance coils, jacks, cords, plugs, relays, magneto-bells, magneto-generators, subscribers instruments, etc.

Simple system of telephony including private systems such as those used in railways, power transmission systems, large establishments, etc. Automatic telephony: Line switch, pre-selector, group selection, tone arrangements, etc. Trunk working. Large exchange areas. Noise and cross talk: Transposition of conductors. Cables.

Carrier current system of telephony including channel carriers and repeaters.

Simple systems of manual telegraphy including single and double current duplex central battery telegraph systems.

ESTIMATING, SPECIFICATION AND ENGINEERING ECONOMICS.

General Principles.—Capital cost and annual charges. Principles of economic design of engineering works.

Power Production.—Comparison between cost of generation in oil, steam and hydro electric stations. Comparison between various types of steam plant. Effect of load factor on cost of generation. Combined steam and hydro-electric plants. Base and peak load generation. Advantages of group generation. super-power and transmission bus. Dependence of capital cost on system of connections and standard of service required.

Transmission and Distribution.—Load Survey. Effect of voltage on cost of transmission. Voltage as a function of load and distance of transmission. Power factor correction and its economic limit. Coal transport *versus* electrical transmission. Duplicate lines and ring mains. Cheap tapplings for H.T. lines.

Town Electrification Schemes.—License for power supply. Safeguards for the licensee and the public. Local generation *versus* bulk supply. Advantages of group generation for neighbouring towns. Estimating of loads.

Tariffs.—Different systems of tariffs and their comparative merits. Effect of diversity factor, load factor, power factor.

Means of improving load factor of systems. Rational rates for different classes of loads.

Factory Electrification.—Local generation and purchase from supply company. Individual and group drives.

Principles of Electricity Act and Rules, Law of Contracts Workmen's Compensation law.

(In addition to the above, estimates of a transmission line and a distribution net-work will be carried out as college exercises. Class record marks only will be allotted for this work).

THEORY OF ALTERNATING CURRENT MACHINERY.

Transformer.—Types. Mechanical construction. Main and leakage flux. Relation between flux and e.m.f. Voltage and current ratios. Vector diagram Equivalent circuit. No load and load conditions Regulation. Effect of resistance, leakage reactance, magnetising current and load power factor. Kapp's circle diagram. Parallel operation. Mechanical forces on short-circuit All-day efficiency Temperature rise and cooling of transformers. Shape of magnetising current wave and its components. Distorted voltage and flux waves and their effect on hysteresis and eddy current losses. Current rushes on switching. Instrument transformers. Constant current transformers. Auto-transformers. Three-phase transformers.

Triple frequency voltage with different connections.

Alternator.—Calculation of e.m.f. Effect of form factor, distribution factor and coil pitch factor. Tooth ripples and harmonics in voltage wave. Single-phase alternator, disadvantages. Types of three-phase armature windings and connections. Advantage of star connection. Production of rotating field by armature currents Armature reaction and leakage reactance. Vector diagram. Methods of predetermining regulation. Synchronising and synchroscopes. Alternators in parallel. Effect of variation of excitation and driving power. Effect of speed regulation on sharing of load. Short-circuit of alternators.

Synchronous Motor.—Nature of torque. Vector diagrams. Variation of current and power with excitation and angle of displacement. Locus diagram. V-curves. Instability. Hunting Amortisseurs. Self-starting of synchronous motor. Synchronous condenser. Economic limit of power factor correction.

Rectifiers—Rotary converter. Comparison with motor-generator set. General action. Connections in two and multipole rotaries. Voltage and current ratios. Shape of current wave. Heating and capacity. Comparison with same machine used as d.c. and a.c. generator. Methods of supplying 3, 6 and 12 phase rotaries. Voltage regulation. Parallel operation. Racing of inverted rotary. Starting.

Mercury Arc Rectifier.—General principle and constructional features. Efficiency. Action of control grids.

Induction Motor.—Theory of polyphase induction motor. Slip. Squirrel cage and phase wound motor. Variation of e.m.f. current, torque and power with slip. Variation of torque with slip, stator and rotor resistance. Starting torque. Crawling Equivalent circuit. Circle diagram. Effect of change of frequency, voltage and air gap on performance characteristics. Starting methods. Speed control and power factor correction. Phase advancer. Cascade running. Induction motor as generator.

Theory and performance of single-phase induction motor; Comparison with polyphase motor. Methods of starting.

A.C. Commutator Motors—Principles, operation and uses of uncompensated and compensated series and repulsion motors. Theory and applications.

ELECTRICAL MACHINE DESIGN

Insulating Materials—Types and uses.

D. C. Machines.

Armature.—Output equation diameter and length of armature. magnetic and electric loading.

Design of poles, yoke and commutator.

Details of construction.

Transformer.

Procedure in Design.—Output equation. Core type and shell type.

Details of construction.

Alternator.

Output equation, diameter and length of armature. Variation of armature length with a given diameter. Effect of number of poles on the relation between diameter and length of armature.

Field system. Procedure in design.

Calculation of saturation curves.

Details of construction.

Polyphase Induction Motor.

Construction of stator and rotor. Output equation. Diameter and length of stator. Design of wound rotor and squirrel cage rotors. Effect of variation in voltage and frequency on the operation.

ELECTRICAL DRAWING.

Sketches showing details of outdoor and station type oil circuit breakers, oil-filled and condenser type bushings and pin and suspension insulators.

Sketches showing—

(a) details of stators, rotors and slip-ring mountings of a.c. generators and motors.

(b) core, windings, insulation and general arrangement of self, water and forced oil cooled transformers.

Assembly drawings from sketches of component parts of alternator and distribution transformer.

Diagrams of connections of main circuits of power stations.

Lay-out of out-door distribution sub-station and pole structures.

ELECTRICAL PROJECT DRAWING.

Designs of a distribution scheme, a high-tension transmission line, lay-out of a high tension receiving station and a hydro-electric project will be carried out.

ELECTRICAL LABORATORY

Study of lead and Edison cells. Determination of charge and discharge curves, capacity and efficiency.

Photometric tests on various types of lamps. Study of the effect of globes and reflectors. Variation of candle-power and efficiency with voltage.

Polarity, ratio, open-circuit, short-circuit, load Sumpner and dielectric tests on transformers. Wave shape of current on load and no load. Variation of core losses with varying voltage and frequency. Separation of iron losses. Parallel operation of transformers. B. D. V. of transformer oil; effect of moisture on B. D. V. Calibration of instrument transformers.

Open-circuit and short-circuit tests on alternators. Separation into armature reaction and leakage reactance, and predetermination of regulation. Determination of efficiency and regulation by load test. Wave shapes of alternators on open-circuit and on load. Variation of reactance with position of rotor. Synchronising and parallel operation of alternators. Effect of variation of excitation, phase and driving power.

V-curves synchronous motors at various loads.

Voltage and current ratios in rotary converters. Wave shapes of d.c., a.c., and armature currents. Voltage regulation. Effect of variation of field on d.c., volts and a.c. current.

Running light and locked rotor tests on induction motor. Circle diagram and predetermination of performance. Load test, Measurement of b.h.p., slip, efficiency and power factor.

Induction motor as generator. Speed control by resistance, cascade and Scherbius methods. Single-phase induction motor.

Load and efficiency tests on other types of motors.

Calibration of energy meters and relays.

A.C. potentiometer., Oscillograph and Ondograph.

STRUCTURAL DESIGN.

Masonry Structures.—Design of gravity, Arched and Arched buttressed Dams.

Steel Structures.— Design of riveted joints, Wind pressures, Live and Dead load stresses, Working stresses and Factor of safety, Roof trusses, Plate girders, Perforated web girders, Bow-string girders, Steel trestles.

Reinforced Concrete Structures.— General principles of Design, Design of Rectangular and 'T' section Beams, Shear Reinforcements, Floors, Parapets and Compound Walls, Retaining Walls, Square and Circular Tanks, Tanks supported on columns and allowances for wind pressure, Design of Columns with central and eccentric loading. Foundation of buildings and columns.

MECHANICAL LABORATORY.

Steam Plant.—Testing of boilers, simple and compound steam engines, steam pumps, pulsometer, injector, ejector and steam turbines.

Testing of vapour compression refrigerating machines.

Internal Combustion Engines.—Testing of Gas Oil and Diesel Engines for efficiencies.

Hydraulic Machinery.—Pelton wheel, Francis Turbine Centrifugal pump, Reciprocating pump, Hydraulic ram, etc., for efficiency and characteristics.

IV. CHEMICAL ENGINEERING BRANCH.

DETAILED SYLLABUS IN CHEMICAL ENGINEERING.

First and Second Years.

As per existing syllabus for Civil, Mechanical and Electrical Engineering except for survey practice.

Third Year.

(1) Applied Mechanics, Graphic Statics, etc.

(2) Applied Thermodynamics—

(a) Fuels: Same as for Mechanical. Thermodynamics of Combustion processes and similar reactions.

Temperature measurement and scientific control of combustion. Sampling and proximate analysis of coal.

The carbonisation assay of coal.

- (b) Power Production: Same as for Electrical (S. E.)
- (c) Heat transmission: Mechanism of heat transfer by conduction, radiation and convection. Fourier series applied to heating and cooling of solid bodies and of fluids in stream line flow. Condensation of vapours: effect of non-condensable gas. Radiation from surfaces and flames. Effect of nature of materis and boundary films of liquids and gases and heat transmission and its relation to fluid friction. Design of heat exchangers, recuperators, condensers, tube banks and coils. Heat conservation and insulation.
- (3) D. C. Machines.
- (4) Machine Drawing as for Mechanical and Electricals.
- (5) Advanced General Chemistry.
 - (a) Colloids.
 - (b) Physico-chemical calculations. Stoichoimetrical calculations as an aid to the construction of heat and material balances.
- (6) Organic Chemistry. Details to be drawn up later.

Final Year.

1. Hydraulic Machinery, 2. Structural Design, 3. Mechanical Laboratory—Same as for Mechanicals, 4. Applied Organic Chemistry.

(5) Chemical Engineering—

- (a) Materials of construction: iron, steel, alloy steels, chemical cast iron, lead, copper, tin, zinc, nickel, silver, timber, cements and lutes.

Chemical pottery and stoneware.

Corrosion, special materials used in the construction of chemical plant.

Materials used in transportation.

Reractories.

- (b) Metallography—

Lecture and practical work dealing with the preparation of metallic specimens for microscopical examination and the properties of the more important alloys.

- (c) The Flow of Fluids: the Chemical Engineering aspect of Fluid Flow problems in the light of modern research. The economic design of pipe

lines and the calculation of power requirements. Modern pumping equipment for chemical liquid and gases, including compressors and vacuum pumps. Standard methods for the continuous measurements of the flow of fluids.

(d) The handling of solids :

The principles of Mechanical handling, types of equipment for handling solid materials in bulk.

- (7) Construction and Design of Chemical Plant—An introduction to the subject of plant design, taken in conjunction with work in the drawing office. The design and fabrication of low, medium, and high pressure equipment of the type required, in modern chemical industry.

Unit types of chemical plant: The basic processes of Chemical Industry treated from the point of view of the fundamental physical and physico-chemical laws which control them. Application of these laws to the design of the plant units for the operation and the efficiency of operation. The processes dealt with will be selected from the following: Crushing and grinding, evaporation, crystallisation, the separation of liquids and solids, gas cleaning and absorption, mechanical and electrical separation processes. The principal types of plant in industrial use, and the theory and efficiency of their operation, will be dealt with in each case.

(8) Economics of Chemical Industry—

Introductory: Elementary notions regarding economic concepts. Production, Value, Exchange, Distribution, Money. An outline of the economic organization of India with special reference to industries. Industrial possibilities and problems of the Bombay Presidency.

Business organization and Finance. Business units. Partnerships and companies. Raising of capital in different forms and their peculiarities. Loans. Managing agency system. Overtrading.

Industrial Organisation: Planning of work and control of production. The problem accentuated by modern developments. Recent attempts at solution. Combines and trusts, Works organization and management. Departmental and functional organisation, Selection of employees, Training, Planning, Graphical and Statistical control, Purchasing and stores organisation, Marketing arrangements.

Policy of discriminating protection of Industrial progress in India. Legislation affecting the chemical industry.

Industrial Relations : Influence of type of business on relationships, Factory legislation, Inspection of factories, Improvement of factory conditions, Welfare work, Statutory and voluntary schemes, their spheres and limits, Accident prevention, Occupational diseases, "Safety First" movement, Training and educational schemes in the factory, Works magazines, Trade Unions and Employers' Associations, Methods and spheres of schemes of joint consultation, Strikes and lockouts, Arbitration.

Costing and Estimating. Items involved in the cost of production. Preparation of flow sheets (material, energy, time). Determination of cost of plant from plans and specifications. Land, Roads, Fencing, Offices, Capital charges. Depreciation, Interest Amortisation, Cost of raw materials, Cost of labour of various kinds.

Supervision Charges : Services, gas, water, power, steam, stores, repairs, rates, taxes, insurance, value of by-products, General overhead charges. Packing charges, Transportation charges, Selling charges, Margin of profit on the capital expended.

- (9) **Treatment of Materials :** Size reduction, crushing, disintegrating, wet and dry grinding, Output, power input work and done in size reduction. Mixing, agitating and homogenising. Mechanical, hydraulic, air, electrostatic and electromagnetic separation; Flotation, sedimentation and filtration. Filter media, Filtration plant, Theory of filtration. Theory and practice of centrifugal machines, Dust and tar extraction, Leaching and extracting. Continuous and counter current extraction, Handling of inflammable solvents, Evaporation, Entrainment and its prevention, Rate of evaporation, Consumption of heat, Multiple effect evaporation, Evaporation under reduced pressure, Efficiency of evaporators, Distillation and condensation, Theory and practice of fractional distillation, Continuous and batch distillations, Crystallisation, Drying of solids and liquids, Humidification and dehumidification of gases, Absorption, Purification of gases.

Practical Training.—Twelve months, a part of which should be taken during the vacations at the end of the second and third years and the rest after the first year's course, provided that no period shall be less than six weeks in duration.

GENERAL—COMMON TO ALL BRANCHES.

ELEMENTS OF PHOTOGRAPHY.

Manipulation of cameras. Focussing. Loading and unloading of films and plates. Exterior and interior views. Time and instantaneous exposures. Development of films and plates. Printing and toning of p. o. p. and bromide papers. Glazing, trimming and mounting. Preparation of lantern slides.

PHYSICAL EDUCATION.

Physical Education or Gams is compulsory for all the students. The programme of work is so graded as to provide opportunities for the development of personality including the development of skill and nuero-muscular co-ordination. Seventy-five per cent of attendance is necessary, due credit being given to members of teams for time spent on practice.

Facilities are provided for the following :—

A. NATURAL ACTIVITIES.

1. *Self-testing Activities*.—Athetic type and Tumbling type. Individual efficiency tests and standard tests, motor skill tests.

2. *Major Games*.—Cricket, Foot-ball, Hockey, Basket-ball, Volley-ball, Tennis and playground ball.

3. *Lead up Games*.—Captain-ball, Touch-Foot-ball, Speed-ball, End-ball, Hyderabad ball, Boot-ball and various other small area games, which involve the fundamentals of major games.

4. *Minor Games*.—Group competitions, tag games, mass games, Relay races, circle games and fundamentals of tumbling.

5. *Indigenous Games*.—Chedugadu, Kho-Kho, Atyapat.

6. *Rhythmics*.—Gymnastic Dancing and Folk Dancing.

7. Track and Field athletics including Inter-Collegiate and Intramurals.

8 *Combatives*.—Wrestling and Boxing.

B. FORMAL ACTIVITIES.

1. *Calesthenics*.—(a) Special corrective exercises are given to those with remediable defects.

(b) Special attention and activities for those who are sub-normal.

2. *Indigenous Exercises common to India*.—(a) Ordinary Dhundal. Leg-circle Dhundal. Turning Dhundal. Frog Dhundal. Alternate Limb Dhundal.

(b) Bhaski—Ordinary Bhaski. Hanuman Bhaski, Chair Bhaski, Quadruped Bhaski.

3. Wand Drill. Dumbell drill. Pyramid Building. Gymnastics with and without apparatus.

SCHEME OF EXAMINATION

[Vide Ordinance 241 (g)]

Serial No.	Subjects	Number of papers	Hours for each paper	Marks for written examination	Oral and practical	Marks for records of class work	Total
FIRST EXAMINATION IN ENGINEERING—(ALL BRANCHES)							
Group I.							
1	Algebra and Calculus	1	3	100	...	25	...
2	Analytical Geometry and Trigonometry	1	3	100	...	25	...
3	Mechanics and Mensuration ..	...	...	...	...	25	...
4	Engineering Physics	1	3	100	...	25	...
5	Engineering Chemistry ..	1	3	100	...	25	...
Total		..	...	400	...	100	500
Group II.							
6	Economics	1	3	100	...	...	...
7	Building Materials and Survey Theory	1	3	100	...	25	...
8	Mechanical Engineering and Metallurgy	1	3	100	...	25	...
9	Drawing	...	...	...	...	50	...
10	Surveying Practice	...	...	...	...	50	...
11	Workshop ..	...	...	...	...	50	...
Total		...	...	300	...	200	500
Grand Total		...	7	700	...	300	1,000
SECOND EXAMINATION IN ENGINEERING							
CIVIL							
Group I.							
1	Mathematics	1	3	75	...	10	...
3	Applied Mechanics Laboratory	...	...	...	...	20	...
3	Hydraulics	1	3	75	...	20	...
4	Geology	1	3	75	...	50	...
5	Surveying	...	...	...	75	50	...
Total		...	...	225	75	150	450

Serial No.	Subjects	Number of papers	Hours for each paper	Marks for Written examination	Oral and practical	Marks for records of class work	Total
Group II.							
6	Mechanical Engineering	1	3	100	...	25	...
7	Electrical Engineerig	1	3	100	...	25	...
8	Freehand, Geometrical and Machine Drawing...	1	4	100	...	50	...
9	Workshop	...	...	...	75	25	...
10	Mechanical Laboratory	...	...	...	...	25	...
11	Electrical Laboratory	...	...	...	...	25	...
	Total	...	...	300	75	175	550
	Grand Total	6	...	525	150	325	1,000
MECHANICAL AND ELECTRICAL							
Group I.							
1	Mathematics	1	3	75	...	10	...
2	Applied Mechanics and Laboratory	...	...	...	...	20	...
3	Hydraulics	1	3	75	...	20	...
4	Civil Engineering	1	3	75	...	...	...
5	Surveying	...	...	...	75	50	...
6	Building Drawing	...	...	...	...	50	...
	Total	...	...	225	75	150	450
Group II.							
7	Electrical Technology	1	3	100	...	25	...
8	Freehand, Geometrical and Machine Drawing...	1	4	100	...	50	...
9	Theory of Machine	1	3	100	...	50	...
10	Workshop	...	...	...	75	50	...
	Total	...	...	300	75	175	550
	Grand Total	6	...	525	150	325	1,000
THIRD EXAMINATION IN ENGINEERING.							
CIVIL—Group I.							
1	Mathematics	1	3	100	...	20	...
2	Applied Mechanics	1	3	100	...	30	...
3	Graphic Statics	1	3	75	...	50	...
	Total	...	...	275	...	400	375

Serial No.	Subjects	Number of papers Hours for each paper Marks for written exami- nation			Oral and practical Marks for records of class work		Total
Group II.							
4	Building Construction and Architecture	1	3	100	...	25	...
5	Building Drawing	1	4	100	...	100	...
6	Surveying	1	3	100	100	100	...
Total		...	...	800	100	225	625
Grand Total		6	...	575	100	325	1,000
MECHANICAL.							
Group I							
1	Mathematics	1	3	100	...	20	...
2	Applied Mechanics	1	3	100	...	30	...
3	Graphic Statics	1	3	75	...	50	...
Total		...	...	275	...	100	375
Group II.							
4	Theory of D.C. Machines	1	3	100	...	25	...
5	Hydraulic Machinery	1	3	100	...	25	...
6	Heat Engines	1	3	100	...	25	...
7	Workshop	...	...	...	100	50	...
8	Machine Drawing	...	...	...	...	50	...
9	Electrical Laboratory and Drawing	...	...	...	...	50	...
Total		...	...	300	100	225	625
Grand Total		6	...	575	100	325	1,000
ELECTRICAL.							
Group I.							
1	Mathematics	1	3	100	...	20	...
2	Applied Mechanics	1	3	100	...	50	...
3	Graphic Statics	1	3	75	...	50	...
Total		...	...	275	...	100	375

Serial No	Subjects	Number of papers	Hours of each paper	Marks for written examination	Oral and practical	Marks for records of class work	Total
<i>Group II</i>							
4	Theory of D. C. Machines	1	3	100	...	25	...
5	Hydraulic Machinery	1	3	100	...	25	...
6	Heat Engines	1	3	100	...	25	...
7	Workshop	...	...	...	...	50	...
8	Electrical Machine Drawing	...	...	...	...	50	...
9	Electrical Laboratory	...	...	...	100	50	...
Total		...	...	300	100	225	675
Grand Total		6	...	575	100	325	1,000
FINAL EXAMINATION IN ENGINEERING.							
CIVIL							
<i>Group I</i>							
1	Irrigation	1	3	125	...	25	...
2	Water Supply and Sanitary Engineering	1	3	100	...	25	...
3	Roads and Bridges	1	3	100	...	25	...
4	Irrigation and Bridge Drawing	1	4	100	...	75	...
5	Hydraulics Laboratory	...	...	...	50	50	...
Total		...	...	425	50	200	675
<i>Group II.</i>							
6	Estimating, Specification and Engineering Economics.	1	3	100	...	25	...
7	Structural Design	1	3	100	...	25	...
8	Structural Drawing	...	...	...	...	75	...
9	Railways, Tunnels and Harbours	1	3	100	...	25	...
10	Surveying Theory	1	3	100	...	...	...
11	Surveying Practice. (Project Work)	...	...	...	75	100	...
12	Testing of Materials Laboratory	...	...	...	50	50	...
Total		...	...	400	125	300	825
Grand Total		8	...	825	175	500	1,500

Serial No.	Subjects	Number of papers	Hours for each paper	Marks for written examination	Oral and practical	Marks for records of class work	Total
MECHANICAL.							
<i>Group I.</i>							
1	Heat Engines and Water Supply	1	3	100	...	25	...
2	Workshop Theory	1	3	100	...	25	...
3	Power Plant Engineering	1	3	100	...	25	...
4	Theory of A. C. Machinery	1	3	100	...	25	...
5	Electrical Laboratory	...	...	...	50	50	...
6	Mechanical Laboratory I	...	...	...	100	75	...
7	Project Drawing	...	...	...	...	50	...
Total		...	...	400	150	875	825
<i>Group II.</i>							
8	Structural Design	1	3	100	...	25	...
9	Machine Design	1	3	100	...	25	...
10	Estimating, Specification and Engineering Economics	1	3	100	...	25	...
11	Machine Drawing	1	4	100	...	75	...
12	Mechanical Laboratory II	...	...	...	50	75	...
Total		...	...	400	50	225	875
Grand Total		8	...	800	200	500	1,500
ELECTRICAL.							
<i>Group I</i>							
1	Generation and Hydro-Electric Engineering	1	3	100	...	25	...
2	Transmission and Distribution	1	3	100	...	25	...
3	Traction and Communication	1	3	100	...	25	...
4	Estimating, Specification and Engineering Economics	1	3	100	...	...	...
5	Mechanical Laboratory	...	...	...	75	75	...
6	Electrical Project Drawing	...	...	...	...	100	...
Total		...	...	400	75	250	725

Serial No.	Subjects	Number of papers	Hours for each paper	Marks for written examination	Oral and practical	Marks for records of class work	Total
<i>Group II.</i>							
7	Theory of A. C. Machinery ...	1	3	100	...	25	...
8	Electrical Machine Design ...	1	4	100	...	75	...
9	Electrical Machine ...	1	3	100	...	25	...
10	Structural Design ..	1	3	100	...	25	...
11	Electrical Laboratory ...	...	...	...	125	100	...
Total ..		...	...	400	125	250	775
Grand Total		8	...	800	200	500	1,500

Note.—The Board of Examiners may call for the laboratory note books in Physics and Chemistry for inspection at the time of the examination.

The valuation of laboratory work shall be done during the course by the teacher of the subject and the marks thus awarded reduced to a maximum of 25 in each case furnished to the University before the commencement of the examination.

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinances 109 to 117]

Rules for Practical Training

[*Vide* Ordinance 114]

CIVIL, MECHANICAL, ELECTRICAL AND CHEMICAL ENGINEERING

1. Practical training should be undergone only in firms, factories, departments of Government, Municipality, etc., recognised from time to time by the University Council.

2. The practical training may relate to the executive as well as the administrative aspect of Engineering works.

3. Arrangements should be made by the Principal with the following departments of Government and with private firms and companies in Mysore for the admission of students :—

- (1) Public Works Department.
- (2) Electrical Department.
- (3) Railways.
- (4) Department of Industries and Commerce.
- (5) Bhadravati Iron Works.
- (6) Kolar Gold Fields Mining Companies.
- (7) Binny and Company.
- (8) Minerva Mills.
- (9) Maharaja Mills.
- (10) Sri Krishnarajendra Mills.
- (11) Renco Works
- (12) Other firms in the Mysore State.

4. If any student desires to go for his practical training to any firm or firms outside the State recognised by the University, then the Principal should endeavour to arrange for securing him admission therein.

5. It shall be the duty of the Principal to satisfy himself from quarterly reports of the progress made by the student, and if necessary, to issue instructions for further work to be done through the supervising authority.

6. Progress reports should be sent at least once a quarter and if the progress is considered not to be satisfactory, the student may be required by the University Council to undergo practical training for a further period to compensate for such period during which the progress was not satisfactory.

7. The total period of one year may be made up of several periods, provided that no period is of less than three months' duration and the whole training ordinarily completed within three years after the date of passing the final examination.

Note.—Practical training undergone in firms (recognised by the University Council) during vacations of institutions where a student is undergoing a further course of study, may be taken in full, provided the period does not fall short of two months, and provided that it is after the student passes the B.E. Degree Examination

8. The period of practical training shall be twelve calendar months, all holidays and leave granted by the firms under their rules being considered equivalent to working days.

The following is a list of Institutions recognised for the practical training of B. E. Candidates :—

CIVIL ENGINEERING STUDENTS

1. All-Indian Railways.
2. Public Works Departments of Mysore, all. British Provinces and Hyderabad, Baroda, Indore, Gwalior, Travancore and Cochin States.
3. District Boards of British Provinces.
4. Municipalities of Mysore, Bangalore, Bombay, Calcutta, Madras, Karachi, Rangoon and Delhi.
5. Port Trusts of Madras, Bombay, Calcutta, Karachi, Vizagapatam and Cochin.
6. Messrs. Marsland Price & Co., Bombay.
7. „ McKenzies, Ltd., Sewri, Bombay, and Burmah Shell Buildings, Madras, G.T.
8. „ Gannon Dunkerly & Co., Langa Chetty Street, Madras, G.T.
9. „ Mawson Vernon & Co., Vulcan House, Nicol Road, Ballard Estate, Bombay.
10. „ Shapoorji Palonji & Co., 70, Meadows Street, Fort, Bombay.
11. „ Tata Construction Co., Ltd., Phoenix Buildings, Ballard Estate, Fort, Bombay.
12. „ P. S. Char & Co., 134, Wakefield House, Ballard Estate, Bombay.
13. „ The Andhra Engineering Co., Ltd., Vizagapatam.
14. „ Renco Works, Post Box 63, Seshadripuram, Bangalore.
15. „ Braithwaite & Co., Madras and Calcutta.
16. „ K. V. Acharya & Co., Bangalore.
17. „ The Mysore Engineering Co., Bangalore.
18. „ Ranade & Bros., Engineers and Contractors 653, Budhwarpet, Poona 2 (Head Office) (during the construction period).
19. The Concrete Association of India, Bombay.
20. Practical training under Mr. T. S. Narayana Rao, B.A., B.E., in the construction of the Mysore Sugar Company Office at Bangalore.

21. The Hindustan Construction Co., Poona. (Proprietor of the Hindustan Aircraft, Bangalore.)
22. Hindustan Aircraft Co., Bangalore.
23. Officer Cadet Training Unit, Roorkee.
24. Military Engineering Works, Aerodromes, Garrison Engineer, Jalahalli, and other Military Centres.
25. Chemical Engineering Section of the Indian Institute of Science, Bangalore.
26. Acharya and Acharyas, Ltd., Engineers and Contractors, Bangalore.
27. Tata Aircraft, Ltd., Poona.
28. Tojoo Kaya and Co., Builders, Engineers and M.E.S. Contractors, Dist. Coimbatore.
29. The New Victoria Mills, Ltd., Cawnpore.
30. The Bio-Chemicals and Synthetic Products, Ltd. Hyderabad, Deccan.

MECHANICAL ENGINEERING STUDENTS

1. All Railway Workshops.
2. P.W.D. Workshops, Madras.
3. Central Industrial Workshop, Bangalore.
4. Workshops of Madras, Calcutta and Bombay Port Trusts.
5. Royal Indian Marine Dockyard, Bombay.
6. Government Ordnance Factories.
7. Mysore Iron Works, Bhadravati.
8. Tata Iron and Steel Company, Jamshedpur.
9. Hukumchand Steel Works, Calcutta.
10. The Indian Steel Rolling Mills, Ltd., Nagapatam.
11. Gold Mining Companies, Kolar Gold Fields.
12. Water Works, Bangalore and Mysore.
13. General Motors (India), Ltd., Bombay.
14. Richardson and Cruddas Engineering Works, Bombay.
15. Alcock Ashdown & Co.'s Engineering Works, Bombay.
16. Massey & Co.'s Engineering Works, Madras.
17. Jessops & Co.'s Engineering Works, Calcutta.
18. Braithwaite & Co.'s Engineering Works, Bombay and Calcutta.
19. Burn & Co.'s Engineering Works, Calcutta.
20. Russa Engineering Works, Calcutta.
21. Dutt Machine and Tool Works, Calcutta.
22. G. W. Brunton & Son, Cochin.
23. Kirloskar Brothers, Ltd., Kirloskarwadi.
24. Cooper Engineering Co., Satara.
25. The Mysore Sugar Co., Ltd., Mandya.
26. Sri Krishnarajendra Mills, Ltd., Mysore.

27. The Bangalore Woollen, Cotton and Silk Mills Co., Ltd., Bangalore.
28. The Mysore Spinning and Manufacturing Co., Ltd., Bangalore.
29. The Minerva Mills, Ltd., Bangalore.
30. The Kaiser-I-Hind Woollen, Cotton and Silk Mills, Ltd., Bangalore.
31. The Imperial Tobacco Factory, Bangalore.
32. The Tata Oil Mills Co., Ltd., Bombay.
33. The Mysore Chemicals and Fertilisers, Ltd., Mysore.
34. The Imperial Institute of Sugar Technology, Cawnpore (Entire course).
35. Sembian Panchayet Board Electric Supply.
36. The Hindustan Construction Co., Poona.
37. Hindustan Aircraft Co., Bangalore.

} During the
construction
period.

Textile Mills

38. Buckingham and Carnatic Mills, Madras.
39. Coimbatore Spinning and Weaving Company, Ltd
40. Madura Mills, Madura.
41. Kaleeswarar Mills, Coimbatore.
42. Gokak Mills, Ltd., Belgaum Dt.
43. Sholapur Spinning and Weaving Co., Ltd., Sholapur
44. Bomanje Petit Mills, Bombay.
45. Jacob Sassoon Mills, Bombay.
46. Khataw Makarjee Spinning and Weaving Mills.
47. Swadeshi Mills Co., Ltd., Kurla, Bombay.
48. New Victoria Mills, Cawnpore.
49. Swadeshi Cotton Mills.

Cement Factoriees

50. Coimbatore Cement Works, Madukarai, S.I.R.,
51. Shahabad Cement Works, Shahabad, G.I.P. Hyderabad State.
52. Indian Cement Co., Ltd., Porbandar (Kathiawar).
53. C.P. Cement Co., Ltd., Kymore via Amdara, G.I.P.
54. Katni Cement and Industrials Co., Ltd., Katni, C.P.
55. United Cement Company of India, Ltd., P.O. Mehgaon via, Jukehi (G I.P.), Jubbulpore.
56. Bundi Portland Cement Co., Ltd., Lakheri (B.B. & C.I) Rajaputana.
57. Sone Valley Portland Cement Co., Ltd., Japla, E.I.R.,
58. The Punjab Portland Cement Co., Ltd., Wah, Attock (N.W.R.)

ELECTRICAL ENGINEERING STUDENTS

1. International General Electric Co. (India), Ltd., No. 10 Nicol Road, Ballard Estate, Bombay.
2. Associated Electrical Industries (India), Ltd., 8, Clive Street, Post Box No. 271, Calcutta.
3. The English Electric Co., Ltd., Mount Road, Madras.
4. Siemens (India), Ltd., Post Box No. 2109, Calcutta.
5. A.E.G. (India), Ltd., Ballard Estate, Bombay.
6. A.S.E.A. Electric Co., Ltd., Feltham House, Graham Road, Bombay, Or Sassoon House, 4, Lyons Range, Calcutta.
7. Indian Institute of Science. *
8. Messrs. A.C.E.C. (India), Ltd., Madras.
9. The Octaviens Steel Co., Ltd., Calcutta.
10. The Bombay Electric Supply and Tramways Co., Ltd., Bombay (period of training equivalent to 3 months).
11. All-India Radio Service.
12. The Bengal Electric Lamp Works.
13. The Hindustan Construction Co., Poona.
14. Hindustan Aircraft Co., Bangalore.

Hydro-Electric Power Systems

15. Mysore Electrical Department.
16. Kashmir Hydro-Electric System.
17. Pallivasal Hydro-Electric System, Trivandrum.
18. Tata's Hydro-Electric Systems, Bombay.
19. Madras Government Hydro-Electric System, Madras.
20. Gokak Falls.
21. Punjab Hydro-Electricity (Mondi).

Steam Electric Power Systems

22. Madras Electric Supply Corporation.
23. Nizam's Electricity Department.
24. Electric Supply Corporation, Calcutta.
25. Kalyan Power House, Kalyan.

Electric Traction

26. S.I.R. Electric Railway System.
27. G.I.P. Electric Railway System.
28. B.B. & C.I. Electric Railway System.
29. Tramway Company, Madras.
30. Tramway Company, Bombay.
31. Tramway Company, Calcutta.

* The full certificate course in Electrical Technology at the Indian Institute of Science is recognised in lieu of 3 months practical training only.

Electricity Supply Undertakings

32. Town Electricity Supply Companies of Poona, Ahmedabad, Bezwada, Trichinopoly, Madura.
33. Signia Theria Electricity Co, Ltd., Loyabad.
34. Hubli Electricity Company.
35. Power House, Kirloskar Bros, Kirloskar.
36. Sind Hyderabad Electricity Co., Ltd, Sind, Hyderabad
37. M. S. M. Railway Workshops, Electrical Department, Perambur
38. Wireless Station, Madras.
39. The Hindustan Construction Co., Poona (Proprietor of the Hindustan Aircraft Co., Bangalore.)
40. All-India Radio, Lahore.
41. Belgaum Electricity Co., Belgaum.

M.B.B.S. DEGREE EXAMINATION**(1) The Pre-Medical Examination****CONDITIONS OF ADMISSION***

[*Vide* Ordinances 119 and 120]

COURSES OF STUDY (GENERAL)

[*Vide* Ordinance 119]

COURSES OF STUDY (DETAILED)

[*Vide* Ordinance 240 (*h*)]

The course shall comprise study and examination in the subjects of Physics, Chemistry, Zoology and Botany according to the following syllabus :

I. PHYSICS

The course in Physics shall include a more extended study of the subject-matter included in the Intermediate syllabus and in addition, the following :—

Measurement of small intervals of length and of time ; the electrically driven tuning fork and the electrical chronograph ; graphic method of registering movement.

*No one is allowed to enter for the Pre-Medical Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

Periodic motion ; uniform circular motion ; centrifugal and centripetal forces : simple pendulum.

Properties of matter ; Elasticity : Hooke's Law ; effect of loading and unloading a wire. Young's modulus and coefficient of rigidity. Molecular phenomena in liquids ; osmosis and diffusion ; surface tension and capillary phenomena.

Principle of continuity ; Torricelli's principle.

Gas laws and their explanation on the basis of the kinetic theory of matter. The critical constants of gas.

The meteorological elements ; temperature in shade, in the open and in vacuo ; aqueous vapour pressure ; clouds and rainfall ; pressure, direction and velocity of wind, periodic winds ; land and sea breezes and monsoons ; instruments for measuring the meteorological elements. Weather and climate.

Heat.—Thermometry ; dilatation ; change of state ; calorimetry ; water and air calorimeter.

Radiation and absorption : Newton's law of cooling ; theory of exchange ; methods of detecting and measuring thermal radiation.

The mechanical theory of heat. First and second laws of thermo-dynamics. The ideal heat engine. Efficiency.

Sound.—Velocity of propagation of sound ; Newton's formula and Laplace's correction ; resonance. Sound producers, including the vocal chords. Sound receivers, including the human ear.

Light.—Transverse waves and their production and propagation ; velocity of propagation.

The wave theory of light ; elements of wave theory of light and the general theory of the diffraction grating.

Double refraction. Polarisation. Saccharimetry.

The eye as an optical instrument. Defects of the eye : myopia, hyper-metropia and astigmatism. Spherical and cylindrical spectacle lenses ; power and numbering of lenses and relevant geometrical optics.

The compound microscope ; spherical and chromatic aberrations and how they are eliminated ; magnification ; oil immersion objective.

The spectroscope ; emission and absorption spectra ; direct vision spectroscope.

The photographic camera.

Electricity.—Electric capacity and condensers. Non-polarisable electrodes. General study of conductivity of electrolytes ; ionisation and migration phenomena. The capillary electrometer. Thermo-couple and thermo-pile. Electro-magnetic induction ; mutual and self-induction ; the induction coil.

Elements of phenomena accompanying the passage of high tension currents through rarefied gases ; cathode rays and X-rays, X-ray photography. Radio-activity.

PRACTICAL PHYSICS

General.—The screw gauge; The spherometer and the vernier, microscope. Simple pendulum. Young's modulus by stretching; tenacity. Surface tension (a) rise in a capillary tube, (b) surface tension balance. Determination and comparison of the viscosities of liquids.

Heat.—Coefficients of expansion. Determination of specific and latent heats by the method of mixtures. Specific heat by the method of cooling. Mechanical equivalent of heat. Thermal conductivity.

Sound.—Sonometer; resonating columns of gas.

Light.—Focal lengths of thin lenses and combinations of lenses. Determination of wave-length by (a) Diffraction, (b) Diffraction grating. Saccharimeter, Spectrometer and Spectroscope.

Electricity.—Laws of electrolysis. Measurement of resistance with P. O. box. Comparison of E.M.F.'s by the potentiometer. The electrical calorimeter. Conductivity of an electrolyte. Thermoelectromotive force.

II. CHEMISTRY

Candidates are expected to understand the elements of Chemistry included in the Chemistry syllabus of the Intermediate Examination in Science and in addition to have an elementary knowledge of the following:—

General Properties of Matter.—State of aggregation. Gas laws. Kinetic theory. Application in respiratory phenomena. Surface tension. Viscosity. Boiling point. Melting point.

General Nature of Solutions.—Types of solutions. Diffusion and osmotic pressure and their bearing on biological phenomena. Freezing point determination and its importance in Physiology.

Electrolytic Dissociation.—Dissociation power of solvents. Ionisation and its physiological application. Its application to chemical analysis, disinfection and poisonous action.

Law of mass action and chemical equilibrium. Its importance in physiological processes. Hydrogen ion concentration and its importance in biological process. Buffers. Measurement of PH. Iso-electric point. Ionisation of polybasic acids. Electromotive force. Simple reversible and non-reversible cells.

Velocity of reactions. Catalysis. Uni- and bi-molecular reactions. Inversion of sucrose. Effect of temperature. Enzymes.

The colloidal state with special reference to emulsoids. Adsorption; surface and interfacial phenomena. The nature and structure of matter. Radio-activity.

PRACTICAL CHEMISTRY

In addition to the practical work in Chemistry of the Intermediate course, the following:—

Simple qualitative analysis excluding phosphate, arsenate and silicate separations.

Elementary quantitative analysis involving the preparation and use of standard solutions of acids, alkalies, bichromate, permanganate, thiosulphate and silver nitrate.

Estimation of oxygen and carbon dioxide.

Gravimetric estimation of sulphate, phosphate, chloride and ash left after ignition.

Simple chemical preparations.

Books for Study

Tooky Kerridge, P. M. : *Principles of Physical Chemistry for Medical Students* (Oxford University Press).

One of the following:—

Findlay, A. : *Physical Chemistry for Students of Medicine* (Longmans).

Steel, M. : (Wiley) *Physical Chemistry and Bio-Physics*.

Phillip, J. C. : *Physical Chemistry: Its Bearing on Biology and Medicine* (Arnold).

III. ZOOLOGY

The examination in Zoology shall comprise the subjects included in the syllabus for the Zoology part of the Intermediate Examination and in addition an elementary knowledge of the following:—

Bearing of Zoology on Medicine. Animal organisation. The organs and their functions. The tissues. The cell. Nature of protoplasm and cell multiplication. Animals without cellular tissues. The general characteristics of Protozoa. Elementary facts about the mode of life of the disease-producing protozoa. Animals with two cellular layers. Study of *Hydra* as an introduction to the Metazoa. Structure and life-history of *Fasciola*, *Tænia* and *Ascaris*, and other disease-producing worms. General account of Parasitism, Coelomates. Characteristics of annelids. Types for study: Earthworm and Leech. Anatomy and life-history of Cockroach, Mosquito, Housefly and Scorpion. Insects and Arachnids as carriers of disease. The chordata. *Amphioxus*: its general structure and development. Dog-fish and the ground-plan of vertebrate organisation. The Amphibia—transition from water to air. Rano: its structure and development. Adaptation to terrestrial life. The mammals. Anatomy of the rabbit (only elementary knowledge of the muscular and nervous system).

General classification of mammals. Characteristics of Primates. Development of fowl and rabbit (organogeny not required). Respiration and Respiratory contrivances. Excretion. Reproduction. The relation between parent and offspring. The doctrine of the germ plasm. Death.

A general acquaintance with the principles of evolution. A brief study of leading characteristics and structure of the principal Indian poisonous snakes.

PRACTICAL WORK

In addition to the subjects included in the syllabus for the Intermediate Examination, practical work shall comprise the following:—

Microscopical examination of the slides illustrating the history of tissues of the frog. Dissections of the Earthworm, Housefly, Frog and Rabbit (detailed knowledge of the muscles and nerves not required). Examination of the prepared skulls of poisonous and non-poisonous snakes—Rat-snake, Cobra and Viper. Examination of the slides illustrative of the segmentation and gastrulation phenomenon in amphioxus and frog. Full mounts and micro-sections of the fowl illustrating the more important development stages of the first three days. Structure of the foetal membranes and placenta of the rabbit.

Viva Voce.—The candidates will be required to submit their laboratory note-books at the time of practical examination.

The subject matter of the above syllabus is expected to be covered by about 40-45 lectures and about 36 practical classes of 2½ hours each.

Book for Study

Woodgar, J. H.: *Elementary Morphology and Physiology for Medical Students* (Oxford University Press).

IV. BOTANY

Plant considered as a living organism. The difference between the living and the non-living. Animals and plants.

Structure and function of the plant cell, plasmolysis, osmotic pressure, permeability, crystalloids, and colloids, nuclear and cell division, differentiation of plant cells. The forms of plant cells, thickening of the cell wall, pits, collenchyma, sclerenchyma, fibres and vessels.

Cell contents such as Starch, Inulin, Sugars, Glucosides, Oil and Fats, Proteins, Crystals, Tanins, Alkaloids, Ethereal Oils, Pigments and Latex considered from the medical aspect.

Structure of the Stem and the Root.—Primary and secondary thickenings; heart and sap woods; annual rings; structure of the leaf. Palisade and spongy tissue. Chloroplasts.

Plant and its Water Supply.—Absorption, root-pressure, conduction, transpiration. Variation of the above in relation to the surroundings of the plant.

Nutrition.—Dry weight and ash contents. Photosynthesis. Parasites. Saprophytes and insectivorous plants.

Storage.—Storage organs, underground and aerial and their biological significance.

Enzymes, their action and the mode of extraction.

Respiration, aëration of plants, aerobic and anaerobic respiration; liberation of energy.

Growth of the Plant.—Elongation. Conditions influencing growth. Grafting.

Movements.—Geotropism. Heliotropism. Hydrotropism. Chemotropism.

The life histories of the following plants treated in an elementary manner: Chlamydomonas, Volvox, Spirogyra, Fucus, the origin and evolution of sex and somatic Cells; cistopus. Mucor, some fungi that cause diseases in animals. Yeast. Bacteria. Nitrogen and carbon circulation. Ferns, vegetative and reproductive organs.

Flowering Plants—Flower, structure and function of the different parts of the flower. Calyx, corolla, stamens and ovary. Pollination, self and cross. Formation of ovules and seed setting. Fruits and seeds and their dispersal. Seed germination and seedling.

An elementary knowledge of the classification of plants. The chief characteristics and the medicinal plants of the following families: (1) Cruciferae, (2) Rosaceae, (3) Leguminosae, (4) Rutaceae, (5) Euphorbiaceae, (6) Umbelliferae, (7) Solanaceae, (8) Cucurbitaceae, (9) Compositae, (10) Liliaceae, (11) Scitamineae, (12) Palmæ and (13) Gramminae.

Heredity.—Inherited and acquired characters. Mendel's observations, Determinations, Dominants, Dominance. Proportion of progeny showing dominant and the recessive characters. Segregation of determinants. Interaction of characters.

Evolution.—Origin of species. Evidence from Morphology. Distribution and Palæontology. Natural selection. Lamarckism. Segregation and new combinations of determinants.

PRACTICAL WORK

The students are expected to prepare free-hand sections, stain and mount them for microscopic examination; identify prepared sections; maintain a record of the experiments in plant physiology and identify the plants of the family they study.

The students will be required to submit the laboratory records at the time of practical examination.

Note.—The subject-matter of the syllabus is expected to be covered by about 45 lectures and about 40 practical classes of two and a half hours' duration each.

SCHEME OF EXAMINATION

[*Vide* Ordinance 128 (h)]

				Max Marks
1. Physics	1 paper of 3 hours	...	...	100
	Practical Examination (3 hours)	...	...	50
2. Chemistry	1 paper of 3 hours	...	...	100
	Practical Examination (3 hours)	...	...	50
3. Botany	1 paper of 3 hours	...	...	100
	Practical Examination (3 hours)	...	...	50
4. Zoology	1 paper of 3 hours	...	...	100
	Practical Examination (3 hours)	...	...	50

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinance 123]

(2) M.B.B.S. Degree Examination

CONDITIONS OF ADMISSION*

[*Vide* Ordinance 125]

COURSES OF STUDY

[*Vide* Ordinances 124 and 126]

* *Note.*—The following are the conditions under which L.M.P. Diploma holders will be admitted to the M.B.B.S. Degree course:—

- (i) L.M.P. Diploma holders admitted to the M.B.B.S. Degree course shall be required to undergo the Pre-Medical Course and to pass the Pre-Medical Examination.
- (ii) They shall be eligible to appear for the First M.B.B.S. Examination at the end of a course of one academical year after passing the Pre-Medical Examination, to appear for the Second M.B.B.S. Examination at the end of a course of one academical year after passing the First M.B.B.S. Examination, and to appear for the Final M.B.B.S. Examination at the end of a course of one academical year after passing the Second M.B.B.S. Examination.

COURSES OF STUDY (DETAILED.)

Candidates for the degree shall be required to attend Courses of Study in the following subjects :—

First Year

<i>Organic Chemistry</i> ...	One course of lectures with practical work.
<i>Anatomy including Elements of Embryology.</i>	One course of lectures in Osteology, Anatomy Demonstrations and Dissections.
<i>Physiology including Histology, Bio-Physics and Bio-Chemistry.</i>	One course of lectures in Physiology with practical work in Histology and Experimental Physiology including Bio-Physics.

Syllabus in Organic Chemistry.

The subject with relevant theoretical aspects is to be treated in an elementary manner

Methods by which organic compounds are purified and their purity and composition established. Empirical and structural formulæ. Isomerism, Stereoisomerism and optical activity.

Preparation, general properties and relationships of the following classes of organic compounds. Hydrocarbons of the paraffin, olefine and acetylene series and their halogen and nitro derivatives. Alcohols, Ethers, Aldehydes, Ketones. Carboxylic Acids and their salts, esters, anhydrides. Hydroxy and ketonic acids. Fats. Carbohydrates. Nitrates, Amides, Amines, Amino Acids and Proteins. Purines, Benzene, Toluene and their nitro, amino, hydroxy, aldehyde, keto, sulphonic and carboxy derivatives. Hydroxy acids and their important compounds. Alkaloids. hormones, vitamins and synthetic drugs.

Syllabus—Practical Course in Organic Chemistry.

Detection of carbon, hydrogen, nitrogen, halogens, sulphur and phosphorus.

Crystallisation and melting point. Distillation and Boiling point. Fractional distillation.

Preparation of absolute alcohol, an ester (ethyl acetate or benzoate).

Hydrolysis of ester, fat. Equivalent weight of an acid.

Reactions of proteins. Tests for carbohydrates. Estimation of sugars.

Preparation of nitrobenzene, m-dinitrobenzene, aniline, o- and p- Nitrophenols.

Oxidation of side chain.

Acetylation, benzoylation, Diazotisation.

Tests for functional groups. Detection of simple organic substances and preparation of derivatives

Second Year

- Anatomy including Elements of Embryology* One course of lectures and demonstrations in Anatomy including Embryology and Dissections.
- Physiology including Histology, Bio-Physics and Bio-Chemistry.* One course of lectures in Physiology with practical work in Histology and Experimental Physiology.
One course of lectures in Bio-Chemistry with practical work.

Third Year

- Pathology and Bacteriology, including Immunology.*—One course of lectures with practical work.
- Minor Surgery.*—One course of lectures and practical work.
- Materna Medica and Pharmacology* —One course of lectures with a practical course of instruction in pharmacy.
- Hygiene and Public Health*—One course of lectures with practical work.
- Medicine.*—One course of lectures.
- Surgery.*—One course of lectures.
- Hospital and Clinical works.*
Medical wards for four months.
Surgical wards for four months.
Out-patient Department for two months.
(50 per cent of the number of post mortem examinations conducted.)

Fourth Year

- Medicine ... One course of lectures.
- Surgery and Surgical Pathology. One course of lectures.
- Obstetrics, Gynæcology and Pædiatrics One course of lectures in Obstetrics and Diseases of Women and the new born.
- Venereology ... One course of 12 lecture-demonstrations and attendance at the Venereal clinic once a week while attending Surgical Wards.
- Oto-rhino-laryngology ... One course of 12 lecture-demonstrations and attendance at Oto-rhino-laryngology Department once a week while attending Surgical Wards.

Ophthalmology	...	One course of lectures.
Forensic Medicine	...	One course of lectures.
Pathology and Bacteriology including Immunology.		One course of lectures with practical work.

Hygiene and Public Health—One course of lectures with practical work excursions and study of Preventive and Social aspects of Medicine.

Clinical work.

Medical wards for three months.

Surgical wards for three months.

(Students should attend the out-patient department also for at least 2 months while working in the Medical and Surgical Wards.)

Maternity Wards for two months.

Ophthalmic Wards for three months.

(50 per cent of the number of post-mortem examinations conducted.)

Fifth or Final Year.

Operative Surgery	...	One course of Practical instruction.
Obstetrics. Gynæchology and Pædiatrics.		A course in Obstetrics and Diseases of Women and the new born.

Clinical work.

Medical Wards for three months.

Surgical Wards for three months.

(To attend to Out-patient Department also while working in the Medical and Surgical Wards.)

Maternity Wards for three months.

(One month as a resident student.)

Infectious Diseases Hospital & Tuberculosis Hospital.		One course of 12 lecture-demonstrations in each for one month on alternate days.
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One Month {	Dental Surgery	...	One course of 12 lectures with demonstrations at Bangalore.
	Mental Diseases	...	One course of 12 lecture-demonstrations at the Mental Hospital, Bangalore.
	Leprosy	...	One course of 5 lecture-demonstrations at the Isolation Hospital, Bangalore.

Vaccination	... 10 lectures and demonstrations at Bangalore.
Orthopædics	... One course of 12 lectures demonstrations while working in the Surgical Wards.
Dermatology	... One course of 12 lectures-demonstrations while Working in the Medical Wards.
Diseases of children	... One course of 12 lectures.
Radiology and Electro-Therapeutics.	One course of 12 lectures demonstrations.

PROVIDED THAT IN RESPECT OF CANDIDATES WHO HAVE PASSED THE FINAL EXAMINATION FOR THE L.M.P. DIPLOMA, THE COURSE SHALL EXTEND OVER THREE YEARS AND SHALL COMPRISE THE FOLLOWING :—

First Year

Organic Chemistry	... One course of lectures with practical work.
Anatomy including (Elements of Embryology).	One course of lectures in Osteology. One course of lectures of Demonstrations in Anatomy including Embryology and Demonstrations.
Physiology including History, Bio-Physics and Bio-Chemistry.	One course of lectures in Physiology with practical work in Histology and Experimental Physiology including Bio-Physics and Bio-Chemistry including practical work.

Second Year

Pathology and Bacteriology.—One course of lectures with practical work.

Hygiene.—One course of lectures with practical work.

Ophthalmology.—One course of lectures.

Forensic Medicine.—One course of lectures.

Minor Surgery.—One course of lectures with practical work.

Materia Medica and Pharmacology.—One course of lectures with a practical course of instruction in pharmacy.

Medicine.—One course of lectures.

Surgery.—One course of lectures.

Oto-Rhino-Laryngology. ... One course of 12 lecture-demonstrations and attendance at E.N.T. Department once a week while attending Surgical Wards.

Venereology ... One course of 12 lecture-demonstrations and attendance at the Venereal diseases clinic once a week while attending Surgical Wards.

Hospital and Clinical Work.—Medical wards for three months, Surgical wards for three months, out-patient department for one month, Ophthalmic wards for two months and Maternity wards for two months.

Third Year

Medicine ... One course of lectures.

Surgery and Surgical Pathology. ... One course of lectures.

Obstetrics, Gynæcology and Pædiatrics. ... One course of lectures (along with the regular fourth and final M.B.B.S. students).

Operative Surgery ... One course of practical instruction.

Anæsthetics ... To administer anæsthetics to six cases and a course of lectures on anæsthesia while working in Surgical Wards

Clinical Work ... Medical Wards ... 3 months
Surgical Wards ... 3 months
(to attend out-patient department also while working in the Medical and Surgical Wards).

Maternity Wards ... 3 months
(One month as a resident student)

Infectious Diseases Hospital and T.B. Sanatorium. ... One course of 12 lecture-demonstrations in each for one month on alternate days.

Dental Surgery	... One course of 12 lectures with demonstrations at Bangalore.
Mental Diseases	... One course of 12 lecture-demonstrations at the Mental Hospital at Bangalore.
Leprosy	... One course of 5 lecture-demonstrations at the Isolation Hospital at Bangalore.
Vaccination	... Ten lecture-demonstrations at Bangalore.
Orthopædics	... Twelve lecture-demonstrations while working in the Surgical Wards.
Diseases of children	... One course of lectures
Medical Therapeutics and Dietetics.	... One course of 12 lectures in each.
Radiology and Electro-therapeutics	... One course of 12 lecture-demonstrations.
Dermatology	... One course of 12 lecture-demonstrations while working in the Medical Wards

SCHEME OF EXAMINATION

[Vide Ordinance 241 (i)]

First M.B.B.S. Degree Examination.

PART I

Organic Chemistry.—

			MAX. MARKS
I Paper	...	3 hours	100
Viva Voce Examination	...		50
Practical Examination	...	3 hours	50

PART II

1. *Anatomy.*—

Paper I	...	3 hours	75
Paper II	...	3 hours	75
Viva Voce Examination	...		50
Practical (Dissections)	..	3 hours	50

2. *Physiology.*—

Paper I	...	3 hours	75
Paper II	...	3 hours	75
Viva Voce Examination	...		50

Practical.—

Practical Bio-Chemistry	...	1½ hours	50
Experimental Physiology	...	1½ hours	50
Histology	...	1½ hours	50

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinance 128 (c)]**Second M.B.B.S. Degree Examination**

PART I

Pharmacology and Materia Medica—				Max. Marks.
I Paper	...	...	3 hours	100
Practical Pharmacy	...	...	"	50
<i>Viva voce</i> Examination	...	...		50

PART II

Pathology and Bacteriology—				
1. Pathology, Theory I	...	...	3 hours	75
" Theory II	...	...	"	75
" Practical	...	...	"	50
" <i>Viva voce</i> Examination	...	...		50
2. Hygiene				
I Paper	...	...	"	100
<i>Viva voce</i> Examination	...	...		50

PART III

1. Ophthalmology, I Paper	...	3 hours	100
Clinical	...	2 "	50
<i>Viva voce</i> Examination	...		50
2. Forensic Medicine, I Paper	...	3 hours	100
<i>Viva voce</i> Examination	...		50

MINIMA FOR PASS AND PUBLICATION OF RESULTS.

[*Vide* Ordinance 129 (c)]**Final Examination for the M.B.B.S. Degree**

				Max. Marks
1. Medicine (including Therapeutics and Pædiatrics)—				
Paper I	...	...	3 hours	75
Paper II	...	...	"	75
Clinical	...	...	"	50
<i>Viva voce</i> Examination	...	...	"	50
2. Surgery (including Venereal Diseases)—				
Paper I	...	...	2 hours	75
Paper II	...	...	"	75

			Max Marks
	Clinical	1 hour	50
	<i>Viva voce</i> Examination	"	50
	Operative Surgery, Practical Examination	"	50
3.	Obstetrics and Gynaecology—		
	Paper I	3 hours	75
	Paper II	"	75
	Clinical	"	50
	Practical and <i>Viva voce</i> Examination ..	"	50

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinance 130 (c)]

The following is the Course of Study for the short term course for the Licentiate I.A.M.C. Officers seeking admission to the M.B.B.S. Course and consequential amendment of Ordinances :—

Provided that in respect of Licentiates in Medicine of Mysore University who have put in War Service and have undergone intensive 3 months course and passed the examination held after the course the course shall extend over 18 months and for other Licentiates with War Service over two years, provided:—

(i) that he has subsequent to his admission, undergone a course of study for 18 months or 24 months as the case may be in the University Medical College;

(ii) that he has undergone the course in Anatomy including Elements of Embryology and Physiology including Bio-Chemistry for 6 months and has passed at the end of the course a special examination in these subjects in which special emphasis will be laid on the applied aspects of these subjects There will be only a written and an oral examination but no practical examination in these subjects, and candidates should obtain 50 per cent of the marks for a pass in each of the subjects of Anatomy including Elements of Embryology and Physiology including Bio-Chemistry;

(iii) that he has attended a course of Study and hospital practice for 12 or 18 months as the case may be subsequent to his passing the special examination in Anatomy and Physiology including Bio-Chemistry;

(iv) that he has passed the Second M.B.B.S. Degree Examination. The Final M.B.B.S. Degree Examination shall be taken subsequent to his passing the Second M.B.B.S. Degree Examination Parts I, II and III.

Each application for admission should be accompanied by the pass certificate or diploma in original.

THE SHORT COURSE OF 18 MONTHS SHALL COMPRISE THE FOLLOWING:—

- (1) First six months ... Anatomy including Elements of Embryology and Physiology including Bio-chemistry.
- (2) Next twelve months ... All subjects of the Second M.B.B.S. and Final M.B.B.S. Examination with clinical work.

Clinical Work:—

Four months Medical Wards.

Four months Surgical Wards.

Three months Maternity Wards.

Attendance at the Out-Patient Department and Ophthalmic Department for 2 months at each during the period of work in Medical and Surgical Wards.

THE SHORT COURSE OF TWO YEARS SHALL COMPRISE THE FOLLOWING:—

- First six months ... Anatmomy including Elements of Embryology and Physiology including Bio-Chemistry.
- Second six months ... Subjects of the Second M.B.B.S. Examination and Clinical Work.
- Second Year ... Subjects of the Final M.B.B.S. Examination and Clinical Work.

Clinical Work:—

Medical Wards ... Six months.

Surgical Wards ... Six months.

Maternity Wards ... Three months.

Attendance at the Out-patient Department and Ophthalmic Department for 2 months at each during the period of work in Medical and Surgical Wards.

One month at Bangalore to attend special course of lecture-demonstrations in Mental Diseases, Leprosy, Vaccination and Dental Surgery.

One month to attend Tuberculosis and Infectious Diseases Hospitals.

DIPLOMA COURSES

(1) Diploma of Licensed Medical Practitioner

CONDITIONS OF ADMISSION*

[*Vide Ordinance 133*]

COURSES OF STUDY (GENERAL)

[*Vide Ordinances 132 and 134*]

COURSES OF STUDY (DETAILED)

First Year

Physics.—One course of lectures with practical demonstrations.

Chemistry.—One course of lectures with practical demonstrations.

Elements of Biology.—One course of lectures with practical demonstrations.

Anatomy.—One course of lectures and dissections.

Physiology.—One course of lectures.

Such of the students admitted to the first year class as have passed in the optional group of a degree examination of this University comprising any of the above subjects or other examinations which may be accepted by the University Council as adequate for the purpose, may be exempted by the University Council from attendance and examination in such subject or subjects.

Second Year

Anatomy.—One course of lectures with dissections.

Physiology.—One course of lectures with demonstrations in Chemical Physiology and Histology.

Third Year

Medicine.—One course of lectures.

Surgery.—One course of lectures.

Pathology and Bacteriology.—One course of lectures with practical work.

Hygiene.—One course of lectures.

Materia Medica.—One course of lectures and Practical Pharmacy.

* No one is allowed to enter for the L.M.P. Diploma Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

Mental Diseases.—One course of lectures.

Hospital Work.—(a) Clinical work in the medical wards of a recognised hospital for four months including post-mortem clerking during the same period.

(b) Clinical work in the surgical wards for four months.

(c) Out-patient hospital practice for two months.

(d) Clinical demonstrations at the mental hospital during the short term.

(e) A course of five clinical demonstrations at the Epidemic Diseases Hospital.

Fourth Year

Medicine —One course of lectures.

Surgery.—One course of lectures.

Venereal Diseases.—One course of lectures and practical work.

Operative Surgery, Throat, Nose and Ear Diseases.—One course of lectures.

Midwifery.—One course of lectures.

Diseases of Women and Children.—One course of lectures.

Ophthalmology —A course of lectures extending over four months.

Forensic Medicine.—One course of lectures and practical demonstration in Toxicology.

Hospital Work—(a) Clinical work in the medical wards of a recognised hospital for two months.

(b) Clinical work in the surgical wards for two months.

(c) Out-patient hospital practice for one month.

(d) Clinical work at the Maternity Hospital for three months.

(e) Clinical work at the Maternity Hospital for three months.

(f) A course of five demonstrations in Vaccination.

SCHEME OF EXAMINATION

[Vide Ordinance 128 (j)]

Subject	Time	Max. Marks for Written	Max. Marks for Viva voce
<i>First Examination</i>			
1. Physics, 1 Paper ...	2 hours	100	50
2. Chemistry, 1 Paper...	3 „	100	50
3. Elements of Biology, 1 Paper	2 „	100	50
<i>Second Examination.</i>			
1. Anatomy, 1 Paper ...	3 hours	100	50
2. Physiology, 1 Paper	„	100	50

Subject	Time	Max. Marks for Written	Max. Marks for Viva voce	
<i>Third Examination</i>				
1. Pathology and Bacteriology, 1 Paper	3 hours	100	50	
2. Hygiene, 1 Paper ...	"	100	50	
3. Materia Medica 1 Paper	"	100	50	
<i>Final Examination</i>				
1. Medicine, 1 Paper ...	3 hours	100	50	Clinl. 50
2. Surgery ...	"	100	50	50
3. Midwifery ...	"	100	50	
4. Forensic Medicine ...	"	100	50	

Note.—The date and hour of clinical and viva voce examinations will be notified after the written examination.

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide Ordinance 142*]

(2) Diploma in Commerce

CONDITIONS OF ADMISSION⁺

[*Vide Ordinance 193*]

COURSE OF STUDY (GENERAL)

[*Vide Ordinance 192 and 198*]

COURSES OF STUDY (DETAILED)

[*Vide Ordinance 240 (i)*]

Part I

COMPULSORY—SIX PAPERS

1. ENGLISH

Grammar.—The construction of sentences, the simple analysis of sentences, the correction of wrongly constructed sentences and the amendment of ambiguous sentences.

Literary and Commercial abbreviations in general use.

Composition.—The writing of simple business letters, reports, descriptions and essays. The preparation of resumes of correspondence. Precis in the form of a narrative of a story or of a document relating to a particular subject.

⁺ No one is allowed to enter for the I. Com. Diploma Examination as a private candidate, unless such a candidate has completed his attendance before appearing for the examination.

Grammar

Tipping: *Matriculation English Grammar.*

Composition

G. K. Chettur: *College Composition*

Text-Books for Study

(To be prescribed from time to time)

2. ECONOMICS AND STATISTICS

(a) *Economics*.—The scope and methods of Economic Science. Definitions; wealth; value; exchange; utility; capital. market; supply and demand.

Production: Its aim and agents—Large and small production; Labour: Efficiency; organisation; division of labour; population; effects of machinery. Capital: Nature and functions; law of increase; aggregation of capital; joint stock system. Land and its efficiency; Law of diminishing returns; Law of increasing returns.

Theory of value; Market and normal value; fluctuations.

Distribution of wealth: Principles determining rent, profits, interest and wages.

Combinations of labour and capital: Trade unions, co-operations, trusts and monopolies. State and municipal production and regulation of industry. Transport roads, railways, canals.

Money and credit: Their forms and services; credit fluctuations and crises. Banking and institutions.

Foreign Trade: Condition, nature and effects. Restrictions on international trade and results. Theory of the foreign exchanges and their modes of operation.

Principles of Taxation. Public Loans. Public Expenditure.

(b) *Statistics*.—The importance of statistics as an aid to the analysis of business problems. The importance of the adequacy and the reliability of data. The need for caution in interpretation.

Various graphical methods of representation. The most common types of charts used in industrial and commercial concerns. The chief forms and practical uses of averages, including the arithmetic mean, median and mode. A simple treatment of correlation.

The nature, sources, collection and tabulation of business facts. A general knowledge of the sources, limitations and

interpretation of the most important statistical material published by Government Departments, Trade Associations, the Press and Private Services. The main types of index numbers.

Text-Books

1. R. D. Richards: *Groundwork of Economics*.
2. Jathar and Beri: *Introduction to Economics—Part II*.
3. Boddington: *Statistics and their Application to Commerce*.

Reference Books

1. Ely and Wicker: *Elementary Economics*.
2. Clay: *Economics for the General Reader*.
3. Stephenson: *Business Economics*.
4. P. N. Banerjea: *Indian Economics*.
5. Connor: *Statistics*.
6. Mills: *Statistical Methods*.

3. COMMERCIAL GEOGRAPHY

Physical features and climate determine vegetable and animal life, which, with the distribution of minerals and natural wealth, determine the settlement and economic life of mankind.

Temperature, rainfall and soils as factors affecting crops, animal life and the activities of mankind.

The principal natural regions and their characteristics.

Study of principal commodities of commerce, their source and the conditions which determine their availability.

(i) Cereals—Wheat, barley, rye, oats, rice. The principal sources and conditions affecting growth.

(ii) Other food-yielding and allied plants—tea, coffee, cocoa, spices, sugar, tobacco and the principal fruits. The principal sources and conditions affecting growth.

(iii) Raw Materials of Industry—Cotton, rubber, silk, flax, jute, timbers. The principal sources and conditions affecting growth.

(iv) Livestock and their Products (*e.g.*, Furs and Hides)—Cattle, sheep and pigs. Principal sources of supply and conditions affecting supply.

(v) Distribution of minerals and other natural exhaustible resources—Coal, iron and other principal metals. Oils, principal sources of supply and conditions affecting supply.

Commerce and its dependence upon differences in geographical conditions.

Transport and communications

Location of Industries and reasons therefor.

Commercial Towns and Industrial Districts and the geographical causes of their location and importance.

Text-Books

1. L. Dudley Stamp: *A Commercial Geography*.
2. Mukherjee: *An Economic and Commercial Geography of India*.
3. W. and A. K Johnston: *Commercial and Economic Atlas of the World*.

Reference Books

1. Chisholm: *Handbook of Commercial Geography*.
2. L. Dudley Stamp: *An Intermediate Commercial Geography*, Vols. I and II.
3. Cotton: *Handbook of Commercial Information*.

4. BOOK-KEEPING AND COMMERCIAL ARITHMETIC

(a) The theory and practice of Single and Double Entry Book-keeping relating to the preparation of the Final Accounts of Sole Traders, Partnerships and Co-operative Undertakings

Principles of Book-keeping by Double Entry and its advantages; Single Entry and its meaning, the books used, its defects and its conversion into Double Entry; the use of the Journal and the usual subsidiary books dealing separately with trading and manufacturing concerns in so far as they relate to the recording of revenue and capital transactions of Real, Personal and Nominal; Accounts inclusive of provisions and adjustments needed at the time of balancing; the posting of the ledger or ledgers; the periodical Balance Sheet, the Trading and Profit and Loss Account and other statements of Final Accounts; Transactions like cash receipts and payments, cash and credit sales and purchases, Returns—Inwards and Outwards, Cheques received and issued, Petty Cash, Bills of Exchange and Pro-notes, Wages, salaries, Interest, Commission, Discounts, Dividends, Investments, Leases, Loans and Mortgages. Suspense, Consignments—inwards and outwards, Contracts, Bad Debts, Depreciation, Reserves, Reserve Funds, Sinking Funds.

(b) The preparation of the final statements of account in the case of non-trading concerns like clubs, hospitals and hostels—the receipts and payments account and the statement of Income and Expenditure.

(c) Rapid methods of calculation with special reference to following commercial items:—

Interest, Average due date, Rates, Taxes, Commissions, Stock Exchange Securities, Partnerships, Bankruptcy, Foreign Exchanges, Bills, Banking and Insurance.

Note.—Questions in Commercial Arithmetic shall be compulsory.

Text-Books

1. Batliboi : *First Steps in Double Entry Book-keeping.*
2. D. C. Sutaria : *Practical Commercial Arithmetic.*

Reference Books

1. Arthur Fieldhouse : *The Student's Complete Book-keeping.*
2. Spicer and Pegler : *Book-keeping and Accounts.*
3. Norris : *Principles and Practice of Commercial Arithmetic.*
4. Hall and Stevens : *A School Arithmetic.*

5. SECRETARIAL PRACTICE AND PROCEDURE

The work of secretaries of limited liability companies and their staffs, with particular reference to : (i) Formation, issue of capital, prospectus, underwriting, Memorandum and Articles of Association. (ii) Office organisation, labour saving equipment, filing systems. (iii) Correspondence, circulars to shareholders, reports, financial and statistical returns. (iv) Statutory books, returns, etc., to be filed with Registrar of Companies, (v) Work of transfer department and various forms used, application for and allotment of shares, stock, etc., transfer and transmission dividends, debentures, debenture stock, share warrants, note issues. (vi) Procedure at meetings of directors and share-holders kinds of meetings and resolutions, notices, agenda, minutes, proxies ; methods of voting. (vii) General administration, methods of borrowing, procedure upon reconstruction and capital reorganisation

Inward and outward correspondence control, Office machinery and appliance, Banks and their uses. Negotiable Instruments, Business routine relating to Home and Foreign trade, shipping and insurance and drafting of letters relating to such transactions, commercial terms and abbreviations.

Text-Books

1. S. R. Davar : *Business Organisation.*
2. Arthur Fieldhouse : *Theory and Practice of Commerce.*

Reference Books

1. A. Nixon : *Secretarial Work and Practice.*
2. Simpson : *Modern Office Management.*
3. Oldham's : *Guide to Company Secretarial Work.*
4. Cole : *Guide to the Company Secretary.*

6. STENOGRAPHY

I. (a) To take down in the corresponding style of Pitman's Shorthand an easy passage—narrative, speech or letter of 400 words dictated at the rate of 80 words per minute. Time : 5 minutes.

(b) To transcribe the above into Longhand. Time : 1 hour

II. To take down in Shorthand brief notes of an official letter dictated at the rate of 90 words per minute and to elaborate the notes into proper letter form in Longhand. Time : Dictation 3 minutes. Elaboration : 1 hour.

III. A paper on the Principles of Learner's and Corresponding style of shorthand. Time : 1 hour.

Text-Books

1. Pitman's *Shorthand Instructor* (New Era Edition).
First 32 Chapters. 123 Exercises.
2. J. S. Gideon : *The New Business Correspondence*.

Part II

OPTIONAL—FOUR PAPERS

GROUP I—ACCOUNTANCY

(a) *English*.—Composition and Texts—Composition to include *Precis-Writing* and *Essay Writing*.

Books Recommended

1. Pocock : *Precis Writing*.
2. Chettur : *College Composition*.

Books for Non-detailed Study

(To be prescribed from time-to-time)

(b) and (c) *Advanced Accounts*.

Note—The following syllabus is in addition to the portions covered by the syllabus in Book-keeping and Commercial Arithmetic in the compulsory group.

Elements of Indian Mercantile Law relating to contracts, agency, sale of goods, suretyship and guarantee and negotiable instruments.

Partnership law and accounts :—The rights and duties of partners' interests as they affect accounts and the adjustments arising out of the relationship among partners, introduction of new partners, retirement of partners, and dissolution of partnership; goodwill in partnership. Company law and accounts.

The statistical and other records and returns necessary by statute or by the special needs arising out of the formation and conduct of Joint-stock companies, the special books of account and registers, the recording of the transactions arising out of the formation, conduct, amalgamation, absorption and winding up of Joint-stock companies. Departmental and branch accounts. Hire-purchase and instalment purchase accounts, sectional balancing. The columnar ledgers and loose leaf ledgers The organisation of accounting, the accounting system and methods of internal check.

The accounts of different kinds of business including banks, insurance companies, factories, mining companies, railways and hotels. Double accounts Insolvency and liquidation accounts. Income-tax law and accounts including super-tax. Cost accounts—principles of costing, methods and systems of costing, the general arrangement, assembly and compilation of cost accounts, reconciliation of cost and financial accounts. Published accounts—the construction, interpretation and criticism of the accounts published or employed by the different kinds of business undertakings (Joint-stock, Co-operative and Government).

Text-Books

1. J. R. Batliboi: *Advanced Accounts*.
2. S. R. Davar: *Indian Mercantile Law*.

Reference Books

1. Carter: *Advanced Accounts*.
2. Tovey: *Balance Sheets*.
3. Spicer and Pegler: *Book-keeping and Accounts*.
4. Garnsey: *Holding Companies and their Published Accounts*.
5. J. R. Batliboi: *Guide to Indian Income-tax Practice*.

(d) Auditing.

The principles of auditing. Origin, nature and objects of audits. Methods of conducting audits Qualifications of an auditor—rights and duties of an auditor. Liabilities of an auditor. Appointment of an auditor. Audit of cash transactions, receipts, payments and petty cash, trading transactions—purchases, cash and credit sales, orders, invoices, stock, wages, etc., sectional balancing, purchases ledger, loose leaf and cards ledgers, impersonal ledger, sales ledger, outstanding liabilities and assets, apportionment of expenditure between capital and income, deferred revenue and expenditure, valuation of assets, depreciation, repairs, renewals, reserves, contingent liabilities and the verification of assets and investments. Audit of limited companies—appointment, status, powers and liabilities of an

auditor of limited companies. Points for consideration under the Companies' Act. Divisible profits and dividends. Important legal decisions affecting auditors. Audit of partnership accounts. Audit of Co-operative institutions. Investigations and Audits. Special points requiring attention in different classes of audit.

Text-Book

1. De Paula : *Principles of Auditing*.

Reference Books

1. Spicer and Pegler : *Practical Auditing*
2. J. R. Batliboi : *Lectures on Auditing*.
3. Spicer and Pegler : *Audit Programmes*.

GROUP II—BANKING

(a) *English*.—Composition and Texts. (Same as for Group I).

(b) *Money*.—The evolution of money. Nature and functions of money. Classification of money. The monetary standards. The gold standard and its various forms. Paper currency and the problem of the reserve ratio. The monetary systems of England, U.S.A. and India. Currency and credit.

Banks and banking : Nature and functions of banks. Classification of banks. Banks and the money market. The bank rate and the market rates. Fluctuations in rates. Foreign exchanges: Central banks and their functions. Banking system and the credit structure of England, India and U.S.A.

Changes in the general level of prices: Measurement, causes, effects and remedies. Industrial fluctuations, Trade cycles.

Text-Books

1. Todd : *Mechanism of Exchange*.
2. Sayers : *Modern Banking*.
3. B. Ramachandra Rao : *Present-day Banking in India*.
4. Coyajee : *The Indian Currency System*.
5. Muranjan. *Modern Banking in India*.

Reference Books

1. Hartley Withers : *The Meaning of Money*.
2. Hartley Withers : *Money Changing*
3. W R Burges : *The Reserve Banks and the Money Market*
4. L. Lo. Marchant Minty : *English Banking Methods*.
5. Jathar and Beri : *Indian Economics*.
6. H. T. Easton : *Money, Exchange and Banking*.

(c) *Banking*: A detailed study of any one of the following subjects with special reference to India and Mysore:—

1. Co-operative Organisation and Finance.
2. Industrial Organisation and Finance.
3. Foreign Exchange Finance and Practice.

(d) *Commercial Law*: Elements of Indian Mercantile Law relating to Contracts, Agency, Partnership, Suretyship and Guarantee, Insolvency, Negotiable Instruments, Title Deeds and Mortgages, Money lending, Debt Conciliation and Relief in so far as they relate to the conduct of banks Provisions of Indian Company Law in relation to the formation, organisation, management, winding up, submission of accounts, returns and statements meetings and audits of banks.

Banking law and practice in relation to opening and conduct of banking accounts, the discounting of bills, the making of advances, the handling of securities, banker's credit, banking investments and the deposit of valuables Bank book-keeping accounts and administration of branches and agencies.

Text-Books

1. S. R. Davar : *Indian Mercantile Law*.
2. Sheldon : *The Practice and Law of Banking*
3. J. F. DAVIS : *Bank Organisation, Management and Accounts*.

Reference Books

1. Tannan : *Indian Banking Law and Practice*—
2. G. H. Woodruff : *Banking for Advanced Students*.
3. Paget : *The Law of Banking*.

GROUP III—INSURANCE

(a) *English*.—Composition and Texts (Same as for Group I)

(b) *Principles of Insurance*.—(i) principles of Insurance—Life, Fire, Motor Vehicles (Third Party), Employers' Liability—Insurance interest. Good faith. Disclosure. Representation Warranty. Moral hazard.

(ii) Proposals and policies : The types of Insurance. annuity and proposals therefor with relative reports. Group life pension and other schemes. The various forms of policy and the drafting thereof. Restriction and effect of non-compliance therewith.

(iii) Compound interest, Nominal and effective rates of interest. Annuities. Loans repayable by instalments. Rates of interest involved in each type of transaction, in premium calculations and in valuation. Methods of determining Expense Ratios,

(iv) **Mortality and elements of Valuation** ; General nature characteristics and uses of mortality tables including an elementary knowledge of the methods of compilation. General principles adopted in valuations and the principal methods of distribution of profits. Valuation schedules.

(c) *Insurance Organisation and Management*.—(i) Office organisation and Routine: Head office, branches, agencies, staff (qualifications, training, control), office equipment, mechanisation. General office routine Medical examination and proof of age. Statistics. Records. Claims (including reassurances.)

(ii) **Advertising and Prospectuses** : The principles and functions of advertising through the press and by means of post, leaflets, folders and other aids to the selling of the assurances, General principles of lay-out of advertisements. Law of Copyright (elementary). Principles of salesmanship as affecting the work of the life assurance official and agent. The prospectus including a knowledge of the table and other information usually including in a life assurance prospectus. The drafting of special matter for general and special prospectus. The use of the prospectus and the legal responsibility assumed by the companies in the issuing of a prospectus.

(iii) **Practice and Correspondence**: Practice in connection with new business. Collection of premiums. Revivals, alterations, loans, surrenders, claims and annuity payments. Non-forfeiture schemes. Correspondence relating to the conduct of business.

(iv) **Insurance Accounts**: Income-tax and Investment. Insurance accounts and book-keeping. Assurance Companies' Act and Insurance accounts and book-keeping. Assurance Companies' Act and Board of Trade Orders and Rules relating thereto with special reference to ordinary life assurance. The basis of taxation of Assurance offices. Amalgamation, transfer and winding up.

(d) *Insurance Law and Assessment*.—(i) **Law of Assurance**. The Law relating to ordinary life insurance contracts. Parties to the contract. Insurable interest. Conditions implied and expressed in endorsement, nomination, assignment, mortgages, liens, settlements, claims, surrenders, title. Appointment of agents and the rights, duties, and liabilities of principal, agent and third parties.

(ii) **Climatic and other risks**. The relationship to life assurance of the climate and industries of the various countries outside the usual free limits Under-average lives and occupational risks as affecting life assurance.

(iii) **Physiology**: Elementary human physiology. The general structure of the body. The form and functions of the

skeleton and organs. Common diseases and their causes. Duration. Common sequelæ and effect on longevity. Common medical terms.

Text-Books

1. R. C. Underwood : *The Students' Book of Life Assurance.*
2. J. B. Welton and F. H. Sheriffs : *Insurance Office Organisation and Routine.*
3. H. Gardiner : *Physiology and Anatomy.*
4. T. D. Dutt : *Law relating to Life Assurance in India.*
5. J. F. Reed : *Insurance.*

Reference Books

1. H. H. Taylor and V. W. Taylor : *Life Assurance.*
2. J. C. Mitra : *Guide to Life Assurance.*
3. A. W. Tarn : *The Students' Guide to Life Assurance in Theory and Practice.*
4. A. W. Sneath : *Insurance, A Glance at its Principles and Practice.*
5. T. B. Sprague and A. E. Sprague : *A Treatise on Insurance Company's Accounts.*
6. A. D. I. Turnbull : *Life Office Accounting.*
7. J. B. Welton and F. Hammond : *Insurance Accounts and Investments.*
8. Hartley Withers : *Hints about Investments.*
9. Lewis P. Orr : *Selections of Lives.*
10. *The New Company Law (1929) (Jordan & Sons).*
11. *Tropical Diseases and Medico-Actuarial Investigations Reports by the Actuarial Society of America.*

GROUP IV.—OFFICE MANAGEMENT : BUSINESS AND GOVERNMENT

OFFICE

- (a) *English.*—Composition and Texts. (Same as for Group I).
- (b) *Business Methods and Office Routine.*—

Note.—The following syllabus is in addition to the portions covered by the syllabus in Secretarial Practice and Procedure in the Compulsory Group.

The nature and constitution of business houses—public and private companies, Co-operative Societies, Combines and Trusts and Governmental undertakings. The organisation of the home trade—purchase and sale of goods with the documents relating thereto, carriage by road, rail, sea and air, the general principles of fire insurance, insurable interest, policy conditions and assignment. The organisation of foreign trade—the Merchant, commission agent and consignments, shipping documents and the elements of marine insurance practice. Methods of payments.

Banking in relation to the organisation of trade and industry. The money market and the stock exchange and its machinery. Advertising agencies--the scope of their work and the services rendered by them to the business world.

Office accommodation equipment and mechanisation. General Organisation, sectionalisation and co-ordination. Branch offices, their advantages, and disadvantages, work of a Branch Office, its organisation and control.

Drafting of letters, forms and statements of the following kinds : circular notes, consignments and agencies, complaints and claims, shipping accounts, insurance of goods and market reports.

Office Routine, Organisation of a Government office. Functions of departments and branches. Forms and modes of addressing official and commercial letters. Inward and outward letters and telegrams. Registering, docketing, cross-referencing and filing. Registration of papers. Preparation and submission of cases. Drafting of replies and orders. Faircopying and despatching. Manifold devices. Preparation of copy for press and proof correcting. Arrangement and custody of records. Public Servants' Conduct Rules.

Text-Books

1. Simpson : *Modern Office Management*.
2. S. R. Davar : *Business Organisation*.
3. Bucknall : *Theory and Practice of Commerce*.
4. Grebby : *Commercial Correspondence*.
5. *Manual of Office Procedure of the General and Revenue Secretariat*.

Reference Books

1. Dicksee and Blain : *Office Organisation and Management*
2. Dicksee : *Business Organisation*.
3. Haney : *Industrial Organisation and Combinations*.
4. Lokanathan : *Industrial Organisation in India*.
5. Pink and Thomas : *English Grammar, Composition and Correspondence*.

(c) Accountancy and Government Accounts in Outline.—

Note.—The following syllabus is in addition to the portions covered by the syllabus in Book-keeping and Commercial Arithmetic in the Compulsory Group.

The statistical and other records and returns necessary by statute or by the special needs arising out of the formation and conduct of joint-stock companies. The special books of accounts and registers. The recording of the transactions relating to the flotation, conduct, amalgamation, absorption, reconstruction and winding up of companies. Insolvency and Bankruptcy Accounts Income-tax accounts. Principles of costing and the double accounts

system. Departmental and branch accounts. Organisation of the accounts department and a sound system of internal check. The nature and function of audit and investigation.

General treatment of Treasury Accounts and Procedure.
Government Accounting and Budgeting.

Text-Books

1. J. R. Batliboi : *Advanced Accounts*.
2. De Paula : *Principles of Auditing*.
3. *Mysore Civil Account Code, Vols I and II*

Reference Books

1. Carter : *Advanced Accounts*.
2. J. R. Batliboi . *Lectures on Auditing*.

(d) *Commercial Law*:—

Introduction :—Definition of terms. Statute and non-statute law. Civil and Criminal Law. Contracts—Definition, classification. Essentials—offer, acceptance, consideration, absence of mistake, misrepresentation or fraud, contractual capacity of the parties, legality and possibility. Rights and obligations. Contracts not enforceable. Assignment. Termination. Breach. Performance and discharge.

Agency ; Nature. Class of agents. Appointment. Termination. Rights, duties and liabilities. Relations with third parties. Types of agents—factors, brokers and other types.

Partnership : Definition. Creation. Essentials, relations of partners *Inter se* and to third parties. Liability of partners. Dissolution. Goodwill. Limited partnerships.

Companies : Formation- Kinds of companies. Memorandum and Articles of Association. Rights and liabilities of members, Shares and Debentures. Accounts and audit. Meetings and resolutions. Liquidation—compulsory, voluntary, supervision.

Sale of Goods : Definition. Price. Who may sell. Formalities of the contract. Acceptance and receipt. Rights and duties. Conditions and warranties. Rights and remedies in case of breach. Line and stoppage in transit. Transfer of property and instalment purchase.

Suretyship and Guarantee : Definition. Guarantee and indemnity. Rights and liabilities of surety. Discharge.

Negotiable Instruments. General characteristics. Bills of Exchange—form, stamps, parties, acceptance, negotiation, endorsement, forgery, dishonour, noting and protesting, liabilities of parties, payment for honour, discharge, bills in a set, foreign bills. Cheques. Promissory notes, Bank notes, I.O.U.

Securities : Mortgages. Bills of Sale, Pawn. Liens.

Insurance : Fire. Life. Marine. Motor Vehicles (third party).

Carriers and shipping : Common carriers. Duties, Liability at Common Law. Rights of carrier; Affreightment. Charter party. Bills of lading.

Bankruptcy: Acts of bankruptcy. Petition. Receiving Order, Subsequent Proceedings. Discharge. Debtor's property and duties.

Text-Book

1. S. R. Davar : *Indian Mercantile Law*.

Reference Books

1. Stevens . *Mercantile Law*.
2. Davar : *A Manual of Indian Companies' Law and Practice*.

SCHEME OF EXAMINATION.

[*Vide Ordinance 218 (s).*]

Preliminary Examination

	<i>Hours.</i>	<i>Max. Marks.</i>
1. English	3	80
2. Economics and Statistics	3	80
3. Commercial Geography	3	80
4. Book-keeping and Commercial Arithmetic.	3	80
5. Secretarial Practice and Procedure	3	80
6. * Stenography :—		
Part A. (I. <i>a</i> and <i>b</i> of the syllabus)		40
Part B. (II of the syllabus)		25
Part C. (III of the syllabus)		15

Final Examination

1. Accountancy—
 - (a) English Composition and Texts 3 80
 - (b) Indian Mercantile Law 3 80
 - (c) Advanced Accounts—Part I 3 80
 - (d) Advanced Accounts—Part II 3 80
 - (e) Auditing 3 80
2. Banking—
 - (a) English Composition and Texts 3 80
 - (b) Indian Mercantile Law ... 3 80
 - (c) Money 3 80
 - (d) Banking—A special Subject ... 3 80
 - (e) Banking Law and Practice ... 3 80

* A pass minimum of 15 marks is prescribed in Part A of Stenography.

3. Insurance—

Hours Max. Marks:

(a) English Composition and Texts	3	80
(b) Indian Mercantile Law ...	3	80
(c) Principles of Insurance ...	3	80
(d) Insurance Organisation and Management ...	3	80
(e) Insurance Law and Practice ...	3	80

4. Office Management—

(a) English Composition and Texts	3	80
(b) Indian Mercantile Law ...	3	80
(c) Business Methods and Office Routine	3	80
(d) Accountancy and Government Accounts in Outline ...	3	80
(e) Salesmanship and Publicity ...	3	80

N.B.—The maximum marks in each of the compulsory papers and optional papers shall be 100, out of which 80 shall be allotted for the written part, 10 for class records and 10 for class examinations.

MINIMA FOR PASS AND PUBLICATION OF RESULTS

[*Vide* Ordinance 197]

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