

PROSPECTUS
OF
**ARTS, SCIENCE, LAW AND
COMMERCE EXAMINATIONS**
OF
The University of Allahabad
FOR
1940

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UNIVERSITY OF ALLAHABAD.

CHAPTER XXXII.

ORDINANCES.

A

General Ordinances governing Admission to Examinations of Students of the University.

1. Every candidate for a degree shall, except when
Section 32 (c). exempted by any of these Ordinances, be
enrolled as a member of the University
before entering upon the course prescribed for such
degree.

Note.—For the qualifications for admission to the various
courses and study *see* Chapters XXXVI-XLI.

2. (a) A candidate for any University Examination
shall not less than eight weeks before the date fixed for
the commencement of the Examination—

(1) pay into the office of the Registrar the fee
prescribed for such examination :

- (2) intimate the subject or subjects in which he desires to present himself for examination ; and
- (3) along with his application for admission, furnish the Registrar with a certificate from the Head or Heads of the Departments of Teaching in which he studied, certifying that he has fulfilled the conditions laid down by these Regulations.

(b) In the case of students of the University who reside in or are attached to a College or Hostel, the application of every such student who appears at any examination of the University must be forwarded to the Registrar through the Principal or Warden of the College or Hostel in which the student resides or to which he or she is attached ; and the " Admit Card " of every such student shall be sent to the Principal of the College or the Warden of the Hostel in which the student resides or to which he or she is attached.

3. The following fees shall be paid in respect of examinations held by the University :—

	Rs.
Bachelor of Arts	30
Bachelor of Arts II Year (Honours) [in addition to Rs. 30 paid for the examination of Bachelor of Arts (Pass)]	5

	Rs.
Bachelor of Arts III Year (Honours) ..	20
Examination previous to Master of Arts ..	20
Master of Arts	30
Bachelor of Science	30
Bachelor of Science (Honours) ..	20
Each subsidiary subject in above ..	10
Examination previous to Master of Science ..	20
Master of Science	30
Doctor of Science	200
Examination previous to LL. B. ..	30
Bachelor of Laws	40
Master of Laws	100
Admission to the degree of Doctor of Laws or to the Degree of Doctor of Letters ..	200
Bachelor of Commerce, Part I ..	20
Ditto Part II ..	20
Examination for a Certificate of Proficiency in French or German ..	10
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Examination for a Diploma in Indian Music ..	10
Examination for a Diploma in Painting ..	10

4. A candidate who from sickness or other cause is unable to present himself for any examination, shall not receive a refund of his fee, provided that the Executive

Council may, for sufficient cause, permit the candidate to present himself for the next ensuing examination without payment of a further fee and provided that the candidate makes an application for the purpose before July 31st, following the examination for which he had paid the fee.

5. Except as provided by Ordinances, a candidate when admitted to one or more subsequent examinations shall, before admission, pay the prescribed fee for such examination on each occasion when he is so admitted.

6. Upon receipt of the fee prescribed, the Registrar shall furnish the candidate with an admission card, which will, on presentation, admit the candidate into the examination hall.

7. Permission to appear at a University Examination may be withdrawn for conduct which, in the opinion of the Executive Council, justifies the candidate's exclusion.

8. A candidate may not be admitted into the examination hall, unless he produces to the officer conducting the examination his examination admission card or satisfies such officer that it will be produced.

9. (1) If a candidate for any University Examination owes any money to the University on any account, the Vice-Chancellor may withhold or authorise the withholding of the admission card or cards of the candidate till all such money has been paid by him.

(2) If the Principal, Warden or Head of any College or Hostel recognised by the University or the President, Chairman or Treasurer of any Society or Association organised with the approval of the University for the benefit of the students or of the staff and students of the University, reports in writing to the Vice-Chancellor that any such candidate owes any money to the College or Hostel concerned or any money which the College or Hostel authorities require residents or students attached to it to pay or any money to any such Society or Association, the Vice-Chancellor may either withhold or authorise the withholding of the admission card or cards of the candidate or may send the same to the Principal, Warden or Head of the College or Hostel or to the President, Chairman or Treasurer of the Society or Association concerned to be withheld till all such moneys have been paid

(3) The Vice-Chancellor may take similar action if any such candidate fails, refuses or neglects to return any books, instruments or other property of the University or of any College or Hostel recognised by it or of any such Society or Association as aforesaid which have been lent to, or have otherwise come into the possession or custody of, the candidate concerned; or if a candidate fails, neglects or refuses to pay for any such books, instruments or property or to pay for any damage done to the same.

(4) If any Principal, Warden or Head of a Hostel or any President, Chairman or Treasurer of any Society or

Association, desires the Vice-Chancellor to take action under clause (2) or (3) of this ordinance, he must send to the University Office particulars of the sum or sums claimed by him and the name and class of the candidate against whom the claim is made, at least three weeks before the date of the examination or the first examination (if more than one) at which such candidate has applied (or qualified) to appear.

10. No student of the University shall be allowed to appear at a University Examination unless he has attended 75 % of the lectures and the tutorial classes separately in each subject during the course of instruction for the examination. In the case of a student studying a Science subject 75 % of attendance during the course of practical work shall be required. In the case of students preparing for the LL. B. Examination attendance at 75% of lectures in each paper shall be required :

Provided that in the case of students residing in a Hostel or a College no student shall be allowed to appear at a University Examination, unless he has kept 80 % of the Hostel or College attendance. But the Vice-Chancellor may in special cases on the recommendation of the Warden or Principal concerned allow a period of a grace not exceeding 10 days. Attendance during Moharram, Dasehra and Christmas holidays and the summer vacation will not be counted :

Provided also that a period of grace not exceeding 6 days in any subject may be allowed by the Dean and

of an additional period not exceeding 9 days by the Vice-Chancellor in case of (1) serious and prolonged illness of the student when it is supported by a medical certificate submitted at the time when the student was actually ill or (2) in very special cases for any other equally strong and sufficient cause.

The absence of a student on duty at the Camp of the University Training Corps, or at an athletic meet or a University Educational Excursion will be condoned; provided that a certificate signed by a properly constituted authority is furnished within a week of the date of absence.

A properly constituted authority shall include the Officer Commanding of the University Training Corps, the President of the Athletic Association, the Principals of Colleges and Wardens of Hostels and Heads of Departments, as the case may be.

11. The Registrar may, if satisfied that an examination admission card has been lost or destroyed, grant, on payment of a further fee of Re. 1, a duplicate examination admission card. The card so granted shall show in a prominent place the number and date of the card originally granted.

12. The answer-books of a candidate who fails by not more than three marks in any one subject, or in any one paper (in examinations in which minimum pass marks are required in individual papers), or by not more than

six marks in the aggregate of all the subjects, shall be scrutinised by the Vice-Chancellor in consultation with the Head of the Department concerned, with a view to check if any question or part of a question has been left unmarked or if a mistake has been made in the addition of marks and to arrange for the rectification of such omission or mistake.

13. If any candidate desires to have his marks checked, he should apply to the Registrar within one month of the publication of the results and pay a fee of Rs. 5 and the Vice-Chancellor shall have the answer-books re-checked and communicate the result to the applicant.

14. The marks obtained by a candidate in each subject will be communicated to him on payment of a fee of Rs. 2 ; in the case of M. A. and M. Sc. Examinations the marks obtained in each paper will be communicated.

15. Duplicates of University Certificates or Diplomas shall not be granted except in cases in which the Executive Council is satisfied by the production of an affidavit on a stamped paper of one rupee or otherwise that the applicant has lost his certificate or diploma, or that it has been destroyed. In such cases a duplicate of a certificate, the original of which was signed by the Registrar, may be granted on payment of a fee of Rs. 5 ; and a duplicate of a certificate or diploma, the original of which was signed by the Vice-Chancellor, on payment of a fee of Rs. 10.

B**Ordinances for Admission of Teachers to University Examinations.**

1. *Bona fide* teachers in recognised Educational Institutions situate within the territorial jurisdiction of the University who have taken degrees of the Allahabad University will be eligible *not less than 2 years after graduation* for admission to the M. A. Previous or the M. A. Examination of the University by the permission of the Academic Council subject to the conditions laid down in these Ordinances.

2. A teacher who desires to enter for the M. A. Previous or the M. A. Examination of the University must apply to the Registrar in the prescribed form not less than six months before the examination, and must enclose with his application the following:—

- (a) A certificate from an Inspector of Schools or the Head of the Educational Institution in which he has taught last that he has served continuously as a teacher for *at least 18 months* in one or more institutions recognised by the Board of High School and Intermediate Education, U. P., or the Department of Public Instruction, U. P., or the University of Allahabad and that before the commencement of such service he had passed the B. A. or the B. A. 3rd Year or M. A. Previous Examination of the University;
- (b) A certificate of character from an Inspector of Schools or the Head of the Educational Institution in which

he has taught during the period prescribed in clause (a) of this Ordinance ;

(c) The prescribed fee for the examination ;

(d) The enrolment fee of Rs. 10 for becoming a member of the University.

3. Where a candidate applies for permission to appear at a University Examination and his application is rejected, Rs. 8 out of the Rs 10 paid under ordinance 2 (d) shall be refunded to him.

CHAPTER XXXIII.

Re-admission to University Examinations

1 A candidate who has failed once in a degree examination other than (a) in Law ; (b) or in the B. Sc. Examination in English shall not be admitted to a subsequent examination, unless he has attended a regular course of study during the Academical year in which the subsequent examination is held ; provided that the Academic Council may, in exceptional cases, permit a candidate who has attended a regular course of study in any year, subsequent to the year in which he last failed, to be examined at the next examination.

A candidate who after passing the Previous M A or M. Sc. (Mathematics) Examination or the B. A. Third Year Honours Examination or the B. Sc., Honours Examination in Mathematics, has attended a regular course

of study for one year in the University for the Final Examination for the same degree may be allowed by the Executive Council to appear at any subsequent examination for such degree without attending any further regular course of study : provided that his application is recommended by the Dean of the Faculty concerned and provided also that the candidate takes the subsequent examination within five years of his having attended a regular course of study.

2. Save as otherwise provided by the Ordinances elsewhere a candidate who has failed more than once in a University Examination may be admitted to a subsequent examination without attending a regular course of study provided that :—

- (i) he remains a student of the University ; and further
- (ii) provided that he takes the subsequent examination within five years following the year in which he failed last,
- (iii) not less than six months before the date fixed for the next examination he sends an application together with a fee of Rs. 2 to the Registrar setting out —
 - (a) the conditions under which he has been studying and is now proposing to continue his studies ;
 - (b) the dates of his previous failures to pass in the examination ; and

(c) in the case of a Science candidate, whether he passed the practical Examination at his last appearance for the examination.

3. Any candidate for the B. A., B. Sc. or B. Com Examination who has failed in one subject only, obtaining not less than 25 per cent. in that subject, and has obtained 40 per cent. of the aggregate number of marks allotted to the remaining subjects, shall be admitted to the examination of the following year in the subject in which he failed, and if he passes in that subject, he shall be deemed to have passed the examination. The fee for such an examination shall be prescribed by the Executive Council.*

4. Every ex-student who wishes to appear at subsequent examinations shall pay an annual fee of Rs. 5 in order to retain his membership of the University. Law students must pay this fee from 1925 onwards.

CHAPTER XXXVI.

General Ordinances relating to Degrees

1. In Chapters XXXIII and XXXVII to XL, the expression “a regular course of study,”
Section 32 (c). means attendance at such percentage of

* *Note.*—A fee of Rs. 15 for each subject has been fixed, *vide* Executive Council resolution No. 302, dated the 15th December, 1923.

lectures and other teaching in the subject or subjects for the examination at which a candidate intends to appear, and at such other practical work (such as work in a laboratory) as is required by any Ordinance, Regulation or Rule in force for the time being in the University.

2 Where there are two examinations for any degree or diploma, such as a Previous and a Final Examination, and there are two or more alternative courses for such a degree or diploma, a candidate for the degree or diploma must take the same course in the Final Examination as he has taken in the Previous Examination, provided that, if there are two examinations, an examination for honours and an examination for a pass, in the same subject or subjects, a candidate who has passed the previous examination with honours may take the pass course for the final examination; but a candidate who has not passed the previous examination with honours cannot take the honours course for the final examination.

*** General Ordinances for Admission to Under-graduate Classes.**

3. Students who have passed the Intermediate Examination of the Board of High School and Intermediate Education of the United Provinces, or of any

* Accepted by the Faculty of Commerce subject to such restrictions as the Faculty deems it fit to impose from time to time.

University in British India incorporated by any law for the time being in force, or any examination *recognised by the Academic Council as equivalent thereto, may be admitted to the undergraduate classes of the University.

General Ordinances for Admission to Post-graduate Classes.

4. Any graduate of the University or of any other University in British territory recognised by the law of

* 1. The Higher School Certificate Examination conducted by the Syndicate of the University of Cambridge, the Intermediate Examination conducted by the Board of High School and Intermediate Education, Rajputana (including Ajmer-Merwara), Central India and Gwalior, and the Intermediate Examination of the Mysore University have been so recognised by the Academic Council. The Intermediate Examination of the Dacca Board of Intermediate and Secondary Education has also been so recognised by the Academic Council provided that a candidate passes in addition to the present compulsory subjects, in English and *any three* of the following subjects:—

History or Geography; Logic; Mathematics; Economics;
Classical Language; Physics; Chemistry; Botany;
Physiology; Urdu; Hindi or Bengali.

2. The Preliminary Examination of the Mayo College, Ajmer, has been recognised as equivalent to the Intermediate Examination of the U. P. Board.

the place in which it is situated, or of any University* which the Academic Council may from time to time recognise for this purpose, may be admitted to the classes for post-graduate degrees in the University, provided that, only those who have passed the examination for an Honours degree of the University or, as the case may be, have passed the previous examination, if any, of this University for a post-graduate degree may be admitted to the final class for that degree.

5. The number of lectures to be delivered for any examination for a post-graduate degree shall not be less than 100 in each academic year.

Transitory Ordinance.

6. Notwithstanding anything contained in the above Ordinances those students who have passed the Previous M. A. M. Sc, or LL. B. Examination of the Nagpur University in 1924. will be permitted to appear at the Final M.A., M.Sc, or LL.B. Examination of this University.

*1. The Mysore University has been so recognised.

2. The Intermediate Examination in Arts and Science of the Andhra University with Banking, Accountancy and Commercial Geography has been so recognised.

3. The Intermediate Examination in Agriculture of the Nagpur University has been so recognised for admission to the B. Sc. Ag. of the University.

CHAPTER XXXVII.

A**Ordinances for the degree of Bachelor of Arts
(Pass).**

1. A candidate who has attended a regular course of study in the University for this degree, shall be permitted to appear at this examination.

2. The examination for the pass degree of Bachelor of Arts shall be concluded by means of papers, and may include a *viva voce* examination.

3. Every candidate for the Pass B. A. Degree shall be required to show a competent knowledge of three branches of study in addition to Compulsory English.

(1) Compulsory English.

(2) *Any three* of the following branches :—

(a) English Literature.

(b) Latin, Greek, Hebrew, Arabic, Persian or Sanskrit, Hindi or Urdu, French, German or Italian.

(c) Mathematics.

(d) Philosophy.

(e) Economics.

(f) History.

(g) Geography.

(h) Politics.

4. Any candidate who has passed the pass B. A. or B. Sc. Examination of this University shall be allowed to present himself for examination at any pass B. A. Examination in one of the following Languages, *viz.*, Sanskrit, Arabic, Persian, Latin, Greek and French provided he has attended a regular course of study in the subject for at least one year.

B

Ordinances for the degree of Bachelor of Arts (Honours).

1. The Course for the Honours degree in any subject under the Faculty of Arts shall be a three years' course. A candidate for Honours shall during his first year in the University take the course for the pass degree and at the end of that year shall sit for the examination of the first year class; thereafter, if he has satisfied the Head of the Department concerned of his fitness to take the Honours Course, such fitness to be judged by the results of the said examination and by his work in the classes during the year, he shall be admitted to a special Honours Class of instruction and read in the Honours Course during his second year, while continuing to attend the lectures in the B. A. Course in all the subjects selected by him for the B. A. (Pass) degree. At the end of his second year he shall appear in the examination for B. A. (Pass) degree and also in a special examination in the subject which he has studied for the Honours degree. If he

passes in both these examinations he may continue to read in the Honours Course during his third year, and at the end of that year appear in the examination therein, and, if successful in the examination, he may be given the degree of Bachelor of Arts with Honours. If at the end of his second year he passes the B. A. (Pass) examination he shall be entitled to the B. A. (Pass) degree; if he fails in either of the examinations taken at the end of his second year he shall not be admitted to read further in the Honours Course, but may be re-admitted to the course for the B. A. (Pass) degree, if he has failed to pass the examination for it.

2. A candidate studying for the examination for the degree of Bachelor of Arts (Honours) may not study in any post-graduate class for any other degree of the University.

3. The subjects of examination for the degree of Bachelor of Arts (Honours) shall be the following:—

- (1) Languages, (2) Mental and Moral Science,
- (3) History, (4) Mathematics. (5) Economics,
- (6) Politics.

4. The examination in Languages shall be in English or in one of the following Languages, *viz.*, Sanskrit, Arabic, Persian, Greek, Latin, Hebrew, Hindi, Urdu, French, German or Italian

5. The examination in any language other than Sanskrit, shall include the Language, Literature and History of the country to which it belongs.

6. The examination in Sanskrit shall include the Sanskrit Language Literature, Philosophy or Early Indian History.

C

Ordinances for the degree of Master of Arts.

1. A candidate who, after passing the examination for the degree of Bachelor of Arts (Honours), has completed a regular course of study for not less than one academical year in the University in the subject in which he has passed the examination for the degree of Bachelor of Arts (Honours) (but not in any other subject) shall be admitted to the examination for the degree of Master of Arts.

2. (a) A candidate who has taken the degree of B. A. (Pass) of the University or of any other University to which Ordinance 4 of the General Ordinances, Chapter XXXVI applies and who wishes to proceed to the M. A. degree may be admitted to the course for the M. A. (Previous) examination specified in Ordinance I, Section B, Chapter XXXVII, in any one of the subjects offered by him in the examination for the B. A. (Pass) degree, or in any other subject provided the Head of the Department

of teaching in the subject and the Dean of the Faculty consider the subject to be allied to one of the subjects offered by the candidate for the B. A. (Pass) degree, and provided also that he satisfies the Head of the Department concerned of his fitness for admission to the course such candidate if successful in the M. A. (Previous) examination shall be permitted to proceed to the M. A. Final examination.

A candidate who has taken the degree of B. Com of the University or of the Lucknow University and who wishes to proceed to the M. A. degree in Politics may be admitted to the course for M. A. (Previous) examination specified in Ordinance I, Section B, Chapter XXXVII and such a candidate if successful in the M. A. (Previous) examination shall be permitted to proceed to the M. A. (Final) examination.

A candidate who has taken the B. A. (Pass) degree and who wishes to proceed to the degree of M. A. in Mathematics may be admitted to the course for the M. A. (Previous) examination in Mathematics, and if successful shall be permitted to proceed to the M. A. (Final) examination. The course for the M. A. (Previous) examination shall be the same as for the M. Sc. (Previous) examination unless otherwise determined by the Faculty of Arts.

(b) A B. Sc., (Pass or Honours) or B. Com. who wishes to proceed to the Degree of M. A. may be admitted to

the course for the M. A. (Previous) examination specified in Ordinance 1 of Section B of this Chapter and to the examination thereafter, with the permission of the Head of the Department concerned : Provided (i) that the Head of the Department and the Dean of the Faculty grant his application and (ii) that before he is admitted he passes in a written test in the subject which he proposes to take, the test to be conducted by the Head of the Department concerned.

(c) A candidate who has passed the examination mentioned in Clause (a) of this Ordinance may be admitted to the examination for the degree of Master of Arts if he completes a regular course of study for not less than one academical year in the University in the subject in which he passed the examination mentioned in Clause (a) of this Ordinance.

3 The subjects of examination for the degree of Master of Arts shall be the same as those enumerated in Ordinances 3, 5 and 6 of Section "B" of this chapter.

D

Ordinances for the Degree of Doctor of Philosophy.

1. A candidate for the Degree of Doctor of Philosophy must be either—

- (i) A Master of Arts of this University ; or
- (ii) A Master of Arts of any other University recognised by this University.

2. The candidate shall apply for admission to the University stating his qualifications and the subject he proposes to investigate, and enclosing a statement of any work he may have done in the subject.

3. The application shall be placed before a Research Degree Committee consisting of the Vice-Chancellor, the Dean, and the Head or Heads of Departments concerned ; they shall have power to co-opt two other members. This Committee shall satisfy itself that the subject offered is one which can be profitably pursued under the superintendence of the University and that the candidate possesses the requisite qualifications and equipment. If the Committee is satisfied on these points, it shall grant the application for admission and appoint a member of the teaching staff to guide the work of the candidate. The proceedings of the Committee shall be reported to the Faculty at its next meeting.

4. Every candidate shall pursue as a student of the University a course of research of not less than two academic years' duration.

Note—A teacher of this University shall be considered to be student for the purpose of this Ordinance.

5. He shall pursue his research at Allahabad unless the Vice-Chancellor, on the recommendation of the supervisor, gives him leave of absence for ordinarily not more than one year on the ground that it is in the interest of his research that he should work elsewhere.

6. A candidate may, not later than one year after his admission, modify the scheme of his subject with the approval of the Committee.

7. On a report from the supervisor that the candidate's thesis is likely to be submitted within six months, the Faculty shall appoint three examiners, two of whom shall conduct the *viva voce* examination. The supervisor shall ordinarily be one of the examiners.

8. After the thesis is completed the candidate shall supply five printed or typed, but unpublished copies of his thesis which shall comply with the following conditions :—

It must be a piece of research work characterised either by the discovery of facts, or by a fresh approach towards interpretation of facts or theories ; in either case it should evince the candidate's capacity for critical examination and judgment. It shall also be satisfactory so far as its literary presentation is concerned, and must be suitable for publication.

9. The candidate shall indicate how far the thesis embodies the result of his own research or observations and in what respects his investigations appear to him to advance the study of his subject.

10. The candidate may also submit as subsidiary matter any printed contribution or contributions to the advancement of his subject which he may have published independently or conjointly. In the event of his submitting

such subsidiary matter he shall be required to state fully his own share in any conjoint work.

11. The candidate may incorporate in his thesis the contents of any work which he may have published on the subject but he shall not submit as his thesis any work for which a degree has been conferred on him in this or any other University.

12. The examiners shall examine the thesis and shall submit their reports on the prescribed form either conjointly or separately. The examiners may consult one another before formulating their reports. They may make such suggestions as they deem fit for the improvement of the thesis.

13. After the examiners have read the thesis, they may recommend that the thesis be rejected, or that the candidate be allowed to re-present his thesis in a revised form not earlier than six months and not later than two years from the date of the decision of the Faculty.

14. If the majority of examiners report that the thesis is satisfactory the University shall arrange for the *viva voce* examination.

15. If the *viva voce* examiners are also satisfied, the recommendations of the thesis and *viva voce* examiners shall be placed by the Research Degree Committee before the Faculty for necessary action.

16. The Faculty shall accept all unanimous recommendation or recommendations made by a majority of the examiners. In the event of no definite recommendations being made by a majority of examiners the Faculty may allow the candidate to re-present the thesis or may appoint one or more fresh examiners to examine the thesis.

17. In case the recommendation of the *viva voce* examiners differs from the recommendation of the examiners of the thesis the candidate may be asked to re appear at the *viva voce* examination within one year. If the candidate fails to satisfy the *viva voce* examiners a second time he shall be rejected.

18. No candidate shall be allowed to re-present his thesis more than once or to re-appear at the *viva voce* examination more than once.

19. The following fees shall be charged :—

(a) A fee for guidance and supervision of work as laid down in Ordinance 18 (2) of Chapter XLII

(b) A fee of Rs 100 for the examination.

20. Each examiner shall be paid a fee of Rs. 50 for reading the thesis and a fee of Rs. 50 for examining the candidate *viva voce*.

Note.—When an examiner conducts the *viva voce* examination and is also one of the examiners to assess the thesis he shall be paid only Rs. 75.

21. The Faculty may exempt a candidate from the conditions laid down in Ordinance 4, provided that he had carried on research at this University prior to the coming into force of these ordinances.

UNIVERSITY OF ALLAHABAD.

FACULTY OF ARTS

Report of Examiners for D. Phil. Degree.

The Examiners report that.....student of..... Department has presented a thesis entitled.....for the Degree of Doctor of Philosophy.

Part I.—(For the Examiners of the thesis only).

A—The Examiners report after the examination of the thesis—

(i) That the thesis submitted by the candidate is a piece of research work characterised—

(a) By the discovery of fact ;

or

(b) By a fresh approach towards interpretation of facts or theories

and

(ii) That the thesis evinces the candidate's capacity for critical examination and judgment, and

(iii) That the thesis is satisfactory so far as its literary presentation is concerned and is suitable for publication as a thesis approved for the Degree of Doctor of Philosophy in the University of Allahabad.

B—After the examination of the thesis, the examiners recommend that the candidate be rejected without further test.

C—After the Examination of the thesis, the examiners recommend that the candidate be permitted to re-present the thesis in a revised form.

Part II.—(For the examiners of the *viva voce* Examination),

The examiners report that they have examined the candidate *viva voce* on the subject of the thesis and that they have satisfied themselves, (i) that he is acquainted with the literature on the subject, (ii) that the thesis is genuinely the work of the candidate, and (iii) that the candidate evinces a capacity for critical examination and judgment.

Part III.—(The examiners are to give here a concise statement of the grounds on which the decision summarised under Part I or Part II is based)

Part IV.—The examiners recommend—

Strike out either (a) or (b).

(a) That the Degree of Doctor of Philosophy in the Faculty be conferred on the candidate.

- (b) That the Degree of Doctor of Philosophy be not conferred on the candidate.

Strike out either (i) or (ii).

- (c) (i) That the candidate be allowed to re-present his thesis within six months from the date of the decision. The lines on which the Examiners recommend a revision of the thesis shall be communicated to the candidate.

- (ii) That the candidate be allowed to re-appear at the *viva voce* examination within six months from the date of the decision.

Examiner of the thesis
Viva voce Examiner

E

TRANSITORY ORDINANCE.

Candidates whose applications for permission to supplicate for the D Litt or D. Sc. degrees have already come before the Faculty shall be permitted to appear under the old Ordinances

ORDINANCES OF THE DEGREE OF DOCTOR OF LETTERS.

1. A candidate for the Degree of Doctor of Letters must be either (a) a Doctor of Philosophy of this Univer-

sity of at least two years' standing or (*b*) a Master of Arts of this University of at least seven years' standing or (*c*) a Master of Arts of at least seven years' standing of a University recognised by this University, or (*d*) a Doctor of Philosophy of another University recognised by the Aliahabad University who has resided at the University for at least one year. Candidates under (*b*) and (*c*) must satisfy the Faculty that the work already done by them is of sufficient merit to earn exemption from the D. Phil. Degree.

2. Every candidate who intends to supplicate for the said degree shall communicate his intention to do so to the Registrar stating the subject chosen by him for the thesis and support his application by submitting a copy of the contribution published by him towards the advancement of the subject of his study. He shall submit a certificate from two members of the Faculty that he is a fit and proper person to supplicate for the Degree of Doctor of Letters

3. The application shall be placed before the Faculty of Arts which shall consider the suitability of the subject.

4. In case the Faculty approves of the subject it shall appoint from among the teachers of the University a person to advise the candidate.

5. On a report from the adviser that the candidate's thesis is likely to be submitted within six months, the

Faculty shall appoint not less than three and not more than five examiners, two of whom shall be appointed to conduct the *viva voce* examination.

6. After the thesis is completed, the candidate shall supply five printed or typed copies of his thesis. The thesis shall comply with the following conditions :—

The thesis submitted by the candidate must be *entirely* his own work and must be an original contribution to knowledge characterised either by the discovery of new facts and their significance or by a new interpretation of facts or theories and in either case it should evince the capacity of the candidate for critical examination and judgment. It shall also be satisfactory so far as its literary presentation is concerned, and *must* be suitable for publication.

7. The candidate may incorporate in his thesis the contents of any work which he may have published on the subject, but he shall not submit as his thesis any work for which a degree has already been conferred on him in this or any other University. The candidate may also submit as subsidiary matter any printed contribution or contributions to the advancement of his subject.

8. The examiners shall examine the thesis and other published work of the candidate and shall submit their reports on the prescribed form either conjointly or separately. The examiners may consult one another before submitting their reports. They may make such suggestions

as they deem fit for the improvement of the thesis. These suggestions shall be communicated to the examinee.

9 After the examiners have read the thesis they may recommend that the candidate be rejected or be allowed to re-present the thesis in a revised form not earlier than six months and not later than two years from the date of the decision of the Faculty.

10. If the majority of Examiners report that the thesis is satisfactory the University shall arrange the *viva voce* examination.

11. If the *viva voce* Examiners are also satisfied, the recommendations shall be placed before the Faculty for necessary action.

12. The Faculty shall accept all unanimous recommendation, or recommendations made by a majority of the Examiners. In the event of no definite recommendations made by a majority of Examiners the Faculty may allow the candidate to re-present the thesis or may appoint one or more fresh examiner to examine the thesis.

13. In case the recommendation of the *viva voce* Examiners of the thesis differs from the recommendation of the Examiners of the thesis the candidate may be asked to re-appear for the *viva voce* examination within six months. If the candidate fails to satisfy the *viva voce* Examiners a second time he shall be rejected.

14. No candidate shall be allowed to re-present his thesis more than once or to re-appear in the *viva voce* examination more than once.

15. The following fees shall be charged :—

(a) A fee for guidance and supervision of work as laid down in Ordinance 18 (2) of Chapter XLII.

(b) A fee of Rs. 200 for the examination.

16. Each Examiner shall be paid a fee of Rs. 100 for reading the thesis and a fee of Rs. 100 for examining the candidate *viva voce*.

Note.—When an Examiner conducts the *viva voce* examination and is also one of the Examiners to assess the thesis he shall be paid only Rs. 150.

UNIVERSITY OF ALLAHABAD

FACULTY OF ARTS.

Report of Examiners for D. Litt. degree.

The Examiners report to the Faculty that.....student of.....Department has presented a thesis entitled..... for the Degree of Doctor of Letters.

Part I. (For the Examiners of the thesis only).

A.—The Examiners report after the examination of the thesis—

(i) that the thesis submitted by the candidate is an original contribution to knowledge characterised :—

(a) by the discovery of new facts and their significance,

or

(b) by a new interpretation of facts or theories,

and

(ii) that the thesis evinces the candidate's capacity for critical examination and judgment, and

(iii) that the thesis is satisfactory so far as its literary presentation is concerned and is suitable for publication as a thesis approved for the Degree of Doctor of Letters in the University of Allahabad.

B.—After the Examination of the thesis, the Examiners recommend that the candidate be rejected without further test

C.—After the Examination of thesis the Examiners recommend that the candidate be permitted to re-present the thesis in a revised form.

Part II.—For the Examiners of the *viva voce* Examination).

The Examiners report that they have examined the candidate *viva voce* on the subject of the thesis and on the subjects relevant thereto, and that they have satisfied themselves, (i) that the thesis is genuinely and entirely the work of the candidate and (ii) that the candidate evinces the capacity for critical examination and judgment.

Part III.—The Examiners are to give here a concise statement of the grounds on which the decision summarised under Part I or Part II is based).

Part IV.—The Examiners recommend :—

Strike out either (a), (b) or (c).

- (a) that the Degree of Doctor of Letters in the Faculty be conferred on the candidate ;
- (b) that the lower Degree of Doctor of Philosophy be conferred on the candidate ;
- (c) that the Degree of Doctor of Letters be not conferred on the candidate.

Strike out either (i) or (ii).

- (d) *i*) that the candidate be allowed to re-present his thesis within one year from the date of decision ;
- (ii) that the candidate be allowed to re-appear at the *viva voce* examination within one year from the date of the decision.

Examiner of the thesis.

Viva voce Examiners.

CHAPTER XXXVIII.

A**Ordinances for the degree of Bachelor of
Science (Pass).**

1. Course, of study for the B. Sc. (Pass) degree shall extend over a period of two academic
Section 32 (c). years and the degree examination shall be held at the end of the second academic year.

2. A candidate who has attended a regular course of study in the University for this degree shall be permitted to appear at the examination.

3. Every candidate shall be required to pass in either of the following groups of subjects :—

(a) Physics, Chemistry and Mathematics ;

(b) Chemistry, Botany and Zoology ;

(c) Geography, Botany and Zoology.

provided that no candidate shall be allowed to take any subject, unless he has passed an examination in the corresponding Subject in the Intermediate, or any other examination recognised as qualifying for admission to a degree course.

4. A candidate may, at his option, take General English as an extra subject.

The marks obtained by the candidate shall not be counted towards his aggregate, and the class obtained by

him in General English shall be indicated in his diploma and notified in the Gazette.

5. Students who are reading for a Pass degree may, on the recommendation of the Head of the Department concerned, be transferred by the Dean to the Honours course at any time within the first three months of the first year of study.

Regulations.

1. The examination for the degree of Bachelor of Science shall be by means of papers; but candidates shall be required to undergo a practical examination, except in the case of Mathematics, examination in which shall be entirely by means of papers.

Candidates shall be required to pass separately in the practical examinations.

2. Names of successful candidates shall be arranged in three classes. Candidates who obtain 60 per cent. and upwards of the aggregate marks shall be placed in the first class. Candidates who obtain 48 per cent. or more, but less than 60 per cent. of the aggregate marks, shall be placed in the second class. Candidates who obtain 33 per cent. or more, but less than 48 per cent. of the aggregate marks, shall be declared to have passed in the third class. Names shall be arranged in alphabetical order within the classes.

3. Candidates must obtain at least 33 per cent. of the total marks in each subject.

4. The examination in General English shall be the same as for the B. A. degree.

B**Ordinances for the degree of Bachelor of Science
(Honours).**

1. The courses of study for the B. Sc. (Honours) degree shall extend over a period of three academic years.

2. A candidate who has attended a regular course of study in the University for this degree shall be permitted to appear at the examination.

3. There shall be the following Honours Schools in the Faculty :—

- (1) Physics, (2) Chemistry, (3) Botany, (4) Zoology,
(5) Mathematics.

4. Every candidate for the degree of B. Sc. Honours shall, in addition to his Honours or principal subject, be required to pass an examination in each of two subsidiary subjects

5. The subsidiary subjects, which may be taken along with a particular principal subject, will be determined by the Dean in consultation with the Heads of Departments concerned.

6. The examination in the subsidiary subjects shall ordinarily be taken at the end of the second year, and shall be indetical with the examination for the B. Sc. Pass degree in those subjects.

7. Candidates who are reading for an Honours degree may, on the recommendation of the Head of the Department concerned, be transferred by the Dean to the Pass Course at any time within the first six months of the first year of study.

8. A candidate for an Honours degree who fails in one or both of the subsidiary subjects at the end of the second year, may appear again in the subject or subjects in which he failed in an examination held during the next Session ; a course of practical training in such subjects will be necessary except in Mathematics.

9. A candidate for an Honours degree who attains the necessary standard in his subsidiary subjects, but who fails to attain the Honours standard in his principal subject, shall be allowed to present himself for re-examination in that subject at the end of the next year, and, if successful, shall be given an Honours degree.

10. Candidates who have failed to obtain Honours may, if they attain the prescribed standard, be recommended for a pass degree.

11. A candidate may, at his option, take General English, or French, or German. The marks obtained by the candidate in any of the above-mentioned subjects shall not be counted towards his aggregate, but the class obtained by him in such subject or subjects shall be stated in his diploma and notified in the Gazette.

12 A candidate for an Honours degree, who twice fails to obtain the standard necessary for that degree and who fails to obtain a pass degree under Ordinance 10, shall be allowed to take the B. Sc Pass Examination at the end of any subsequent year, provided he has attended a regular of study during the academical year at the end of which such examination is held.

Regulations

1. The examination for the degree of Bachelor of Science with Honours shall be by means of papers ; but candidates shall be required to undergo a practical examination, except in the case of Mathematics, examination in which shall be entirely by means of papers.

Candidates shall be required to pass separately in the practical examinations.

2. Candidates who pass the Examination for B. Sc. Honours shall be classified in three classes :—

1st class : 60 per cent. of the total marks in the Honours subject.

2nd class : 48 per cent. of the total marks in the Honours subject.

3rd class : 36 per cent. or more, but less than 48 per cent. of the total marks in the Honours subject.

Candidates obtaining 33 per cent. or more but less than 36 per cent. of the total marks in the Honours subject may be awarded a Pass degree.

3. The names of successful candidates shall be published in such form as to distinguish the Honours Schools in which they have passed ; the names shall be arranged in order of merit within the classes.

C

Ordinances for the degree of Master of Science.

1. A candidate who after taking the Pass degree in Science or in Agriculture has completed a regular course of study in the University, shall be admitted to the Previous Examination for the degree of Master of Science at the end of the academical year in which he has completed such course of study ; but if he does not then appear at the examination, he cannot be admitted to a subsequent examination in the same subject, unless during the academical year at the end of which such examination is held, he has completed a regular course of study in the University for the examination. Provided that no candidate shall be allowed to take any subject for the M. Sc. examination unless he has passed an examination in the corresponding subject in the B. Sc.

2. A candidate who, after passing the Honours B. Sc. Examination or the Previous M. Sc. Examination, has completed a regular course of study in the University, shall be admitted to the Examination for the degree of Master of Science at the end of the academical year in which he has completed such course of study ; but if he

does not then appear at the examination, he cannot be admitted to a subsequent examination in the same subject, unless, during the academical year at the end of which such examination is held, he has completed a further regular course of study for the examination.

3. Where a candidate submits a thesis for the M. Sc., degree in place of one or more papers an extra copy of the said thesis shall be submitted by him to the Registrar to be deposited in the University Library.

D

Ordinances of the degree of Doctor of Philosophy

1. A candidate for the Degree of Doctor of Philosophy must be either —

(i) A Master of Arts or Science of this University ;

or

(ii) A Master of Arts or Science of any other University recognised by this University.

2. The candidate shall apply for admission to the University stating his qualifications and the subject he proposes to investigate, and enclosing a statement of any work he may have done in the subject.

3. The application shall be placed before a Research Degree Committee consisting of the Vice-Chancellor, the Dean, and the Head or Heads of Departments concerned ; they shall have power to co-opt two other members. This

Committee shall satisfy itself that the subject offered is one which can be profitably pursued under the superintendence of the University and that the candidate possesses the requisite qualifications and equipment. If the Committee is satisfied on these points, it shall grant the application for admission and appoint a member of the teaching staff to guide the work of the candidate. The proceedings of the Committee shall be reported to the Faculty at its next meeting.

4 Every candidate shall pursue as a student of the University a course of research of not less than 20 months' duration.

Note—A teacher of this University shall be considered to be a student for the purposes of this Ordinance.

5 He shall pursue his research at Allahabad unless the Vice-Chancellor, on the recommendation of the supervisor, gives him leave of absence for ordinarily not more than one year on the ground that it is in the interest of his research that he should work elsewhere.

6. A candidate may, not later than one year after his admission, modify the scheme of his subject with the approval of the Committee.

7. On a report from the supervisor that the candidate's thesis is likely to be submitted within six months, the Faculty shall appoint three Examiners, two of whom shall conduct the *viva voce* examination. The supervisor shall ordinarily be one of the Examiners.

8. After the thesis is completed the candidate shall supply five printed or typed, copies of his thesis which shall comply with the following conditions :--

It must be a piece of research work characterised either by the discovery of facts, or by a fresh approach towards interpretation of facts or theories ; in either case it should evince the candidate's capacity for critical examination and judgment. It shall also be satisfactory so far as its literary presentation is concerned, and must be suitable for publication.

9. The candidate shall indicate how far the thesis embodies the result of his own research or observations and in what respects his investigations appear to him to advance the study of his subject.

10. The candidate may also submit as subsidiary matter any printed contribution or contributions to the advancement of his subject which he may have published independently or conjointly. In the event of his submitting such subsidiary matter he shall be required to state fully his own share in any conjoint work

11. The candidate may incorporate in his thesis the contents of any work which he may have published on the subject but he shall not submit as his thesis any work for which a degree has been conferred on him in this or any other University.

12. The examiners shall examine the thesis and shall submit their reports on the prescribed form either conjointly or separately. The Examiners may consult one another before formulating their reports. They may make such suggestions as they deem fit for the improvement of the thesis.

13. After the examiners have read the thesis, they may recommend that the thesis be rejected, or that the candidate be allowed to re-present his thesis in a revised form not earlier than six months and not later than two years from the date of the decision of the Faculty.

14. If the majority of the examiners report that the thesis is satisfactory the University shall arrange for the *viva voce* examination.

15. If the *viva voce* examiners are also satisfied, the recommendations of the thesis and *viva voce* examiners shall be placed by the Research Degree Committee before the Faculty for necessary action.

16. The Faculty shall accept all unanimous recommendation or recommendations made by a majority of the examiners. In the event of no definite recommendations being made by a majority of examiners the Faculty may allow the candidate to re-present the thesis or may appoint one or more fresh Examiners to examine the thesis.

17. In the case the recommendation of the *viva voce* examiners differs from the recommendation of the Examiners

of the thesis the candidate may be asked to re-appear at the *viva voce* examination within one year. If the candidate fails to satisfy the *viva voce* Examiners a second time he shall be rejected

18. No candidate shall be allowed to re-present his thesis more than once or to re-appear at the *viva voce* examination more than once.

19. The following fees shall be charged :—

a) A fee for guidance and supervision of work as laid down in Ordinance 18 (2) of Chapter XLII.

(b) A fee of Rs. 100 for the examination.

20. Each Examiner shall be paid a fee of Rs. 50 for reading the thesis and a fee of Rs. 50 for Examining the candidate *viva voce*.

Note.—When an examiner conducts the *viva voce* examination and is also one of the examiners to assess the thesis he shall be paid only Rs. 75.

21. The Faculty may exempt a candidate from the conditions laid down in Ordinance 4, provided that he had carried on research at this University prior to the coming into force of these ordinances

UNIVERSITY OF ALLAHABAD

FACULTY OF SCIENCE

Report of Examiners for D. Phil. Degree.

The Examiners report that student of..... Department has presented a thesis entitled.....for the Degree of Doctor of Philosophy.

Part I — (For the Examiners of the thesis only.)

A —The Examiners report after the examination of the thesis—

(i) that the thesis submitted by the candidate is
a piece of research work characterised

(a) by the discovery of facts ;

or

(b) By a fresh approach towards interpretation
of facts or theories.

and

(ii) that the thesis evinces the candidate's capacity
for critical examination and judgment, and

(iii) that the thesis is satisfactory so far as its
literary presentation is concerned and is suitable
for publication as a thesis approved for the
Degree of Doctor of Philosophy in the University
of Allahabad.

**B—After the examination of the thesis, the Examiners
recommend that the candidate be rejected without further
test.**

**C—After the examination of the thesis, the Examiners
recommend that the candidate be permitted to re-present
the thesis in a revised form.**

Part II.—(For the Examiners of the *viva voce* examination).

The Examiners report that they have examined the candidate *viva voce* on the subject of the thesis and that they have satisfied themselves, (*i*) that he is acquainted with the literature on the subject, (*ii*) that the thesis is genuinely the work of the candidate, and (*iii*) that the candidate evinces a capacity for critical examination and judgment.

Part III.—(The Examiners are to give here a concise statement of the grounds on which the decision summarised under Part I or Part II is based.)

Part IV.—The Examiners recommend—

Strike out either (a) or (b).

- (a) that the Degree of Doctor of Philosophy in the Faculty be conferred on the candidate.
- (b) that the Degree of Doctor of Philosophy be not conferred on the candidate.

Strike out either (i) or (ii).

- (c) (i) That the candidate be allowed to represent his thesis within six months from the date of the decision. The lines on which the Examiners recommend a revision of the thesis shall be communicated to the candidate.
- (ii) That the candidate be allowed to re-appear at the *viva voce* examination

within six months from the date of the decision.

Examiner of the thesis

Viva voce Examiner

E

TRANSITORY ORDINANCE.

Candidates whose applications for permission to supplicate for the D. Litt. or D. Sc. degrees have already come before the Faculty shall be permitted to appear under the old Ordinances.

ORDINANCES FOR THE DEGREE OF DOCTOR OF SCIENCE.

1. A candidate for the Degree of Doctor of Science must be either

- (i) (a) a Doctor of Philosophy of this University of at least two years' standing or
- (b) a Master of Arts or a Master of Science of this University of at least seven years' standing or
- (ii) (c) a Master of Arts or a Master of Science of at least seven years' standing of a University recognised by this University or
- (d) a Doctor of Philosophy of another University recognised by the Allahabad University who has resided at the University for at least one year.

Candidates under (b) and (c) must satisfy the Faculty that the work already done by them is of sufficient merit to earn exemption from the D. Phil. Degree.

2. Every candidate who intends to supplicate for the said degree shall communicate his intention to do so to the Registrar stating the subject chosen by him for the thesis and support his application by submitting a copy of the contribution published by him towards the advancement of the subject of his study. He shall submit a certificate from two members of the Faculty that he is a fit and proper person to supplicate for the Degree of Doctor of Science

3. The application shall be placed before the Faculty of Science which shall consider the suitability of the subject.

4. In case the Faculty approves of the subject it shall appoint from among the teachers of the University a person to advise the candidate.

5. On a report from the adviser that the candidate's thesis is likely to be submitted within six months, the Faculty shall appoint not less than three and not more than five Examiners, two of whom shall be appointed to conduct the *via voce* examination.

6. After the thesis is completed, the candidate shall supply five printed or typed copies of his thesis. The thesis shall comply with the following conditions : --

The thesis submitted by the candidate must be *entirely* his own work and must be an original contribution to knowledge characterised either by the discovery of new facts and their significance or by a new interpretation of facts or

theories, and in either case it should evince the capacity of the candidate for critical examination and judgment. It shall also be satisfactory so far as its literary presentation is concerned, and *must* be suitable for publication.

7. The candidate may incorporate in his thesis the contents of any work which he may have published on the subject, but he shall not submit as his thesis any work for which a degree has already been conferred on him in this or any other University. The candidate may also submit as subsidiary matter any printed contribution or contributions to the advancement of his subject.

8. The Examiners shall examine the thesis and other published work of the candidate and shall submit their reports on the prescribed form either conjointly or separately. The Examiners may consult one another before submitting their reports. They may make such suggestions as they deem fit for the improvement of the thesis. These suggestions shall be communicated to the examinee.

9. After the Examiners have read the thesis they may recommend that the candidate be rejected or be allowed to re-present the thesis in a revised form not earlier than six months and not later than two years from the date of the decision of the Faculty.

10. If the majority of Examiners report that the thesis is satisfactory the University shall arrange the *viva voce* Examination.

11. If the *viva voce* examiners are also satisfied, the recommendations shall be placed before the Faculty for necessary action.

12. The Faculty shall accept all unanimous recommendation, or recommendations made by a majority of the Examiners. In the event of no definite recommendations made by a majority of Examiners the Faculty may allow the candidate to re-present the thesis or may appoint one or more fresh Examiners to examine the thesis

13. In case the recommendation of the *viva voce* Examiners of the thesis differs from the recommendation of the Examiners of the thesis the candidate may be asked to re-appear for the *viva voce* examination within six months. If the candidate fails to satisfy the *viva voce* examiners a second time he shall be rejected.

14. No candidate shall be allowed to re-present his thesis more than once or to re-appear at the *viva voce* examination more than once.

15. The following fees shall be charged :—

(a) A fee for guidance and supervision of work as laid down in Ordinance 18 (2) of Chapter XLII ;

(b) A fee of Rs. 200 for the examination.

16. Each Examiner shall be paid a fee of Rs. 100 for reading the thesis and a fee of Rs. 100 for examining the candidate *viva voce*.

Note.—When an examiner conducts the *viva voce* examination and is also one of the examiners to assess the thesis he shall be paid only Rs. 150.

UNIVERSITY OF ALLAHABAD

FACULTY OF SCIENCE.

Report of Examiners for D. Sc. degree.

The Examiners report to the Faculty that.....student of.....Department has presented a Thesis entitled for the Degree of Doctor of Science.

Part I (For the Examiners of the thesis only).

A—The Examiners report after the examination of the thesis—

(i) that the thesis submitted by the candidate is an original contribution to knowledge characterised :

(a) by the discovery of new facts and their significance ;

or

(b) by a new interpretation of facts or theories, and

(ii) That the thesis evinces the candidate's capacity for critical examination and judgment, and

(iii) That the thesis is satisfactory so far as its literary presentation is concerned and is suitable

for publication as a thesis approved for the Degree of Doctor of Science in the University of Allahabad.

B—After the examination of the thesis, the Examiners recommend that the candidate be rejected without further test.

C—After the Examination of the thesis, the Examiners recommend that the candidate be permitted to re-present the thesis in a revised form.

Part II—(For the Examiners of the *viva voce* examination).

The Examiners report that they have examined the candidate *viva voce* on the subject of the thesis and on the subjects relevant thereto, and that they have satisfied themselves (*i*) that the thesis is genuinely and entirely the work of the candidate and (*ii*) that the candidate evinces the capacity for critical examination and judgment.

Part III—(The examiners are to give here a concise statement of the grounds on which the decision summarised under Part I or Part II is based).

Part IV—The Examiners recommend—

Strike out either (a), (b) or (c)

(a) that the Degree of Doctor of Science in the Faculty be conferred on the candidate ;

(b) that the lower degree of Doctor of Philosophy be conferred on the candidate ;

(c) that the Degree of Doctor of Science be not conferred on the candidate ;

Strike out either (i) or (ii).

(d) (i) that the candidate be allowed to re-present his thesis within one year from the date of the decision ;

(ii) that the candidate be allowed to re-appear his at the *viva voce* examination within one year from the date of the decision.

Examiner of the thesis

Viva voce Examiners

F

Ordinances for the degree of Bachelor of Science (Pass) in Agriculture.

1. The examination for the degree of Bachelor of Science in Agriculture shall be open to any candidate who has passed the Intermediate Examination in Agriculture of the Board of High School and Intermediate Education, U. P., or any other examination in Agriculture recognised by the University as equivalent thereto.

2. Courses of study for the B. Sc. (Ag.) Pass degree shall extend over a period of two academic years and the

degree examination shall be held at the end of the second academic year.

3. A candidate who has attached a regular course of study in the University for this degree shall be permitted to appear at the examination.

4. Every candidate shall be required to pass in the following subjects :—

1. Agricultural Economics, Agricultural Engineering, Farm Crops and Agricultural Chemistry ;

2. Biological Sciences and

3. Any one of the following subjects :—

(a) Agronomy

(b) Pomology

(c) Animal Husbandry and Dairying.

N. B.—Candidates offering subjects mentioned in 1, 2 and 3 (c) will be exempted from Paper II (Entomology and Practical Examination in Entomology).

Regulations

1. The examination for the Degree of Bachelor of Science in Agriculture shall be by means of papers, but candidates shall be required to undergo a practical examination in each subject.

Candidates shall be required to pass separately in the written as well as in the practical examinations of each subject.

2. Names of successful candidates shall be arranged in three classes :—

1st class : 60 per cent or more of the aggregate marks.

2nd class : 48 per cent or more but less than 60 per cent.
of the aggregate marks.

3rd class : 33 per cent. or more but less than 48 per cent.
of the aggregate marks.

3. Candidates must obtain at least 33 per cent. of marks in each subject.

CHAPTER XXXIX.

A

Ordinances for the degree of Bachelor of Laws.

1. A candidate who after graduating either in Arts,
Section 32 (c) in Science or in Commerce completes a
regular course of study in the University,
for one academical year, shall be admitted to the Previous
Examination in Law.

Note.—Graduates in Agriculture are also eligible for admission to the Law classes.

2. A candidate who after passing the previous examination has completed a regular course of study in the University for one academical year, shall be admitted to the Examination for the degree of Bachelor of Laws.

3 (a) Notwithstanding anything contained in the foregoing ordinances a candidate shall not be admitted after 1931 to either the Previous or Final Examination

for the degree of Bachelor of Laws unless he has attended a regular course of study for that examination within ten years immediately preceding the examination.

(b) In and after the year 1931 no candidate shall be admitted to either the Previous or Final examination for the degree of Bachelor of Laws except a candidate who has attended lectures either in the University School of Law prior to 1923 or in the Law Department of the University.

4. The Examination for the degree of Bachelor of Laws shall consist of two parts—(1) the Previous Examination and (2) the Final Examination.

5 Every candidate for the Previous Examination shall present himself for examination in the following subjects : —

- (i) Roman Law ;
- (ii) The Law of Contracts, except the Law of Partnership ;
- (iii) The Law of Easements and Torts ;
- (iv) The Law of Evidence ;
- (v) Criminal Law and Procedure ;
- (vi) Constitutional Law and Administrative Law ;
- (vii) Hindu Law with the statutory modifications thereof ;

and the examination shall be conducted by papers.

6. Every candidate for the examination for the degree of the Bachelor of Laws shall present himself for examination in the following subjects : —

- (i) Civil Procedure including Principles of Pleading and Limitation ;
- (ii) The Law relating to Land Tenures, Rent and Revenue in the United Provinces of Agra and Oudh ;
- (iii) The Law of Partnership and of Companies ;
- (iv) Muhammadan Law, with the statutory modifications thereof ;
- (v) The Law relating to Transfer of Property including the Principles of Equity in so far as they relate to the subject ;
- (vi) Equity with special reference to the Law of Trusts and Specific Relief ;
- (vii) Jurisprudence and the latest theories in Jurisprudence, such as those of Leon Duguit ;
- (viii) Public International Law ;

and the examination shall be conducted by papers.

7 The list of candidates who have passed, either in the Previous or in the LL. B. Examination shall be

arranged in two classes. A candidate who, out of the aggregate marks obtainable, obtains not less than 60 per cent., shall be placed in the first class, and a candidate who obtains not less than 50 per cent. shall be placed in the second class, provided that no candidate shall be placed in either class, who does not succeed in obtaining a minimum of 30 per cent. of the marks allotted to each paper.

B

Ordinances for the degree of Master of Laws.

1. No candidate shall be admitted to the examination for the Degree of LL. M unless he has passed not less than two years previously, the examination for the Degree of Bachelor of Laws of the Allahabad University, and unless, after passing the LL. B examination he has for one Academical year (1) pursued an approved course of study at the University and (2) worked in the University Library under the guidance and supervision of the University staff.

FEE.

Each candidate shall pay the fee prescribed for graduates and advanced students in Ordinance 18 (2) Chapter XLII.

TRANSITORY ORDINANCE.

Candidates who have failed at the LL. M. Examination of the Allahabad University prior to the amend-

ment of this Ordinance and who wish to appear at the examination in a subsequent year shall be required for a period of three months before the examination (1) to pursue an approved course of study at the University, and (2) to work in the University Library under the supervision of the University staff.

2. Candidates for the degree of Master of Laws shall be examined in the following Compulsory Subjects with such combination of two of the Optional Subjects as an intending candidate adopts :—

COMPULSORY SUBJECTS.

- I. Jurisprudence and Principles of Legislation.
- II. Constitutional Law, British and Indian.
- III. Equity.
- IV. Either (a) Hindu Law or (b) Muhammadan Law.

OPTIONAL SUBJECTS

Only two out of these may be taken :—

- I. Muhammadan or Hindu Law, whichever is not chosen as a compulsory subject.
- II The Law of Contracts.
- III. Transfer of Immoveable Property and Easements.
- IV. Roman Law.
- V. International Law, Public.

VI. International Law, Private.

3. Candidates who obtain not less than 50 per cent. of the marks assigned to each subject and not less than 60 per cent. on the whole shall be declared to have passed the examination

4. There shall be no classes, the names of successful candidates shall be arranged in alphabetical order.

5. The examination shall be conducted *viva voce* and by written papers.

6. Failure to pass the examination will not operate as a disqualification to appear a second time upon a new application being forwarded and a fresh fee paid.

C

Ordinances for the degree of Doctor of Laws.

1. No special examination shall be held, but any person who has obtained the degree of Master of Laws of the University of Allahabad or has passed the examination for Honours in Law of the University of Allahabad on or before the 1st November, 1906, may be admitted to the degree of Doctor of Laws without examination, provided -

(a) that two members of the Faculty of Law or two Doctors of Laws certify to the satisfaction of the Academic Council that since obtaining the degree of Master of Laws or since passing the

examination for Honours in Law under the regulations in force on or before the 1st November 1905, he has practised his profession with repute for at least five years or has contributed during such period either by scholastic work or by literary production to the advancement of law for the public benefit and that in habits and character he is a fit and proper person for the degree of Doctor of Laws; and

- (b) that he has written an essay approved by the Faculty of Law, or by a Sub-committee thereof on some subject connected with Law or with Jurisprudence

2. A candidate shall be required to state in a preface the source or sources whence he has derived information in the composition of his thesis, the extent to which he had availed himself of the work of others and the portions of the thesis which he claims as original.

CHAPTER XL.

A

Ordinances for the degree of Bachelor of Commerce.

1. The examination for the degree of Bachelor of Commerce shall be open to all students who have passed any of the following examinations and have since passing such examination prosecuted a regular course of study as

laid down under these Ordinances at the University or a College associated with the University for the B. Com. Degree:—

- (i) the Commercial Diploma Examination of the Allahabad University; or the Commercial Diploma Examination of the Board of High School and Intermediate Education, United Provinces or the Intermediate Examination in Commerce of the Board of High School and Intermediate Education, United Provinces;
- (ii) The Bachelor of Arts Examination with Economics;
- (iii) Master of Arts (Previous) Examination in Economics of the Allahabad University;
- (iv) Master of Arts Examination of any University;*
- (v) The Intermediate Examination in Arts and Science of the Andhra University with Banking, Accountancy and Commercial Geography and
- (vi) The Intermediate Examination with Economics.

Note.—As the First Year B. Com. Class has been abolished students who have passed the Intermediate Examination without Economics cannot be admitted to the B. Com. class.

* Students who have passed their M. A. Examination in Economics may be excused from examination in those subject-matters which in the opinion of the Head of the Department have already been covered in their M. A. work, and they may be permitted to appear in the remaining subjects of both Part I and Part II in a single year, provided the time-table can be arranged so that they can attend the classes in the subjects of both parts which they have not studied.

2. That the examination for the Degree of Bachelor of Commerce shall ordinarily be taken in two parts *i. e.*, Part I at the end of the First Year and Part II at the end of the Second Year or it may be taken entirely at the end of the Second Year in case of students who are unable to appear at the Examination on account of illness supported by a Medical Certificate, provided they have passed in the tests previous to the examination and further provided the Head of the Department is satisfied. A candidate who has not passed Part I at the end of the First Year shall be eligible to appear in the entire examination for the Degree at the end of the Second Year.

B

Ordinances for the degree of Master of Arts in Economics.

1. A candidate who after taking his degree either in the Faculty of Arts or in the Faculty of Commerce or in the Faculty of Science of this University or in the Faculty of Commerce of the Lucknow University, has completed a regular course of study in the University for one academical year, shall be admitted to the Previous Examination for the degree of Master of Arts in Economics ; provided (a) in the case of a candidate taking his degree without Economics in the Faculty of Arts ; and (b) in the case of a candidate taking his degree in the Faculty of Science, he satisfies the Head of the Department of Economics and the Dean of the Faculty of Commerce of his special fitness for admission to the course.

2. A graduate in Arts of any other University to which Ordinance 4 of the general Ordinances applies, who wishes to proceed to the degree of M. A. in Economics of this University may be admitted to the course and Examination mentioned in Clause 1 of this ordinance, provided that he shall have satisfied the Head of the Department of Economics and the Dean of the Faculty of Commerce of his special fitness for admission to the course.

3. A candidate, who after passing either the M. A. Previous Examination in Economics or the Bachelor of Arts Honours Examination in Economics, has completed a regular course of study for one academical year in the University, shall be admitted to the Final Examination for the degree of Master of Arts in Economics.

4. The Examination for the degree of Master of Arts in Economics shall consist of two parts. (1) The Previous Examination. (2) the Final Examination. The Bachelor of Arts (Honours) Examination in Economics shall be equivalent to the Previous Examination in Economics.

C

Ordinances for the degree of Doctor of Letters in Economics.

1. Any Master of Arts of a University established in India by an Act of the legislature may, at least three years after he has taken the M. A. degree, be admitted to the examination for the degree of Doctor of Letters in Economics.

2. The examination will be entirely *viva voce*, based chiefly on an original thesis offered by the candidate, at least six months before the Annual Meeting of the Academic Council, upon any subject comprised within the Faculty of Commerce.

3. A candidate who has been admitted to the examination for the degree of Doctor of Letters in Economics shall pay to the University, through the Registrar, a fee of rupees two hundred (Rs. 200) for the examination.

4. Every candidate, who intends to supplicate for the said degree, shall communicate his intention to do so to the Registrar, and also the special subject chosen by him for the original thesis. No application for admission to the said degree will be entertained, unless it is supported by two members of the Faculty or two Doctors of the University, who shall have testified that the applicant is a fit and proper person to supplicate for the degree. The communication shall be laid before the Faculty of Commerce. If the application is approved the Faculty shall appoint a Board of three members, who, if so required, shall advise the candidate as to the amount of knowledge and research required of him.

5. When the suppliant has prepared his thesis, he shall forward it to the Registrar for submission to the aforesaid Board stating therein what part of it he himself considers original, and what authorities he has utilised in preparing it.

6. The Board aforesaid shall proceed to examine the said thesis with a view to determining its value and importance. If, in the opinion of the Board, the thesis evinces sufficient merit and research, they shall, through the Registrar, instruct the candidate to present himself for a *viva voce* examination at a date, time and place to be fixed by the Vice-Chancellor in consultation with the members of the Board.

7. If, after the *viva voce* examination, the Board are satisfied that the candidate has really worked on original lines and is conversant with the subject, and is a fit and proper person for the degree, they will make a recommendation to that effect to the Faculty of Commerce.

8. Such recommendation shall be laid before the next meeting of the Faculty, and if approved by it, shall be submitted through the Academic Council to the Executive Council along with other motions for the conferment of degrees under Statute I of Chapter XIX of the Allahabad University Act, 1921.

CHAPTER XLI.

A

Ordinances for the examination in French/German for a certificate of proficiency.

A certificate of proficiency in French/German will be granted to those students who have

- (a) attended the two years' course provided by the University in the subject, and

(b) passed the prescribed examination.

2. The examination will consist of two papers and a *viva voce*. The maximum marks in each paper shall be 50 and the minimum pass marks an aggregate of 36 out of 100. The maximum marks for the *viva voce* shall be 50; the minimum pass marks, 15.

A candidate passing in the papers and failing in *viva voce* shall be granted a certificate endorsed to that effect.

3. A candidate who has failed in the examination may be permitted to appear again after one year.

4. Names of successful candidates shall be published in one list arranged in alphabetical order.

5. The examination shall be held on a convenient day before study leave for University examination candidates commences.

Regulations.

SCHEME OF EXAMINATION.

At the end of two years' course a candidate shall be admitted to the following examinations :—

- (i) One paper will be set with three passages for translation into English; two from the prescribed text and one from the book recommended for general reading. Time allowed 3 hours. Maximum marks 50.
- (ii) In the second paper two unseen passages will be set, one to be translated into English from French/German, and the other to be translated into French/German from English. Candidates

will also be required to answer questions on grammar and idiom. *Thirty-five marks shall be assigned to the unseen passages and 15 to the questions on grammar and idiom.* Time allowed 3 hours. Minimum pass marks in the two written papers taken together shall be 36.

- (iii) Each candidate will be examined *viva voce* for 10 minutes to test his practical knowledge of the language, both for reading and speaking purposes. Maximum marks 50 Minimum pass marks 15.

B

Ordinances for the examination for a Certificate of Proficiency in Military Science.

1. A certificate of Proficiency in Military Science will be granted to those students who are members of the University Training Corps and who have—

(a) attended the two years' course provided by the University in the subject and

(b) passed the prescribed examination.

2. The examination will consist of two papers and one Practical Test. A candidate shall appear in the Practical Test at the end of the first year and in the papers in the second year. Maximum marks in each paper shall be 50 and the minimum pass marks an aggregate of 36 out of 100. The maximum marks for Practical shall be 50, the minimum pass marks 15. The aggregate of the

minimum pass marks for all the three combined shall be 54 out of 150.

3. A candidate who has failed in the Practical may be allowed to appear again along with papers in the year immediately succeeding.

4. A candidate who has failed in the written examination may be permitted to appear again after one year.

5. Names of successful candidates shall be published in one list arranged in alphabetical order.

6. The Practical test shall be held on a convenient day before March and the written examination shall, as far as possible, be held not later than January.

C

Ordinances for the Examination for a diploma in Indian Music.

1. A Diploma in Music will be granted to a student who has (a) attended a regular course of study at the University for two years and (b) passed the prescribed examination.

2. A candidate may offer any one of the following subjects :—

(i) *Vocal Music* (accompaniment with Harmonium will not be allowed).

(ii) *Instrumental Music*.—Only one of the following instruments will be allowed for the purposes of examination in instrumental music : —

- (a) Sitar.
- (b) Esraj.
- (c) Sarode.
- (d) Violin.
- (e) Harmonium.
- (f) Flute.
- (g) Tabla or Pakhawaj
- (h) Sarangi.

3 Every candidate appearing for the examination of instrumental or vocal music must possess a knowledge of Tals, as detailed in the syllabus laid down.

4. The examination will consist of a paper and a practical examination in each subject. The maximum marks in the written paper on theory shall be 50 and in the practical test 100.

The minimum pass marks in the total shall be 50.

5. The names of successful candidates will be published in a list arranged in order of merit. The division of marks shall be as follows : —

Marks.	Class.
90	I
70	II
50	III

6. The fee for the Diploma examination shall be Rs. 10.

7. Ex-students of the University shall be eligible for admission to the Music classes.

8. The tuition fee for each Academic year shall be Rs. 20 payable in monthly instalments of Rs. 2 on or before the 20th of every month. Non-University students will be admitted to the Diploma course in Music on payment of an admission fee of Rs. 4 and subject to such conditions as may be laid down by the Admission Committee. When a student fails to make payment of his monthly fees on the due date he shall be required to pay an additional fee of one anna every day for the first month and two annas every day for the second and third months. Students who are admitted to the Diploma classes shall pay the tuition fees for the whole session. Student shall be required to deposit Rs. 5 as caution money.

9. The classes will ordinarily be held in the afternoon. Each student will be required to attend six periods a week. Students will not be allowed to go up for the examination unless they have attended 60 per cent. of the meetings.

D

Ordinances for the Examination for a diploma in Painting.

1. Students who have passed the Intermediate Examination of the Board of High School and Intermediate

Education of the United Provinces, or of any University in British India incorporated by any law for the time being in force, or any examination recognised by the Academic Council as equivalent thereto, may be admitted to the class for diploma in painting.

2. A diploma in painting will be granted to those students who have—

(a) attended the two years' course provided by the University in the subject and

(b) passed the prescribed examination.

3. The examination will consist of four papers. The maximum marks in each paper shall be 100 and the minimum pass marks in the aggregate 35 per cent.

4. A candidate who has failed in the examination may be permitted to appear again after one year.

5. Names of successful candidates shall be published in one list arranged in alphabetical order.

6. The examination shall be held on a convenient date before the commencement of the University examinations.

7. The fee for Registration of an application for Admission shall be Re. 1 and the Admission fee shall be Rs. 4. The class fee for a course for Diploma in Painting shall be at the rate of Rs. 4 per mensem for 10 months in the year.

**TEXT-BOOKS AND SYLLABUSES
PRESCRIBED FOR THE EXAMINA-
TIONS OF 1940.**

B.A. EXAMINATION.

ENGLISH

COMPULSORY ENGLISH

There will be two papers and a *viva voce* test.

Paper I.—An Essay on a subject of general interest and Questions on an Unseen Passage. Maximum marks 50.

Paper II.—Modern Prose—Maximum marks 35.

BOOK PRESCRIBED : Ratchiff : Prose of our Time
(Nelson).

ALTERNATIVE BOOK FOR B. SC. AND B. COM
STUDENTS :

ASQUITH : Occasional Addresses (Macmillan).

Viva voce—A test of general reading and command
of the language. Maximum marks 15

OPTIONAL ENGLISH LITERATURE.

There shall be *three* papers, each carrying 50 marks.

Paper I.—*Shakespeare and Drama.*

Plays Prescribed—Macbeth ; and Galsworthy's Strife.

For *General Reading*—Othello.

N. B.—Critical questions will be set on Shakespeare and on Galsworthy (in the case of the latter only on the prescribed play), but not on the history of the drama nor on other authors.

Books recommended for Reference.—

LAMBORNE : Shakespeare—the Man and His Stage

DOWDEN : Shakespeare's Mind and Art.

BRADLEY : Shakespearean Tragedy.

CHAMBERS AND WILLIAMS : Life of Shakespeare.

COATES : John Galsworthy.

Paper II.—*Poetry.*

1. Tennyson : The Coming of Arthur and the Passing of Arthur, Oenone and the Death of Oenone.

2. Poets of the Romantic Revival, Edited by Crump (Harrap).

The following poems are prescribed :—

Wordsworth :—Lines Written in Early Spring.

Tintern Abbey.

Resolution and Independence.

“ The world is too much with us.”

Upon Westminster Bridge.

Milton.

Shelley :—The Cloud.

Ode to the West Wind.

To Night.

When the Lamp is Shattered.

Keats :—Ode to Autumn.

On the Sea.

Passage from " Endymion ".

" When I have fears."

Ode on a Grecian Urn.

Ode to a Nightingale.

3 JHA : Anthology of Modern Poetry (Macmillan).

The following poems are prescribed :—

Bridges :—The Storm is over.

Asian Birds.

Hardy :—A Dream Question.

New Year's Eve

The Last Leaf.

Davies :—The Two Children

Nature's Friend.

On Expecting some Books.

Truly Great.

Kipling :—The Children's Song.

The Fires.

Shiv and the Grass-hopper.

Masefield :—Laugh and be Merry.

A Song at Parting.

The West Wind.

S. Naidu :—Indian Weavers.

The Queen's Rival.

Song of Radha the Milkmaid.

Guerdon.

Paper III.—*Prose*.

1. JANE AUSTEN : Pride and Prejudice.

Note.—No context questions will be set on this book.

2. STEVENSON : *Virginibus Puerisque* (omitting 'Portraits by Raeburn,' and the first three Essays).

3. A Book of Modern English Prose (Indian Press).

The following are prescribed :—

Carlyle ; Stanley Baldwin ; Dickens ; Sidney Colvin ; A. G. Gardiner ; Hazlitt ; Walter Raleigh ; Edmund Gosse ; Augustine Birrell ; G. Lowes Dickinson ; Robert Lynd ; J. B. Priestley ; Stephen Leacock.

Books recommended for reference :—

L.A.G Strong and Redlich : Life in English Literature
(Gollancz) .

G. HODGSON : English Literature (Blackwell)

WYATT :—Tutorial History of English Literature
(University Tutorial Press).

GOSSE : Modern English Literature (Heinemann).

STOPFORD BROOKE and SAMPSON : English Literature
(Macmillan) .

ENGLISH (Honours).

Second Year's Course.

In addition to the Pass Course there shall be the following *two* papers at the end of the second year :—

Paper I.—

Special Period : 1890—1900, with especial
reference to

Rudyard Kipling ;

Bernard Shaw.

(No questions will be put on the texts. The period to be studied as a whole with special reference to the work of these two authors published during the decade.)

Books recommended for reference—

HOLBROOK JACKSON : The Eighteen Nineties.

LE GALLIENNE: The Romantic 90's.

HAROLD WILLIAMS: Modern English Literature

CHESTERTON: Shaw

THURSTON HOPKINS: Kipling.

Paper II.—*Special Paper*: - WORDSWORTH

Books Prescribed :—

The Prelude (1805), (Oxford University Press).

Selections from Wordsworth (Golden Treasury Series).

Books recommended for Reference :—

1. MYERS: Wordsworth
2. HERBERT READ. Wordsworth.
- 3 C. H. HERFORD: Wordsworth.

ENGLISH (Honours).

Third Year's Course

There shall be four papers and a *viva voce* test.

Paper I.—*Poetry* (from 1798).

Books prescribed :—

WARD:- The English Poets (Macmillan), Vols. IV and V. The authors prescribed are: Wordsworth;

Coleridge; Shelley; Byron; Robert Browning;
Tennyson; Matthew Arnold; Swinburne; and
Morris.

Unseen Passages from the poets of this period will be set.
The question will carry 30 marks.

Paper II.—*Drama.*

MARLOWE: Doctor Faustus.

WEBSTER: The Duchess of Malfi.

MILTON: Samson Agonistes.

DRYDEN: All for Love.

SHERIDAN: The School for Scandal

DRINKWATER:—Abraham Lincoln (Sidgwick and
Jackson).

Books to be consulted:—

WYNNE: Growth of the English Drama.

WARD: English Dramatic Literature.

NICOLL: British Drama.

NICOLL: The Theory of Drama.

NICOLL: The English Theatre.

MORGANN: Tendencies of the Modern English Drama

NICOLL: Readings from British Drama.

Paper III.—*Prose.*

ASCHAM : The Schoolmaster (from the beginning up to and including the paragraph on Lady Jane Grey).

*BACON : Essays on Truth ; Greatness ; Empires ; Delays ; Studies ; Revenge ; Gardens ; Friendship ; Regimen of Health.

*BROWNE : Hydriotaphia, Chapters IV and V.

SWIFT : Selections by Halliday (Macmillan); (the prescribed portions are the Battle of the Books, the Bickerstaff Pamphlets, Essay on Conversation, Meditation on a Broomstick.)

*ADDISON : Essays, edited by Hadow (Clarendon Press).

*LAMB : Essays on the Convalescent ; Christ's Hospital ; Dream-Children ; The Old and New Schoolmaster ; My Relations.

RUSKIN : Crown of Wild Olives (War, Peace, Traffic, Future of England).

MACAULAY : Essay on Addison.

THACKERAY : Lecture on Addison.

*MORLEY : On Compromise (Macmillan's Caravan Library).

CHFSTERTON : Dickens.

Note :—Bacon, Browne, Addison, Lamb and Morley are for detailed study ; explanation passages will be set only out of them, but critical questions will be set on the whole paper.

Book to be consulted :—

CRAIK :—English Prose. The General Introduction to each volume.

Paper IV.—*Fiction*.

THOMAS NASHE : Jack Wilton (in Shorter Novels, Vol. I, Dent's Everyman's Library)

SMOLLETT : Humphrey Clinker (World's Classics Series).

JANE AUSTEN : Pride and Prejudice.

DICKENS : Great Expectations.

THACKERAY : Henry Esmond.

MEREDITH : The Ordeal of Richard Feverel.

GALSWORTHY : The Man of Property.

Selected Short Stories, 1st Series (World's Classics).

N. B.—No question on context will be set in this paper.

A *viva voce* examination will be held to test the candidate's knowledge of the course prescribed and the extent of his general reading in relation thereto.

CLASSICAL LANGUAGES.**(a) SANSKRIT.**

Paper I. (50 Marks)—(a) Meghadūta (whole).

(b) Kaṭhupanisad (Adhyāya I)

(c) Mahāśvetā-Vṛttānta from Kādambarī.

Paper II. (50 Marks).—(a) Adhijñāna Śākuntalam.

(b) Uttara-Rāma-caritam.

Paper III. (50 Marks)—(a) Sanskrit composition and rapid reading (the Bhagavadgītā)—25 marks.

(b) History of Classical Sanskrit Literature and Rudiments of Ancient Indian Culture—25 marks.

Books recommended :—

Weber or Macdonell : History of Sanskrit Literature.

Keith A.B. : Classical Sanskrit Literature (Heritage of India Series).

For Ancient Indian Culture the following syllabus is prescribed :—

ELEMENTS OF HINDU CULTURE.

1. Family life—its formation, the Saṃskāras, the Āśramas—food, clothes, ornaments, house and furniture.

2. Communal life—Varṇas, castes, guilds, etc.

3. Social life—Economic conditions work and business, trade and commerce. Means of livelihood (seven white means ; seven spotted means ; seven black means) :

Property : Possession and ownership :

Agriculture, Industry, Trade, Commerce :

Coinage, origin of writing and literature.

4. Political life—

Spiritual and Temporal power :

Sources of Income-Revenues :

Kingdoms and Republics.

Machinery of Government, Royal Office, Assemblies

Administration of Justice and Punishments

5. Moral and spiritual life —

Principles and Practice of Dharma :

Systems of Philosophy :

Hinduism, Jainism and Buddhism.

Notes :—1. No questions on Philosophy shall be set on the Kathopaniṣad and the Bhagvadgītā

2. Questions on Grammar based on texts prescribed shall be set in Papers I and II.

3. The questions shall be distributed over all the books prescribed as far as possible and no undue predominance shall be given to any particular book.

4. Sanskrit must be written in the Devanāgarī Characters.

SANSKRIT (Honours)*Second Year's Course.*

In addition to the Pass Course there shall be the following two papers at the end of the second year :—

Paper I.—History of Sanskrit Literature.

1. MACDONELL : History of Sanskrit Literature

2. WINTERNITZ : History of Indian Literature,
Vol I.

3. KEITH : Classical Sanskrit Literature.

Paper II.— (a) Sāhityadarpana (Chapter X)

(b) Manusmṛitī (Chapters IV and XII).

Note.—The questions shall be distributed over all the books prescribed as far as possible and no undue predominance shall be given to any particular book.

SANSKRIT (Honours)

Third Year's Course

There shall be four papers and a *viva voce* test.

Paper I.—Sanskrit Literature.

(a) Selections from the Ṛigveda (I. 1, 35, 85, 154;
II. 12, 33, 35; III. 59; IV. 50, 51; V. 83;
VII. 61, 71, 86, 103; VIII. 78; X. 14, 34,
90, 129).

Book recommended : Macdonell's Vedic Reader.

(b) Laghukaumudī (up to the Curādi section).

Paper II.—Pāli, Prākṛit and Philology.

(a) Pāli Pāṭhāvali (Nos. 2, 4, 6, 7, 8, 10, 11, 17,
19, 21, 22, 26, 27, 29, 32, 34, 35, 37, 41, 42,
45, 47—52, 54 and 55).

Grammars recommended :—

CHARLES DUROISELLE : Practical Grammar of the
Pāli Language (British Burma Press, Rangoon).

MULLER, E.: Simplified Grammar of the Pāli Language.

(b) Philology—

The scope, division and history (in outline) of the study of language. General principles of the science of language. Mechanism of speech and classification of sounds with special reference to the history and production of Sanskrit sounds. Classification of languages and families of speech, the Indo-European family and its general phonetic laws (Grimm's, Verner's and Grassmann's). Brief history of the Sanskrit language from the Vedic stage down to Apabhraṃśa (excluding its further development as Modern Indian languages).

Books recommended :—

JESPERSON O : Language—Books 1 and 4

BLOOMFIELD, L. : Introduction to the Study of Language.

GUNE, P. D. : Introduction to Comparative Philology. pp. 1—222.

WHITNEY, W. D. : Sanskrit Grammar.

WOOLNER, A. C. : Introduction to Prakrit.

UHLENBEK, C. C. : Sanskrit Phonetics

GRAFF : Language and Languages.

TARAPOREWALA : Elements of the Science of
Language (Cal. University
Publication).

Paper III. — { (a) Tarkabhāṣā of Keśava-Miśra.
(b) Sāṅkhyatattva-Kaumudī.
(c) Vedāntasāra of Sadānanda.

Paper IV.—(a) Cultural History of India with outlines
of the political events in Ancient
India.

Books recommended :—

1. Imperial Gazetteer, Vol. II., Chaps. I—IX.
2. Mukerji, R. K. : Hindu Civilization.
3. SMITH, VINCENT A. : Early History of India,
4th edition.
4. MACDONELL, A. A. : India's Past.
5. MASSON-OURSSEL GRABAWSKA AND STERN :
Ancient India.

(b) Illustrative Sanskrit Inscriptions.

Inscriptions selected :—

1. Jūnāgadh Rock Inscription of Rudradāman
(151 or 152 A. C.)—Ep. Ind., Vol. VIII, p. 36.
2. Allahabad Pillar Inscription of Samudragupta
(c. 350 A. C.)—Carp. Ins. Ind, Vol. III, by
Fleet, No. 1.

3. Mandasor Inscription of Yaśodharman-Viṣṇu-
vardhana (533 A. C.)—Fleet. No. 35.
4. Madhuvana Grant of Harsa (631-32 A. C.) —
Ep. Ind., I, 67.
5. Aihole Inscription of Pulakeśin II (634-35 A. C.) —
—Ep. Ind., VI, I
6. Rāṣṭrakūṭa Grant of Kṛṣṇa II 910-911 A. C. —
Ep. Ind., I, 52.
7. Bāṅgaṛh Grant of Mahīpāla I (9th year of
his reign—perhaps 988 A. C.)—Ep. Ind.,
XIV, 324.
8. Deopādā Inscription of Vijayasena (between 1075
and 1100 A. C.)—Ep. Ind., I, 305

In Papers I, II and III questions will be set demanding a knowledge of the History of the branches of Literature represented by the text-books

Note.—The questions shall be distributed over all the books prescribed as far as possible and no undue predominance shall be given to any particular book.

(b) ARABIC

Paper I.—Prose	... 40 marks	} 50 marks.
Grammar	... 10 „	

Paper II.—Poetry	... 35 marks	} 50 marks.
History of Literature ..	10 „	
Figures of speech, etc.,	5 „	
Paper III —Rapid reading	... 20 „	} 50 „
Translation from Eng-		
lish into Arabic ...	30 „	
150 marks.		

Prescribed Course—

Papers I and II.—Prose and Poetry respectively.

(i) Texts prescribed :—The *Jawāhir-ul-Buḥūr* (Gulab Singh & Sons, Lahore).

(ii) Grammar—Books recommended :—(1) *Fusūl-i-Akbarī* (up to end of the *Khāṣṣiyyatul-Abwāb*); (2) *Hidāyatun Naḥw*; (3) Thatcher's *Arabic Grammar*; (4) Thorton's *Arabic Grammar*, Revised by R. A. Nicholson. (Cambridge University Press).

Questions on grammar will be set in both the papers.

(iii) History of Arabic literature—The following books are suggested :—

(1) M. G. Zubaid Ahmad, *Adabul 'Arab*.

- (2) H. A. R. Gibb, *Introduction to Arabic Literature* (Oxford University Press 1928).

Paper III.—Rapid Reading and Translation from English into Arabic.

Book recommended for rapid reading:—

Khulāṣatu Ādābil-Lughā (Anwar Ahmadi Press, Allahabad).

Note:—Arabic words must be written in Arabic characters.

ARABIC (Honours).

Second Year's Course.

In addition to the Pass Course papers there shall be, at the end of the second year, the following two papers, carrying 100 marks:—

A critical study of each of the following:—

Paper I.—Prose: (1) *Al-Fakhrī*, Chapter I. (2) The *Qur'ān*, *Sūrah Yūsuf*.

Paper II.—Poetry: (1) *Qaṣīdatu'l-Burdah* of Ka'b b. Zuhayr and the *Qaṣīdah* in the praise of the Prophet by Al-A'shā.

(2) The *Qaṣīdatu'l-Burda* of Al-Būṣīrī.

Third Year's Course.

There shall be four papers, each carrying 100 marks, and a *viva voce* test of 100 marks.

Paper	I.—Prose	...	..	100 marks.
Paper	II.—Poetry	...	...	100 „
Paper	III.—History of literature	...	...	100 „
Paper	IV.—(a) Translation 60	...	}	100 „
	(b) Grammar 40			

Prescribed Course :—

Paper I.—Prose—(1) The *Maqāmāt* of Al-Harīrī, up to the end of the Tenth Maqāma. (2) *Risālatut-Tawḥīd* by Muhammad 'Abduhī (*omitting* pp. 168 to the end).

Paper II.—Poetry—(1) *Diwān al-Ḥamāsa*, Bab *al-Ḥamāsa*, the poem of Sulma' b. Rabi' a beginning with
 حلت تماضر فربة فاحتلت * فلها وإهلك باللوي فالعلة
 to the end of the *Bab*, and Bab *al-Marāthī* up to and including the poem by 'Ajir al-Saluli, ending with the verse :

إذا نزل الأضياف كان عذور * على العدى حتى تستقل مراجله

- (2) The *Mu'allaqāt* of Imra'Qays, Labid, and 'Antara.
Part III. — (a) History of Literature.

Books recommended :—

- (1) R. A. NICHOLSON : *Literary History of the Arabs*
(2) C. HUART : *History of Arabic Literature*.
(3) Ahmad Al-Iskandari and Mustafa, *Al-Wasīṭ*.

(b) Principles of criticism :—

Books recommended : (1) Qudāma b. Ja'far, *النقد في الشعر*

(2) Introduction to Al-Qurashi's *أشعار العرب*

Paper IV. — Translation from Arabic into English and
vice versa ; and Grammar.

A *viva voce* test.

(c) PERSIAN.

There shall be three Papers.

Paper I. — Prose ...	... 40 marks	} 50 marks.
Grammar	... 10 „	
Paper II. — Poetry...	... 35 „	} 50 „
History of literature,	10 „	
Figures of speech, etc.,	5 „	
Paper III — Rapid Reading	... 20 „	} 50 „
Translation from Eng-		
lish into Persian ..	30 „	
		150 marks.

Prescribed Course :—

(i) Paper I.—(a) *Prose* :—

Selection from the following authors as contained in the *Nathra* (published by the Kitabistan, Allahabad) :—

Bal'amī, Nizām-ul-Mulk Tūsī, Nizāmī 'Arūdī Samarqandī, Khwand-Amīr, Abu'l Faḍl (omitting pp. 118—226), Zuhūrī and *Tārīkh-i- Waṣṣāf*

(b) *Grammar* :—

Books recommended :

(1) Mumtāz Husayn, مؤمنات و مؤمنین

(2) M. H. Nāsirī, معجزات و معجزان

(3) FORBES' *Persian Grammar*

(4) Platts and Rankin : *Persian Grammar*

(ii) Paper II. — (a) *Poetry* :—

Selections from the following authors as contained in the *Shi'rā* (published by the Kitabistan, Allahabad) :—

(i) QASIDAS: Kamal-i-Isfahānī Khāqānī, Salmān Sāwajī 'Urfī, Faydī, Qā'ānī.

(ii) MATHANAWIS : Sanā'ī, Nizāmī, and Jalāl-ud-din Rūmī

(iii) GHAZALS : 'Irāqī, Sa'dī, Khusraw, Hāfiz, 'Urfī, Nazirī, Kalīm, Ghālib.

Note.—A thorough knowledge of Persian Grammar is expected.

(b) History of literature.—

Books recommended :—

(1) Shibli, *Shi'ru'l 'Ajam*. Vols. I, II and III, (2) Levy, *Persian Literature* (Oxford University Press).

Note.—A knowledge of the outlines of the history of Persian Literature with special reference to the authors prescribed is expected.

Paper III.—Rapid Reading—*Adabiyat-i-'Ajam*, part III by A. H. Faridi, (published by Sri Ram Mehra & Co., Agra).

Note.—Students are required to have such knowledge of the etymology of the Arabic language as will enable them to explain all Arabic words and phrases which may occur in the text-books and in the books recommended for rapid reading in Persian.

Persian words must be written in Persian characters.

PERSIAN (Honours).

Second Year's Course

In addition to the Pass Course papers there shall be, at the end of the second year, the following two papers, each carrying 100 marks :—

A critical study of each of the following :—

Paper I.—Prose :—

Nizām-ul-mulk Ṭūsī. *Qābūs Nāma* (Tehran Edition or Bombay Edition).

Paper II.—Poetry :—

The *Rubā'īyyāt* of Abū Sa'īd Abul-Khayr. (Published by Mubarak Ali, Lahore).

Third Year's Course.

There shall be four papers, each carrying 100 marks, and a *viva voce* test of 100 marks.

Paper I.—Prose (including elementary

Arabic) 100 marks.

Paper II.—(a) Poetry	90 marks }	
(b) Rhetorics and		} 100 „
Prosody	10 „ }	

Paper III.—History of literature ... 100 „

Paper IV.—Ethics and Politics ... 100 „

Prescribed Course—

Paper I.—Prose :—(a) *Waqā'i-i-Ni'mat Khān-i-'Alī*, first two *Waqā'i*. (2) *Maqāmāt-i-Hamīdī*, *Maqāmas* IV, VII, VIII, X and XV—80 marks.

(3) Arabic Text : دوسى الادب Part I, by Sulaiman Nadwi, (4) Arabic Grammar, Forms of the noun, and conjugations of the simple strong verb—20 marks.

Paper II.—*Qaṣīdas* of the following Poets :—

(i) Khāqāni, beginning with :—

(۱) سنت عشاق چیست برگ عدم ساختن

(۲) عبد است و بهش از صبح دم مژده به خمار آمده

(۳) دخط و غاست در دنه آخر الزمان

(۴) هر صبح باے صبر ددامن در آورم

(ii) 'Urfi, beginning with :—

(۱) اے مزاع درد در بازار حان انداخته

(۲) ای مرتفع زدمت ذات نو شان علم

(۳) سپیده دم خو زدم آستمن بشمع شعور

(۴) دل من داغبان عشق و حمرا بی گلستانش

(۵) چهره برد از چهران رحمت کشد چون به حمل

(۶) هر سوخته حابی که به کشم در آبد

(iii) Anwarī, beginning with :—

(۱) حمزید که هنگام صبح دگر آمد

(۲) گر دل و دست دگر و کان باشد

(۳) باک شبگردی نسیم آورد باز از کوچهسار

(۴) بر سمر قند اگر نگذری اے باک سحر

(۵) حرم خورشید چو از حوت در آید به حمل

(۶) حر د را دوش می گفتم که اے اکسیر دانائی

(۷) حبذا کزو هر دم دگرگون زیوری

Questions involving criticism will be set in Papers I and II.

Paper III.—(a) History of Persian Language and Literature—E. G. Browne, *Literary History of Persia*, Vols. I, II and III.

(b) Principles of criticism—

Books recommended :—

- (1) Introduction to 'Awfi's *Lubābul-Albāb*.
- (2) Introduction to Dawlat Shāh's *Tadhkira*.
- (3) Shibli, *Shur'ul-'Ajam*, Vols. IV and V.

Paper IV.—Ethics and Politics.

- (1) Tahdhib-i-Nafs from the *Akhlāq-i Nāṣiri*.
- (2) Siyasat-i Mudan from the *Akhlāq-i-Jālālī*.

HINDI.

There shall be three papers :—

Paper I.—Poetry and History of Hindi Literature
(60 marks).

A—Poetry.

Books prescribed :—

KABIRDAS : Kabir Bachanawali, Part I, 1—325, and
Part II, 25-27, 33-37, 41, 42, 80, 81, 91, 102,
103, 147-150, 182, 183.

SURDAS : Sur Sushama.

TULSIDAS : Ramcharit Manas (Tulsi Granthavali
Prathama Sopan, Doha 1—64,
129—144, 220—270; Saptama
Sopan, Doha 1—27, 183—233)

SENAPATI : Kavitta Ratnakar, Third Taranga (Ritu
Varnana-Hindi Parishad, Allahabad University).

AYODHYA SINGH UPADHYAYA : Priya Pravasa,
Cantos III and IV.

Maithili Sharan Gupta : Saket, Cantos VIII and
IX.

B — Outlines of the History of Hindi Literature.

Books recommended :—

BRAJRATNADAS : Hindi Sahitya ka Itihas.

NAND DULARE BAJPAI : Sahitya Sushama.

KRISHNA SHANKER SHUKLA : Adhunik Hindi Sahitya
ka Itihas.

MISHRABANDHU : Hindi Navaratna (revised edition).

VAKSHI : Hindi Sahitya Vimarsha.

KEAY : History of Hindi Literature.

GREAVES : Sketch of Hindi Literature.

Questions on Alankar, Chhanda and Literary Criticism

will be put in this paper. The following books are recommended :—

DULAH : Kavikul Kanthabharan.

BHAGWANDIN : Alankar Manjusha.

RAGHUVARDAYAL MISRA : Pingal Prakash.

SHYAM SUNDAR DAS : Sahityalochan.

R. K. VARMA : Sahitya Samalochana.

VAKSHI : Vishva Sahitya.

Paper II.—Modern Prose, Drama and History of Hindi language (50).

A—dern Prose and Drama.

Books prescribed :—

HARISH CHANDRA : Mudra Rakshas.

JAYASHANKER PRASAD : Skandagupta.

MAHABIR PRASAD DVIVEDI : Sahitya Sandarbha
(Nos. 1, 2, 3, 4, 7, 8, 12, 13, 14, 15).

RAM CHANDRA SHUKLA : Vichara Vithi.

PREM CHAND : Galpa Samuchchaya.

B.—Outlines of the History of Hindi Language.

The following syllabus is prescribed :—

Families of speech ; Indo-Aryan—its history ; place of Hindi in the New Indo-Aryan ; Hindi and its dialects ;

Elements in the vocabulary of Hindi ; History of the Devanagari script.

Books recommended :—

DHIRENDRA VARMA : Hindi Bhasha aur Lipi.

SHYAM SUNDAR DAS : Hindi Bhasha ka Vikas.

JAHAGIRDAR : Indo-Aryan Languages.

DHIRENDRA VARMA : Gramina Hindi.

Paper III.—Translation from English and Sanskrit into Hindi and Composition (40 marks).

HINDI (Honours) .

Second Year's Course.

In addition to the Pass Course there shall be the following two papers at the end of the Second year :—

Paper I.—Special Author ; Bhushan.

Paper II.—Principles of Criticism.

The following syllabus is prescribed :—

Literature : Its nature and impulses ; Elements of literatures ; Personality in literature ; Biography ; Historical and Comparative methods of study ; Literature as the product of Society ; Tendencies in Hindi literature.

Poetry : Its nature and elements ; Poetry and metre, Poetic Truth; Pathetic Fallacy ; Divisions of Poetry; Lyrics and Ballads ; Epic ; Treatment of Nature in Hindi Poetry.

Fiction : Its elements ; Novel and Drama ; Truth and Morality in Fiction ; Novel and short story ; Principles of the composition of Short story and Novel.

Drama : Its nature and elements ; Drama and stage ; Natural divisions of a dramatic plot ; Realism and idealism in character ; three unities ; Drama as criticism of life ; Brief history of dramatic art in Hindi.

Criticism : Its general nature ; Use and abuse of criticism ; Functions of criticism ; inductive and judicial criticism.

Essay : Its general features ; various types of the essays : A survey of the development of Essays in Hindi Literature. Books recommended :—

SHYAM SUNDER DAS : Sahityalochan.

RAM KUMAR VARMA : Sahitya Samalochna.

VAKSHI : Vishva Sahitya.

HUDSON : Introduction to the study of Literature.

PAINTER : Elementary Criticism.

LAMBORNE : Rudiments of Criticism.

WORSFOLD : Principles of Criticism.

GULAB RAI : Prabandha Prabhakar.

Third Year's Course.

There shall be four papers and a *viva voce* test.

Paper I—Charan Kavya and Sant Kavya.

SITA RAM : Selections from Hindi Literature, Book I
(Chand Bardai, Bhushana, Gorelal,
Keshavadas and Sudan).

NARPATI NALHA : Bisaldev Raso.

Santbani Sangrah, Parts I and II (Belvedere Press,
Allahabad).

KABIRDAS : Bijak (Allahabad 1905).

Ramainis 34, 35, 54, 75 ;

Shabdas 4, 8, 13, 15, 22, 27, 40, 41,
42, 46, 48, 61, 72, 76, 85, 93, 99,
110 ;

Kaharas 3, 5, 12 ;

Basant 4 ;

Hindola 1, 3.

Paper II—Tulsidas and Jayasi.

TULSIDAS : With a detailed study of the following
works :—Manas, Vinaya Patrika, Kavi-
tavali.

JAYASI : Padmawat (Upto Shatritu Varnana, N. P.
Sabha, Benares).

Candidates will be expected to show a general know-
ledge of other works of Tulsidas. (Tulsi Granthavali,
Parts I and II N. P. Sabha Edition.)

Books recommended for reference :—

Tulsi Granthavali, Part III.

SHIVA NANDAN SAHAI: Goswami Tulsidas-ka-Jivanacharita.

RAMDASA GAUR: Ramcharita Manas-ki-Bhumika.

SHYAMSUNDAR DAS: Goswami Tulsidas (Hindustani Academy)

Paper III.—Hindi Poetics and poets of Alankrit Period.

KESHAVA: Ramchandrika (1—10 Prakash.)

BIHARI: Satsai.

MATIRAM: Lalita Lalam.

DAS: Kavya Nirnaya.

SENAPATI: Kavitta Ratnakar (First and Fourth Taranga-Hindi Parishad Allahabad University)

Candidates are expected to have a sound knowledge of Rasa, Alankar and Chhanda in connection with this paper.

Books recommended for reference :—

KESHAVA: Kavi Priya.

BHANU: Kavya Prakash.

PODDAR: Kavya Kalpadruma.

AYODHYA SINGH UPADHAYA: Ras-kalas.

Sahitya Darpana (Hindi Translation by Saligram Shastri).

GANGANATH JHA: Kavi Rahasya.

Paper IV.—History of Hindi literature; Literary and Cultural History (with outlines of Political events) of Northern India; Elements of Linguistic and Literary History of Urdu.

Books recommended :—

RAM CHANDRA SHUKLA : Hindi Sahitya ka Itihas.

MISHRABANDHU : Vinoda, Vol. I (New Edition).

MISHRABANDHU : Hindi Navaratna.

SHIVASINGH : Saroj

GRIERSON : Vernacular Literature of Hindustan.

TASSY : Histore de la Literature Hindouie et Hindoustanie (Second Edition).

NABHADAS : Bhaktamal.

MS. Reports of the N. P. Sabha, Benares.

FRAZER : Literary History of India.

FARQUHAR : Religious Literature of India.

HAVELL : History of Aryan Rule in India.

SMITH, V. A. : Oxford History of India.

OJHA : Madhyakalīn Bharatiya Sanskriti.

BENI PRASAD : Hindustan ki Purani Sabhyata (Hindustani Academy).

RAM BABU SAKSENA : History of Urdu Literature.

BAILEY : Urdu Literature (Heritage of India series).

BRAJRAJNADAS : Urdu Sahitya ka Itihas.

URDU.

There will be three papers :—

Paper I.—Poetry—

(a) Marsiyas :

Anis—جانے ہے کس شکوہ سے دن میں خدا کی فوج
جب قطع کی مسافتِ شبِ آفتاب نے

Dabir—پرچم ہے کس علم کا شعاع آفتاب کی
 ” جب سرنگوں ہوا علم کہکشان شب

(b) (i) Ghazals:—

سودا—(Sauda)

(۱) مقدور نہیں اُسکی تجلی کے بیاں کا
 جوں شمع سراپا ہو اگر صرف زباں کا

Omitting Couplet No 3.

(۲) شبِ نیم کو ہے دامنِ گلِ شست و شو ہنوز
 بلبَل کے خوں کا وہ گیا رنگ و بو ہنوز
 (۳) ناول نے تیرے صید وہ چھوڑا زمانے میں
 ترپے ہے مرغِ قبلہ دما آشیانے میں
 (۴) سودے کی مے جسکو تدبیرِ نظر آئی
 شمشیر کے جوہر کی زنجیرِ نظر آئی
 (۵) نسیم بھی نرے کوچے میں اور صبا بھی ہے
 ہماری خاک سے دیکھو تو کچھ رہا بھی ہے
 (۶) بدلا ترے ستم کا کوئی تجھ سے کیا کرے
 اپنا ہی نو غریفتہ ہوئے خدا کرے
 (۷) حال پر بھی تیرے دیوانے کی یہ تدبیر ہے
 ہر بگولا طوقِ ہر موجِ ہوا زنجیر ہے
 (۸) گل پھینکے ہے عالم کی طرف بلکہ ثمر بھی
 اے خانہ بر اندازِ چمن کچھ تو ادھر بھی

(Mir)—میر

- (۱) تھا مستعار حسن سے اسکے حو نور تھا
 خورشید میں بھی اُس ہی کا ذرہ ظہور تھا
 (۲) اولٹی ہو گئیں سب تدبیریں کچھ نہ دوا نے کام کیا
 دیکھا اس بیماری دل نے اُحر کام تمام کیا
 (۳) منہ نکا ہی کرے ہے جس تس کا
 حیرتی ہے یہ آئینہ کس کا
 (۴) اشک آنکھوں میں کب نہیں آتا
 لہو آتا ہے حب نہیں آتا
 (۵) قتل کئے پر غصہ کیا ہے لاش مری اُٹھوانے دو
 حان سے بھی ہم جاتے رہے ہیں تم بھی آؤ جانے دو
 (۶) کچھ موج ہوا پیچاں اے میر نظر آئی
 شاید کہ بہار آئی زنجیر نظر آئی
 (۷) نہیں وسواس جی گنوانے کے
 ہائے دے ذوق دل لگانے کے

- (۸) کرے کیا کہ دل بھی تو مجبور ہے
 زمین سخت ہے آسماں دور ہے

(Dard)—درد

- (۱) مدرسہ یا دیر تھا یا کعبہ یا بتخانہ تھا
 ہم سبھی مہمان تھے واں تو ہی صاحب خانہ تھا

- (۲) مثلِ دگیں جو ہم سے ہوا کام رہ گیا
ہم روسباہ جاتے رہے نام رہ گیا
- (۳) حگ میں آکر ادھر ادھر دیکھا
تو ہی آیا نظر حدھر دیکھا
- (۴) تجھی کو حویاں جلوہ فرما نہ دیکھا
برابر ہے دنیا کو دیکھا نہ دیکھا
- (۵) حیرار آئینہ وار ہیں ہم
کس سے یارب دوچار ہیں ہم
- (۶) ہم تجھے سے کس ہوس کی فلدک جستجو کریں
دل ہی نہیں رہا ہے جو کچھ آرزو کریں
- (۷) مجھے در سے اپنے تو تالے ہے یہ بنا مجھے تو کہاں رہیں
کوٹی اور بھی ہے ترے سوا تو اگر نہ ہیں تو جہاں رہیں
- (۸) ارض و سما کہاں تری وسعت کو پا سکے
میرا ہی دل ہے وہ کہ جہاں تو سما سکے
- غالب—(Ghalib)

- (۱) نقش فریادی ہے کس کی شوخی تحریر کا
کاغذی مے پیرہن ہر پیکر تصویر کا
- (۲) جز قیس اور کوٹی نہ آیا بروئے کار
صحرَا مگر بہ تنگٹی چشم حسود تھا

(۳) شمارِ سبکدہ مرغوبِ بتِ مشکل پسند آیا
نماشائے بہ یک کفِ مردنِ صد دل پسند آیا

(۴) دردِ منتِ کشِ دوا نہ ہوا

میں نہ اچھا ہوا برانہ ہوا

(۵) عشرتِ قطرہ ہے دریا میں فنا ہو حادا

درد کا حد سے گذرنا ہے دوا ہو حانا

(۶) مکرمِ دہمیں ہے تو ہی دواہائے راز کا

یاں ورنہ حو حجاب ہے پردہ ہے ساز کا

(۷) ہم پر حفا سے ترکِ وفا کا گماں دہمیں

اک چھپتے ہے وگر نہ مراد امتحان نہیں

(۸) نالہِ حرِ حسنِ طلب اے ستم ایجان دہمیں

ہے نقاضائے حفا شکوۂ بیداد دہمیں

(۹) مدت ہوئی ہے یار کو مہماں کئے ہوئے

حوش قدح سے بزمِ چراغاں کئے ہوئے

مومن—(Momin)

(۱) آخر اُمید ہی سے چارۂ درماں ہوگا

مرگ کی آس پہ جینا شبِ ہجران ہوگا

(۲) نازِ بیجا سے سوا شرم کے حاصل نہ ہوا

غیر پر ظلم کئے میرے مقابل نہ ہوا

- (۳) اثر اسکو ذرا نہی ہوتا
رنج راحت فزا نہی ہوتا
- (۴) پنکجہ شانہ سے تو زلف گرہ گیر نہ کھینچ
دل سے دیوانہ کو مت چھیر یہہ زنجیر نہ کھینچ
- (۵) تھانی تھی حی میں اب نہ کسی سے ملیں گے ہم
پر کیا کریں کہ ہو گئے ناچار جی سے ہم
- (۶) اگر زنجیر کش سوئے بیاباں اپنی وحشت ہو
تو پائے قیس کا ہر ایک چھالا چشم حیرت ہو
- (۷) ناول انداز جدھر دیدہ جاں ہونگے
نیم بسمل کٹی ہونگے کٹی بے جاں ہونگے
- (۸) دعا بلا تھی شب غم سکون حاں کے لئے
سکھن بہانہ ہوا مرگ ناگہاں کے لئے
- ذوق - (Zauq)

- (۱) ہوا یہہ سینہ یکسر خار زار دشت غم میرا
کہ آیا پا باخوں آغشته ہو کر لب یہ دم میرا
- (۲) عنقا کی طرح خلق سے عزالت گزریں ہوں میں
ہوں اسطرح جہان میں گویا نہی ہوں میں
- (۳) اس طبش کا ہے مزا دل ہی کو حاصل ہوتا
کاش میں عشق میں سر تا بقدم ہوں

- (۴) ثبات کب ہے زمانہ کے عز و شان کے لئے
 کہ ساتھ اوج کے یستی ہے آسمان کے لئے
 (۵) لائی حیات آئے ، قصا لے چلی چلے
 اپنی خوشی دے آئے ، دے اُمی خوشی چلے
 (۶) وہ کون ہے جو مجھ پہ تاسف نہیں کرتا
 ہر میرا حگر دیکھ کہ میں اُف نہیں کرتا
 (۷) الہی کس بے گنہ کو مارا سمجھ کے قاتل نے کشتنی ہے
 کہ آج کوچہ میں اُسکے شور بايِ ذنبِ قتلتنی ہے
 (۸) مزا تھا ہم کو جو بلبَل سے دُبدو کرتے
 کہ گل تمھاری بہاروں میں آرزو کرتے
 آتش - (Aatash)

- (۱) حباب آسا میں دم بھرتا ہوں تیری آشنائی کا
 نہایت غم ہے اس قطرے کو دریا کی جدائی کا
 (۲) حگر کو داغ کے مانند لالہ کیا کہتا
 لب لب اپنے لہو کا بیالہ کیا کہتا
 (۳) تار تار پیرھن میں بھر گئی ہے بوئے دوست
 مثل تصویرِ نہالی میں ہوں یا پہلوئے دوست
 (۴) چلا میں شمع کی مانند عمر بھر خاموش
 نہام عمر کتی قصہ مختصر خاموش

(۵) مگر اسکو فریب برگس مستانہ آقا ہے

اَلتَّيْ هیں صفیں گردش میں حب پیمانہ آقا ہے

(۶) ہے حب سے دست یار میں ساغر شراب کا

کوئی کا ہو گیا ہے کشورِ گلاب کا

(۷) عدم سے جانب ہستی تلاش یار میں آئے

ہوائے گل میں ہم کس وادی در حار میں آئے

(۸) یہہ آرزو تھی تجھے گل کے رونرو کرتے

ہم اور بلبل بیتاب گفتگو کرتے

ناسخ—(Nasikh)

(۱) کافی بس اسکو نشہ ہے بوئے شراب کا

ہو بوجھہ حسکے ہاتھہ میں ساغر حباب کا

(۲) پونچھتا اشک اگر گوشہ داماں ہوتا

چک کرتا میں دنوں میں جو گریباں ہوتا

(۳) رات ایسا انتظار یار میں بیتاب تھا

بستر گل پر رہ تھا میں آگ پر سیماب تھا

(۴) یہہ نور ہے روئے مہ جبیں کا کہ ہو خجل چاند چودھویں کا

جو حلقہ ہے زلف عنبریں کا وہ ایک نافہ ہے مشک چیں کا

(۵) عکس اُسکی زلف کا نہیں دام شراب میں

بال آتے ہیں نظر قدح آفتاب میں

(۶) حب سے کہ بتوں سے آشنا ہوں

بیگانہ خدائی سے ہوا ہوں

(۷) کون سا خورشید آسمان اپنا چراغ خانہ ہے
 بزم میں باہم ہجوم ذرہ و پروانہ ہے
 (۸) لغزش اس وادی میں یائے خضر کو ہر گام ہے
 نقش پا میرا شراب بیخودی کا حام ہے
 امیر—(Amir)

(۱) یہہ آفتاب ہے گرم اُسکی کبریائی کا
 کہ ذرہ ذرہ ہے آئینہ خود نمائی کا
 (۲) مرے بس میں یا تو یارب وہ ستم شعار ہوتا
 بہہ نہ تھا تو کاش دل پر محھے اختیار ہوتا
 (۳) کچھ تھکانا ہے ناتوانی کا
 نہ اُٹھا بوجھ زندگی کا

(۴) کریگا یاد اے غم کو بعد مرگ تو برسوں
 کھلایا ہے حگر برسوں - پلایا ہے لہو برسوں
 (۵) گذشتہ خاک نشینوں کی یاد گار ہوں میں

مٹا ہوا سا نشانِ سرِ مزار ہوں میں
 (۶) عالم شگفتہ ہو جو میں آفت رسیدہ ہوں
 صبح بہار ہوں جو گریباں دریدہ ہوں
 (۷) قطرہ مے نے کیا ہوش صفت گم مجھ کو
 ہر حباب مے پر زور ہوا خم مجھ کو
 (۸) ترا کیا کام اب دل میں غم جانا نہ آتا ہے
 نکل اے صبر اس گھر سے کہ صاحب خانہ آتا ہے

حالی—(Hali)

(۱) خلوت میں تری صوفی گر نور صفا ہوتا
تو سب سے ملا رہتا اور سب سے جدا ہوتا
(۲) بیش از ظہور عشق کسی کا نشان نہ دیا
تھا حسن مبزبان کوئی مہماں نہ تھا

(۳) رنج اور رنج بھی تنہائی کا
وقت پہونچا مری رسوائی کا

(۴) دل سے خیال دوست بھلا با نہ جائیگا
سینے میں داغ ہے کہ مٹایا نہ جائیگا

(۵) سنگ گراں ہے راہ میں تمکین یار کا
اب دیکھنا ہے زور دل ببقرار کا

(۶) مجھ میں وہ ناب ضبط شکایت کہاں ہے اب
چھپڑو نہ دم کہ میرے بھی منہ میں زبان ہے اب

(۷) وحشت میں نہا خیال گل و یاسمن کہاں
لائی ہے بوئے اُنس نسیم چمن کہاں

(۸) نفس کی فرمانروائی ہو چکی
خود پسندی خودنمائی ہو چکی

داغ—(Dagh)

(۱) گر میرے بت ہوش رنا کو نہیں دیکھا
اُس دیکھنے والے نے خدا کو نہیں دیکھا

(۲) آج راہی جہاں سے داغ ہوا
حانۂ عشق بے چراغ ہوا

(۳) غصب کیا ترے وعدے یہ اعتبار کیا
تمام رات قیامت کا انتظار کیا

(۴) تیر اُن کا چلتے چلتے حب پریشاں ہو گیا
تھک کے بیتھا میرے دل میں اور بنہاں ہو گیا

(۵) زندہ عیسیٰ کا نام کرنا تھا
اسطرف بھی حرام کرنا تھا

(۶) عجب ایسا حال ہونا جو وصال یار ہونا
کبھی جان صدقے ہوتی کبھی دل دثار ہوتا

(۷) ہم مت گئے تو پرسش نام و نشاں ہے اب
اسکی تلاش کر کہ محبت کہاں ہے اب

(۸) جوش گریہ سے دہہ آنکھیں ابر بیساں ہو گئیں
اب میری بیتابیوں مشہور دوراں ہو گئیں

(۹) جلوے میری نگاہ میں کون و مکان کے ہیں
مجھ سے کہاں چھپیں گے وہ ایسے کہاں کے ہیں

دسرت—(Hasrat)

(۱) ادا نہ ہم سے ہوا حق تری غلامی کا
نصیب شوق رہا داغ نا تمامی کا

- (۲) مایوس نہ یوں ہوتے نو دور اگر ہوتا
ہم کچھ نہ تجھے کہتے مجبور اگر ہوتا
(۳) تجھ کو پاس وفا ذرا نہ ہوا
ہم سے پھر بھی تو گلا نہ ہوا
- (۴) کیسے چھپاؤں راز غم دبدا تر کو کیا کروں
دل کی تپش کو کیا کروں سوز حگر کو کھا کروں
- (۵) نہی راحت حیرت کی کس درجہ فراوانی
میں نے غم ہستی کی صورت بھی نہ پہچانی
- (۶) کون اُس نگہ ناز کے قابو میں نہیں ہے
پھر دل کی خطا کہا ہے جو پہلو میں نہیں ہے
- (۷) نگاہ یار جسے آشنائے راز کرے
وہ اپنی خوبی قسمت پہ کیوں نہ ناز کرے
- (۸) مرے ہم خاک راہ بار ہوئے
سرمۂ چشم اعتبار ہوئے

(2) Qasida :—

- (۱) سودا—سنگ کو اتلے لٹے کرتا ہے پانی آسمان
(۲) ذوق—واہ وا کیا معن دل ہے باغ عالم کی ہوا
(۳) منیر—تجلی پر اگر آجائے اس کا روئے نورانی
(۴) امیر—سپاہ اشک کی آنکھوں نے کی ہے تیاری

- (۵) حلال—میں شب کو بند کئے دیدۂ تماشہ میں
 (۶) صفی—یہ صلہ ہے عمر بھر کی محنت برہان کا
 (۷) مکشر—دن کٹ گیا ظاہر ہوئی شام شب ہجران

(3) Other Forms of Poetry :—

(۱) اقبال—(Iqbal)

(۱) فلسفۂ غم

(۲) یہول

(۳) زندگی

(۲) چکبست—(Chakbast)

(۱) نذرانہ روح

(۲) حال ہند

(۳) مذهب شاعرانہ

(۳) صفی لکھنوی—(Safi)

(۱) ترانہ حمد

(۲) مناجات

(۳) قناعت

(۴) اُمد و بیم

(۴) نظیر اکبر آبادی—(Nazir)

(۱) نیکی و بدی دنیا

(۲) لے آئینہ ہانہ میں اور بار بار دیکھ

صورت میں یہی قدرت پروردگار دیکھ

(۳) فصل بہار

(۵) عزیز لکھنوی — (Aziz)

لعل شب چراغ

From the beginning upto :—

هو ايك شے میں جلوہ گر جہاں جلوہ زار میں
(۲) حور شید جہاں ننتاب

From the beginning upto :—

چھوڑی گھبرا کے فرشتوں نے طناب حورشید
تابکے صبر و تکمل کہ نہیں ہے طاقت
(۶) جوش ملیح آبادی — (Josh)
(۱) یاس پر ايك فلسفیانہ نظر
یاس! گو تیرا اثر ہے طبع پر ناخوش گوار
گر چکی ہے تو مرا جیب و گریباں تار تار
(۲) نقاد سے خطاب

Books to be consulted : —

آب حیات—مصنف آزاد

روح انیس—مولفہ سید مسعود حسن رضوی—اندین
پریس الہ آباد

G. Bailey's History of Urdu Literature.

Note—Candidates are expected to be able to scan the poems prescribed in their course.

Paper II—Prose—

- (۱) شبلی - موازنۂ انیس و دبیر
- (۲) محمد حسین آزاد - نیرنگ خیال حصہ اول
- (۳) شرر - نیکی کا پھل
- (۴) حالی - مقدمۂ شعر و شاعری
- (۵) منتخب افسانے جلد اول مرتبہ تاجور
نجیب آبادی
- (۶) رسوا - اختاری بیگم
- (۷) پریم چند - پریم بچپسی

Books to be consulted :—

سیر المصنفین حصہ دوم
سروری - روح افسانہ

Paper III—Translation from English and Simple Persian into Urdu and Composition.

URDU (Honours)

Second Year's Course

In addition to the Pass Course there shall be the following two papers at the end of the second year :—

Paper I—Special Study of a Poet—

Author prescribed.—آتش

Paper II—Principles of Literary Criticism :—

The following syllabus is prescribed.

The general nature of criticisms—its abuse and use.
Functions of criticism. Different Schools of criticism,
study of author and his environments.

Classification of Literature.

I.—Poetry.—

1. Poetry and its elements.
2. Classification of poetry with reference to matter and form

(a) Lyric, Epic, Narrative, Descriptive, Didactic, etc.

(b) Qasida, Ghazal, Masnavi, Rubai. Musaddas, etc.

3. Rhetoric (علم بیان و معانی) with special reference to the use and abuse of تشبیہ و تمثیل

II.—Prose :—

CLASSIFICATION OF PROSE.

1. Types of Fiction including short story. Morality and Truth in Fiction. Supernatural in Fiction. Psychology and characterisation and plot.

2. Essay and letters.
Forms, types and style.

3. Drama.
Types of Drama.
Dialogue, Plot and Character.

Books recommended :—

1. نئی ساگر by Muhammad Umar Nur Elahi (Chapters dealing with Urdu Drama).

2. Majmaul Fawaid, published by Ram Dayal Agarwala.

3. HUDSON : Introduction to the Study of Literature.

4. SHIBLI : شعر العجم جلد چہارم باب اول

5. HALI : مقدمہ شعر و شاعری

6. MASUD HASAN : ہمارے شاعری

7. 'An anthology of Critical Statement'

Third Year's Course

There shall be four papers and a *viva voce* test.

Paper I—Masnavis—Religious and secular :—

1. مہر حسن - سحرالبیان

2. Gulzar-i-Naseem دیاشنکر نسیم - گلزار نسیم

3. مکسن - صبح تحلی

4. Intikhab Miraj-ul-Mazamin مکسن - چراغ کعبہ

5. مذہبی منیر - معراج المضامین (انتخاب)

مثنوی چراغ کعبہ by Mohsin Kakorvi.

6. میر - دریا ئے عشق by Mir.

Paper II—Early Prose upto 1858 :—

(1) باغ و بہار

The first two hundred pages of سب رس (۲)

(۳) فساد و عجائب—

(۴) طلسم هوش ربا جلد ہفتم

(۵) سروش سکون

Paper III—

(۱) اقبال—بانگ درا

(۲) جوش—شعلہ و شبنم

(۳) اکبر—کلیات اکبر جلد اول

(۴) چکبست—صبح وطن—

(۵) دیوان حسرت موہانی جلد اول

Note.—Candidates are expected to possess a simple knowledge of prosody.

Paper IV.—

(a) Literary and Linguistic History of Urdu.

(b) An Elementary knowledge of the Literary History of Hindi.

(c) Cultural History (with outlines of political events) of India

The following books are recommended : —

۱. Ab-e-Hayat. آب حیات

2. GRIERSON : Linguistic Survey of India, Vol I, Part I, Introduction.
3. SAINTSBURY : History of Criticism.
4. HUDSON : Introduction to the Study of Literature.
5. Sakhundan Faras, Part 2, Lecture 10.

سکھندان فارس حصہ دوم

- 6 SAKSENA, R. B. : History of Urdu Literature (Urdu Translation, published by Newal Kishore Press, Lucknow).
7. Gul-i-Ranā. گل رنہا
8. KAYES : History of Hindi Literature.
9. Imperial Gazetteer, Vol. 2 (relevant chapters).
10. Dakhan men Urdu دکن میں اردو
11. Urdu Zaban-o-Adab اردو زبان و ادب
12. Panjab men Urdu پنجاب میں اردو
- 13 Urdu-i-Qadeem اردو قديم
14. Urdu Sheh-Paray, Part I اردو شہ پارے حصہ اول
- 15 محبوب الزمن تذکرۂ شعراء دکن (ہر دو حصہ)

MATHEMATICS.

(Same as for the B. Sc. Examination.)

MATHEMATICS (Honours)

Second Year's Course

In addition to the Pass Course there shall be the following two papers at the end of the second year :—

Paper I.—Algebra, Trigonometry and the Theory of Equations as prescribed for Paper I in B. Sc. Honours Course

Paper II.—Pure Plane Geometry and Analytical Geometry of two and three dimensions as prescribed for Paper II of B Sc Honours in Mathematics.

Third Year's Course.

M. A. Previous Course—Same as for M. Sc Previous.

PHILOSOPHY.

There shall be two papers :—

Paper I.—Modern Philosophy and Psychology.

Books prescribed :—

1. Rogers : History of Philosophy : Descartes to Hume.
2. Mellone : Manual of Psychology

Paper II.—Ethics and Social Philosophy

Books prescribed :—

1 Muirhead : Elements of Ethics.

2 J. S. MacKenzie : Outline of Social Philosophy.

Note—Girl candidates have the option of taking Experimental and Child Psychology for Paper II above.

Books prescribed :—

1. Titchener : Primer of Psychology.

2 Norsworthy and Whitley : Psychology of Childhood (omitting Chapters IV, XV and XVI).

[A study of the above books will be accompanied by about a dozen experiments as recommended by the Teacher]

PHILOSOPHY (Honours).

Second Year's Course.

In addition to the Pass Course any two papers may be offered out of the following three optionals :—

(i) Introduction to Philosophy.

Book recommended :—

Watts-Cunningham : Problems of Philosophy

or

(ii) History of Ethics.

Book recommended :—

Rogers, R. A. P. : A short History of Ethics.

or

(iii) Contemporary Schools of Psychology.

Book recommended :—

Woodsworth : Contemporary Schools of Psychology.

M. A (Previous).

There shall be four papers and a *viva voce* test

1st Paper : Indian Philosophy *or* Islamic Philosophy

Books recommended :—

INDIAN PHILOSOPHY

1. HIRIYANNA : Outlines of Indian Philosophy.
2. RADHAKRISHNAN : History of Indian Philosophy,
2 VOLS.

ISLAMIC PHILOSOPHY.

1. IQBAL: Development of Metaphysics in Persia
2. MACDONALD: Muslim Theology.
3. O'LEARY: Arabic thoughts and its place in
History
4. BOER: History of Philosophy in Islam.

2ND PAPER : History of European Philosophy, with special
reference to Plato, Aristotle, Berkeley,
and Kant.

Books recommended :

1. ADAMSON : Development of Greek Philosophy.
2. FALKENBERG : History of Modern Philosophy.

To be consulted :

For Plato, Aristotle, Berkeley and Kant, reference
should also be made to the following two source-books :—

1. BAKEWELL : Source-book of Greek Philosophy.
2. RAND : Modern Classical Philosophers.

3rd Paper: Advanced Psychology.

Books recommended :—

1. MURRAY: Historical Introduction to Modern Psychology.
2. JAMES: Principles of Psychology.
3. MCDOUGALL: Outline of Psychology.

Book to be consulted :

1. WARD: Psychological Principles.

4th Paper: Ethics :—

Books recommended :—

1. ROGERS: History of Ethics (New and Revised Edition).
2. PLATO: Republic.
3. GREEN: Prolegomena to Ethics.

ECONOMICS.

There will be two papers. The following syllabus is prescribed :—

PAPER I.

(1) *Introductory*.—Scope and subject-matter of the Science. Its division and their interdependence.

Economics a part of Sociology.

(2) *Methods*.—Observation, induction, deduction and verification as applied in economic science ; schedules and curves Statistical methods.—Collection of Data, Tabulation, Averages. Use of graph paper. Plotting of curves.

(3) *Consumption*.—Wants. Origin of new wants and interdependence of activities. Definitions of total and marginal utility. Law of diminishing utility. Gain of utility by exchange. Dependence of utility on time and place. Law of Equi-marginal Utility.

4) *Law of Demand*.—Demand schedules and curves, Elasticity of Demand Consumer's surplus. Fashions and customs with their effects on demand. Statistics of consumption and charts of workmen's budgets, such as those given in the publications of the Bombay Labour Office.

(5) *Production*.—The factors and agents of production—land, labour, capital and organisation (management and enterprise). Combination of the factors in varying proportions. Law of diminishing returns (in terms of produce).

(6) *Land or Natural Resources*.—Qualities, Space, Site, Fertility, Climate, Minerals, Sources of power, Statistics of crops, average quantity ; value of food crops, minerals and raw materials.

(a) *Elementary Economic Geography of India*—The physical features of India. Soil erosion and alluvial deposits. Soils and climates. Distribution of raw materials. Density of population (Statistic). Relations of town and country. Inter-change of products. Towns as commercial and cultural centres.

(7) *Distribution of Industries*.—Distinction between extractive and manufacturing (Primary and Secondary) industries, Mining, Forestry, Fisheries. The principal manufacturing industries. Dependence on transportation and storage. Statistics. Value of industrial products.

(8) *Agricultural Economics*—Large scale and small scale farming; Different land tenures—Zamindari, Ryotwari, and peasant proprietorship; Agricultural marketing, specialisation of crops, commercial farming, farm accounts.

Permanent improvements of land—Roads, wells, tanks, canals and other irrigation schemes, drainage, soils, farm buildings and fences. Consolidation of holdings, improvement of cultivation, rotation, seed selection, breeding of draught cattle and milch cows. Creation of fuel and timber reserves. Orchards and dairy farms, poultry-farming, vegetable and fruit-gardening.

Estate Management.—The landlord's work as organiser, teacher, and director of his tenants. The finance of estate development and business of management.

(9) *Labour*.—Distinctive qualities. Skilled and unskilled, Division of labour. Conditions of efficiency of labour; influence of social customs.

(10) *Capital*.—Conditions of accumulation of capital. Fixed and circulating capital. Economic characteristics of machinery. Depreciation in value, deterioration and obsolescence. Repairs. Insurance.

(11) *Organisation of Production*.—Large and small scale production. Advantages and limitations of each. Relations to division of labour, machinery and plant, extent of the market and cost of transportation. Supply schedules and long period cost of production curve. Diminishing, constant and increasing returns (in terms of produce). Increasing, constant and decreasing costs. Principle of substitution. Decreasing costs due to inventions and to specialisation in the use of the factors of production. Utilisation of bye-products. Socialisation of industries. Types of business organisation.

Co-operation.—Theory and organisation; Forms, Agricultural and Urban—Production, distribution, consumption, credit, better living and rural reconstruction societies.

(12) *Trade and Transport*.—Rivers, roads, canals, railways, ports and harbours. Ocean navigation. Commercial navigation. Trade routes. The principal commodities of commerce and their distribution. Short and long distance

trade. Growth of towns. Absorption of rural industries, Complementary growth of commercial farming

PAPER II.

(1) *Theory of value*.—Barter, conditions of gain of utility by exchange.

Money economy :—Definition of a market. Extent of the market. Balancing of supply and demand. Short and long periods. Equilibrium of normal demand and supply.

Monopoly value :—Definition of monopoly, determination of monopoly price in actual practice. Maximum monopoly revenue. (Price discrimination is not included.)

International value :—Law of comparative costs. Conditions under which international trade arises, how it differs from internal trade and the importance of each. Theory of international value. Theory of free trade and conditions under which protection may be desirable. Foreign trade of India ; balance of trade, home charges

(2) *Distribution*.—Balance of demand for and supply of the factors of production. The principle of substitution. Equalisation of marginal productivity between the individual business firms of a single industry and between different industries in short and long periods. Mobility of the factors of production. Effects of introducing new methods such as new processes and machinery.

(3) *Rent*.—Gross and net rent. The law of rent. Economic rent. Various forces determining it. Fertility

and situation. Examples of rent in selected districts of the U P. Variation of rent according to tenancy. Rent does not determine price. The extensive and intensive margins of cultivation. Expansion and contraction of cultivation. Effects of improvements in agriculture and in transportation on rents. The land revenue in India.

(4) *Interest*.—Demand for, and supply of, capital. Differences between short and long term investments of capital set free for fresh investment in the period considered and on the extent to which it is mobilised. The rate of interest also dependent upon demand for consumption and for industrial investment. Mobility of capital between localities, between industries, and from less to more specialised forms of fixed capital. Gross and net interest. Tendency to equal returns on equally risky investments. Dividends and their calculation. The rate of return and the rate of interest. The expected return on fixed capital investments and the rent of building and machinery.

(5) *Wages and the Population question*.—General conditions affecting demand for, and supply of, labour. Birth and death rates and expectation of life at various ages. Positive and preventive checks. Indian famines and relief measures. Early marriage and the joint family. Labour engaged in various occupations, in factories and small industries. Long period equilibrium between marginal net product and cost of maintenance. Real and

nominal wages. Apparent differences in wages. Wage fluctuation (figures). Mobility of labour. Migration in India. Differences of wages in short periods. Their equalisation. Time and piece wages Trade Unions.

(6) *Profits*.—Normal Profits as the reward of management and risk-taking, and Surplus Profits as the result of special advantages in time and place, and legal rights. Losses.

(7) *Money*.—Functions Materials and their necessary qualities. Kinds of metallic money ; standard and token. Minting. Monometallism. Bimetallism. Paper currency Gresham's Law. Relation of circulation to prices. Metallic and paper currency of India. History since 1870. Paper Currency and Gold Standard Reserves (figures'. Profits of coinage.

(8) *Banking*.—The business of banks and the use of cheques. Clearing houses of London, Calcutta and Bombay. Creation of credit. Indian Banking. Organisation of credit in India. Money markets. Differences of rates of interest. Interest fluctuations Need of connecting the various money markets. Central Banking Balance-sheets.

(9) *Prices in Organised Markets*.—Factory, wholesale, and retail prices. Price fluctuations. Their relation to the inflation of credit. Index numbers. Effects of quick communication and the publication of statistics (of crops, etc.). Influence of speculation.

(10) *Mechanism of Foreign Exchanges.*—Calculation of discount, present value, commissions. Calculation of exchanges. Foreign trade of India with different countries and in chief commodities (Statistics). Bills of Exchange Mint par Exchange quotations. Exchange Banks. Council Bills and Reverse Councils.

(11) *Taxation*—Canons of Taxation illustrated by Indian taxes. Direct and indirect taxation. The incidence of land revenue, income-tax and customs duties. The Indian tax system: Central, Provincial and Municipal finance (figures). Unearned increments and succession duties. Taxation by means of fiscal monopoly. (Taxation of private monopoly is not included.)

(12) *Economic Progress.*—Causes of national wealth and progress. Inventions and economic changes. Difficulties of adjusting wages, prices and hours when the productive power of labour increases.

N. B.—If possible, statistics should be obtained not only for India but for two or three other countries for purposes of comparison. Comparisons with England will give the greatest contrast with regard to industry and trade, but for many purposes comparisons with America, France, or Japan are more instructive because they depend more largely on their own agriculture. America is like India in having a

great variety of climates and great differences in density of population and in exporting wheat and cotton and importing sugar. Therefore, a comparison with Amercia is, in some respects, less misleading, but, in other respects more misleading than a comparison with England. For the comparison of statistics and drawing of charts to illustrate them Philip's 'Chamber of Commerce Atlas,' and many commercial geographies will be found exceedingly useful. Students should make their own charts exhibiting the principal statistics of India. Statistics such as density of population, birth and death rates, infant mortality, rainfall or mean temperature can best be exhibited by colouring maps with deeper shades of one colour to represent higher figures below and above the average. Statistics of the increase or decrease of population or value or other data can best be made also with two colours, one colour showing increase, the other colour showing decrease and the darker shades of both colours showing a greater percentage of increase or decrease. A chart of the occupations of the people of India can best be made by using different colours for the great occupation groups, and using different shades for male workers, female workers and dependants. Many interesting charts are given in Kale's *Indian Economics* where different hatchings are used instead of different colours. Within India comparisons between the chief Provinces and India as a whole will be valuable. Every student is expected to draw at least two charts illustrating the above data before he can be sent up for the University Examination.

Note.—Teachers will be expected to compare the principal statistics of India with those of other countries. Students are expected to visit factories, agricultural demonstration farms, and co-operative societies.

LIST OF BOOKS.

Books prescribed :—

1. MARSHALL : Economics of Industry.
2. TODD : The Science of Prices.

or

CLAY : Principles of Economics.

- 3 ROBERTSON : Money.
4. B. RAMCHANDRA RAU : Present Day Banking in India (2nd edition).
5. H L. CHABLANI : Indian Currency, Banking and Exchange.
6. JATHAR AND BERI : Indian Economics, Volumes I and II.
7. MEHTA (J. K) : Elements of Economics (selected chapters)

Books recommended :—

- 1 MARSHALL : Principles of Economics.
2. WITHERS : Meaning of Money.
3. ARMITAGE SMITH : Taxation.
- 4 CHAPMAN : Outlines of Political Economy.

5. GIDE : Principles of Political Economy.
6. HOWARD : Indian Agriculture.
7. The Indian Year Book.
8. BRAYNE, F. L. : Village Uplift in India.
9. "India in" Government of India Publication
(latest edition).

ECONOMICS (Honours) .

Second Year's Course.

In addition to the Pass Course there shall be the following two papers at the end of the second year :—

Paper I.—*Economic Development of England and India*, with special reference to the period after 1760. The Manor. The Guilds. The Domestic System The Agricultural Revolution. The Industrial Revolution The Factory System. Changes in Transportation and Marketing and their effects Similar material for India, as far as possible. The history of the industrial and commercial organisation of two or more important industries both in England and India to be studied in detail, such as wheat or sugar, cotton or wool, iron or building trade, paper or glass. The history of inventions and of the status of labour to be treated briefly.

Books recommended :

1. GADGIL : The Industrial Evolution of India (2nd edition).
2. KNOWLES : Economic Development of the British overseas Empire, Vol. I (Tropical) (Part dealing with India).
3. KNOWLES : The Industrial and Commercial Revolution of Great Britain during the 19th Century.
4. BRIGGS : Economic History of England.
5. WATERS, C. M : An Introduction to the Economic History of England.
6. SHAH, N. J. : History of Indian Tariffs
7. HAMMOND : The Rise of Modern Industry.
8. ANSTEY, VERA : Economic Development of India.

Part II.—*Elementary Statistics*—Scope and Utility of Statistics. Collection of Data. Tabulation. Averages. Dispersion Skewness. Graphic Methods—especially as used in Commerce and Industry. Index Numbers. Simple Correlation. Common Errors in Statistics, Periodicity (by arithmetical methods only).

Statistics of British India—Population, Vital Statistics, Production, Wages, Prices, Trade Labour, Income.

A knowledge of the use of the slide rule is required
Books recommended :—

1. BOWLEY : Elementary Manual of Statistics.
2. RHODES : Elements of Statistics.
3. CONNOR : Statistics.
4. DUBEY AND AGARWALA : Elementary Statistics.
5. Report of the Indian Economic Enquiry Committee.

B. A. Third Year Honours Course and M. A. Course.

For the B. A. Third Year's Honours Examination there shall be five papers. Papers II and III are Compulsory and three other papers are to be selected from papers IV to XIV.

For the M. A. Examination the candidates shall take Paper I and any three of the remaining papers stated below. They shall also appear in a *viva voce* examination. Each student shall also be required to present and pass in one essay approved by the Head of the Department of Economics and prepared during the year ; the essay to become the property of the University.

The selection of optional papers is limited as follows :—

Candidates who have passed the B. A. Examination must offer three of the following papers ; IV, V, VI, VII or IX ; provided—

- (1) that students who passed the B. A. examination with Mathematics may offer only two of the above papers, if they offer either paper X or paper XI ;

- (2) That students who passed the B. A. with History or Politics may offer only two of the above papers in case they offer either paper VIII, paper XII, or paper XIII.

Candidates who have passed the B. Com. examination must offer at least three of the following papers : IV V, VI, VII, VIII, IX, or XV but they may not offer paper XIV.

Paper XII shall not be offered by those who took Economic History in the B. A. Second Year Honours Course.

The optional papers may be offered EITHER for B. A. Honours Third Year Examination or for the M. A. Examination in those years in which these papers are taught, except paper XV, which may be offered only for the M. A. Examination.

Every year only those optional papers will be offered for study which are permitted by the Head of the Department of Economics.

Paper I — *Advanced Economic Theory* — (This course should be a revision of economic theory from the dynamic and integral points of view as in Wicksteed, Pigou, Fisher and Clark). The ultimate effects of inventions and improvements, especially cheaper transportation and communication. Relative growth of population. Dynamic relations of the relative values of investments in land, capital and labour power. Monopolies and price discrimination. Theoretical possibilities of economic progress.

Books recommended :—

1. MARSHALL : Principles of Economics.
2. PIGOU : Economics of Welfare.
3. WICKSTEED : Common Sense of Political Economy.
4. CLARK : Essentials of Economic Theory.
5. FISHER : Nature of Capital and Income.
6. TAUSSIG : Principles of Economics.
7. CHAPMAN : Outlines of Economics.
8. PIGOU : Industrial Fluctuations.
9. PIGOU : Public Finance (Selected Chapters).
10. HOBSON : Wealth and Life.
11. Report of the Economic Committee (League of Nations).
12. The Course and Phases of the World Economic Depression (Revised edition, Geneva, 1931).
13. League of Nations, publications on the World Economic Depression.

Paper II.—*History of Economic Thought including Social and Commercial Theories.*—A brief chronological account of the principal writers and schools followed by a connected history of the most important theories. (The History of Socialistic parties is not included.)

Books recommended —

1. GIDE and RIST : History of Economic Doctrines

2. HANEY : History of Economic Thought.
3. INGRAM : History of Political Economy in England.
4. KIRKUP : History of Socialism
5. HEARNshaw : Survey of Socialism.
6. SPARGO and ARNER : Elements of Socialism.
7. SALTER : Karl Marx and Modern Socialism.
8. CANNING : A Review of Economic Theory.
9. BANERJI, P. N. : Fiscal Policy in India.
10. ALEXANDER GRAY : Development of Economic Doctrine—an Introductory Survey.
11. PRICE, L. L. : Political Economy in England.
12. MARKHAM, S. M. : A History of Socialism
13. LASKI, A. J. : Communism.
14. BERTRAND RUSSEL. Theory and Practice of Bolshevism.
15. MIRSKY, D. S. : Lenin.
16. SPANN, O. : Types of Economic Theory.
17. JEVONS, H. S. : Economic Equality in the Co-operative Commonwealth.

Part III. —*Essay in Hindi or Urdu.*

In very exceptional cases candidates may be permitted to take this essay in *English*, with the permission of the Head of the Department.

Note.—The purpose of the Hindi and Urdu essays in Economics is (1) to enable the students to explain economic principles to illiterate people and (2) to enable them to think clearly and express clearly ideas which cannot be quite so clear to them in a foreign language as in their own tongue. Therefore the students are not expected to use highly technical terms which only scholars can understand. They are expected, as far as possible, to use the simple language of ordinary life. They are encouraged to use either Urdu or Hindi words, whichever they think will be more easily understood by the mass of the people, and may even use English words which have definitely become a part of the vernacular language such, as Bank, Note, Dividend, Stock, Budget, Cheque, Machine, Pass-Book, Pension.

“The Examiner should mark the essays chiefly on clarity of thought and expression and not on details of language.”

Paper IV.—*Industrial and Commercial Organisation*—
(This course should be both descriptive and theoretical. The student should study the comparative economic efficiency of various forms of organisation.) Specialisation in Land, Labour and Machinery, in Extractive Industries, Manufacture and Transportation, Factory Organisation and Scientific Management. Methods of paying Wages. Organisation of markets and Selling. Distributing Agencies and Consumers' Leagues. Trusts and Co-operation from the point of view of efficiency in Production and Marketing.

Books recommended :—

1. MARSHALL : Industry and Trade.
2. MARSHALL, FIELD and WRIGHT : Materials for the Study of Economics.

3. MARSHALL FIELD and WRIGHT : Readings in Industrial Society.
4. GRANT : Work, Wages and Profits.
5. THOMPSON : Scientific Management.
6. TAYLOR : Shop Management.
7. HIRST : Story of the Trusts.
8. HOBSON : The Evolution of Modern Capitalism.
9. WATTS : Psychological Problems of Industry.
10. CARVER : Economics of Human Energy.

Paper V — *Financial Organisation* — (This course should be a theoretical and descriptive study of the delicate adjustments by which Value and Ownership are determined.) Money and the causes of changes in Prices. Paper Money. Commercial Paper and Securities. The organisation of Credit by Banks, brokers and co-operative Credit Societies. State Banks. Foreign Exchanges. Stock Exchanges and Produce Exchanges. Speculation. Credit Cycles and the forecasting of fluctuations in the rate of interest and in prices.

Enterprise and investment. The Promotion of Companies. Financial and Legal Organisation of Companies and Trusts. Responsibility for the Direction and Control of Industry and the flow of Capital.

Books recommended :—

1. MARSHALL : Money, Credit and Commerce.

2. FISHER : Stabilised Money.
3. The Future of Monetary Policy, published by the
Institute of International Affairs.
4. COOPER : Financing an Enterprise.
5. WITHERS : Stocks and Shares.
6. CASSEL : Memorandum on the World's Monetary
Problems, (League of Nations).
7. Report of the Central Banking Enquiry Committee,
Volume I, Parts I and II, 1931.
8. Report of the United Provinces Banking Enquiry
Committee, Volume I, 1929-30.
9. Report of the Committee on Industry and Finance
(Macmillan Committee), London, 1931.
10. Gold Delegation Reports (Interim and Final),
League of Nations, Geneva, 1932.
11. JAIN, L. C. : Indigenous Banking in India
12. JAIN, L. C. : Monetary Problems of India.
13. GREGORY : Foreign Exchange before, during and
after the War.

Paper VI.—*Rural Economics*—Land Tenures, Agricultural Improvements. Irrigation and Communications. The Importance and possibilities of village industries.

District Board Finance, Contrast between Rural and Municipal Problems.

Books recommended :—

1. DARLING : The Punjab Peasant in Prosperity and Debt.
2. JAFRI : History and Status of Landlords and Tenants in the United Provinces.
3. MUKERJI, R. K. : Foundations of India Economics.
4. BADEN POWELL : Land Revenue Systems of British India.
5. HOWARD : Crop Production in India.
6. CARVER : Principles of Rural Economics.
7. VENN : Foundations of Agricultural Economics.
8. HOLMES : Economics of Farm Organization and Management.
9. NOURSE : American Agriculture and the European Market.
10. BUCK : Chinese Farm Economy.
11. KAJI : Co-operation in India.
12. WOLFF : Co-operation in India.
13. LEAKE : Foundations of Agriculture in India.
14. BHATNAGAR : Co-operative Organisation in British India.

15. JEVONS, H. S : Economics of Tenancy Law and Estate Management (Bulletin No. 17 Economics Department. Allahabad University).
- 16 DUBEY, D. S. : The Way to Agricultural Progress.
17. U. P District Boards Act.
- 18 Final Report of Agricultural Tribunal of Investigation
19. Government Resolution on Land Revenue Policy in India.
20. The Report of the Taxation Enquiry Committee (Selected Chapters)
21. Report of the Royal Commission on Agriculture in India
22. Report of the U. P. Banking Enquiry Committee (Selected Chapters).
23. SELIGMAN : Economics of Farm Relief.

Paper VII —Labour and Urban Problems—

British Labour Movement.—History up to the present time. Trade Unions ; structure, functions and government. Industrial peace, conciliation and arbitration. Education and Research Department International connections.

Indian Labour.—Village background, connection and influence. Recruitment, conditions, security, promotion. Hours. Wages Minimum wage. Child Labour.

Labour of Women. Trade Unions : characteristics, history, future Industrial peace, works committee, machinery for conciliation and arbitration. Health, diet, maternity benefits, industrial diseases. Town planning, housing, village-settlements Building regulations and sanitation. Education, general and technical, agencies. Welfare work, recreation, civic amenities, agencies Debts, co-operative credit and distributive stores.

Life of labouring classes in typical Indian industries : cotton, jute, coal, metallurgical, mining, shipping, railways, plantations, seasonal industries.

Labour and the constitution, central, provincial and municipal.

Labour research and statistical bureaus

International Labour Organisation. Pre-war history. Constitution, organisation, and functions. Achievements. Prospects.

Books recommended :—

1. WEBB : Industrial Democracy.
2. COLE, G. D. H. : History of the British Working Class Movement, Vols. I, II and III.
3. COLE, G. D. H. : The World of Labour.
4. CUNNISON, J. : Labour Organisation.
5. SHIELDS, B. F. : The Evolution of Industrial Organisation.

6. BROUGHTON, G. M. : Labour in Indian Industries
7. MATHESON, C. : Indian Industry.
8. BURNETT-HURST : Labour and Housing in Bombay.
9. MUKHTAR, A. : Factory Labour in India.
10. GUPTA, R. B. : Labour and Housing in India.
11. HOBSON, J. A. : Conditions of Industrial Peace.
12. RICHARDSON, J. H. : The Minimum Wage.
13. KELLY, E T. : Welfare Work in Industry.
14. MYERS, C. S. : Industrial Psychology in Great Britain
15. LOKANATHAN, P. S. : Industrial Welfare in India.
16. LANCASTER. H. V. : The Art of Town Planning.
17. NETTLEFORD, S. : Practical Housing.
18. PILLAI, P. P : India and the International Labour Organisation.
19. I. L. O. PUBLICATION : The International Labour Organisation. The First Decade.
20. Report of the Royal Commission on Indian Labour, 1931.

21. Report of the Bombay Strike Enquiry Committee,
1928-29.

22. Report of the Court of Enquiry on Railways,
1932.

Paper VIII —*Economic Activities of the State.*

Principles of state participation in economic enterprise.
Laissez faire, state control, and nationalization.

Social Insurance, Workmen's compensation old age,
invalidity and maternity benefits

Unemployment Brief study of causes and remedies
and state assistance as specially applicable to India.

Factory legislation. Mines, shipping, machinery.
Inspection.

Regulation of production ; adulteration of food and
drink, ghee, milk, etc , drugs and narcotics, excise
and opium policy and state control and regulation.
Pharmaceutical education and compilation of Indian
pharmacopia

Government regulation of prices and monopolies, normal
and abnormal. War, famine, and other calamities. Regula-
tion of produce exchanges, grading, prevention of speculation
—cotton, wheat, etc

State aid to industries — study of methods.

State control of public works and public utility
services; roads and bridges, railways, posts, telegraph,
telephone, and broadcasting services, aviation. Agencies
of control.

State control of criminal tribes. Economic and educational aspects of jail confinement. Assistance to discharged prisoners. The State and public health. Sanitation. Prevention of epidemics and endemic diseases.

The State and the control of prostitution and the white slave traffic, with special reference to industrial and port towns.

The League of Nations. The Health Committee.

The State and public research and information, Direct participation and other methods of assistance.

N. B.—This paper will be studied with special reference to India. Reference to foreign countries will be only incidental.

Books recommended :—

HAROLD LASKI—Grammar of Politics (Specified chapters).

H. T. HADLEY—The Economic Problems of Democracy.

A. C. PIGOU—Economics of Welfare (Specified chapters).

GILBERT SLATER—Poverty and the State.

J. M. KEYNES—End of Laissez-Faire.

H. A. SILVERMAN—Economics of Social Problems.

J. C. KYDD—Indian Workman's Compensation Act.

A. C. CLOW—Indian Workman's Compensation Act.

The U. P. Unemployment Committee Report of 1935.

H. R. SEAGER—Social Insurance.

A. C. PIGOU.—Industrial Fluctuations (Specified chapters).

SIR W. M. BEVERIDGE—Unemployment.

W. PATON—Opium in India.

Indian Factory Acts. Mining Acts, Annual Reports on Factory and Compensation Acts. Maternity Benefit Acts, Provincial and Indian States Committees' Reports on Unemployment ; Government of India Central Board of Revenue Memorandum on the Alcohol Question, 1925 ; Indian Excise Committee Report, 1905-06 ; U. P. Excise Report, 1921. Criminal Tribes Settlement Reports, etc. Appropriate publications of the League of Nations and the Indian Labour Organization.

State and other publications will be indicated as the course proceeds during the session.

Paper IX.—*Public Finance.*

General. The scope of the science. Definition. Relation to economics and politics. Difference between public and private finance.

Public Expenditure :—

General. Importance of public expenditure. Its classification ; canons or principles Relation of public expenditure to economic productivity and tax-paying capacity.

Descriptive. A detailed and critical study of expenditure on principal heads such as defence, law and order, education, agriculture, industries, sanitation, roads, railways, and other means of communication, and public undertakings (with special reference to India) .

Distribution of functions between Central, Provincial, and Local Governments. General principles and historical study.

Expenditure of District Boards and Municipalities.

Public Revenue :—

General Importance of public revenue Its classification Taxes, fees, prices. Direct and indirect taxes. Canons or principles. Ability or faculty theory Equal, proportional, and least aggregate sacrifice theories. Progressive, regressive and degressive taxes. The single tax. Double taxation

Shifting and incidence of taxation. Various theories. General principles. Special study with regard to incidence of excise duties, taxes on imports, land and house rents, profits, monopoly output and revenue, income and inheritances.

Distribution of resources between Central, Provincial and Local Governments Principles. Federal finance in India.

Descriptive. A detailed and critical study of the principal heads of revenue such as income and inheritance

taxes, land revenue, customs duties, excise duties, stamp duties and irrigation, the salt tax, revenue from Government undertakings.

District Boards and Municipal Revenue.

Public Debt :—

General. Its importance. Public and private debts compared. Difference between finance by loans and finance by taxes. Redeemable and irredeemable loans. Forms of public debts. Methods of redemption.

Descriptive. Public Debt of India. Rupee and Sterling debts. Productive and unproductive debts. Central, Provincial, and Local debts. Funded and unfunded debts. Provision for the redemption of debts.

Financial Administration :—

Its importance. The budget. Its essential features. The framing of estimates. Estimates in the legislature. Demands for grants and the Finance Bill. Votable and non-votable expenditures in Central and Provincial Governments. Separation of railway budget from the general budget.

The Municipal and District Board budgets.

1. SHIRRS, G F.: The Science of Public Finance.
2. DALTON: Public Finance.
3. COMSTOCK, A.: Taxation in the Modern State

4. SHAH, K. T. : Constitution, Functions, and Finance of Indian Municipalities.
5. Report of the Taxation Enquiry Committee.
6. Report of the Statutory Commission.

Books recommended :—

1. PIGOU : A Study in Public Finance.
2. SELIGMAN : Essays in Taxation.
3. GYAN CHAND : Financial Administration in British India.
4. SHAH, K. T. : Federal Finance.
5. Report of Federal Finance Committee of the Round Table Conference (Percy)
6. His Majesty's Proposals for the Indian Constitution.
7. Report on the working of the District Boards and Municipalities in the United Provinces.

Paper X.—*Theory and Practice of Statistics*—Relation of statistics to other sciences. Enumeration, compilation, and tabulation of data.

The theory of statistics, not requiring a knowledge of the calculus. Elements of the theory of probability. Frequency distributions and the graphical representation of groups. Averages and measures of dispersion and of skewness. Graphic methods including logarithmic curves and elementary curve-fitting, *e. g.*, curves representing the law of diminishing returns, based on statistics. Index numbers. Correlation for two variables. Association and contingency. Graphic and algebraic methods of interpolation and extrapolation. Accuracy and sampling as affecting the above statistical measures. The significance of observed difference between averages. Elementary methods of dealing with population and vital statistics.

Practical methods used in the analysis and interpretation of statistics of prices, wages, incomes, trade, transport, production and consumption. Common errors in the interpretation and representation of statistics. Methods used in handling business statistics. The investigation of periodicity by graphical and arithmetical methods. General trend. Forecasting of fluctuations of economic phenomena.

A knowledge of the use of slide rules and calculating machines will be required.

Books recommended:—

1. BOWLEY: Elements of Statistics.
2. BOWLEY: Elementary Manual of Statistics
(Second Edition).

3. YULE: An Introduction to the Theory of Statistics.
4. BODDINGTON. A. L.: Statistics and their Application to Commerce.
5. HARVARD ECONOMIC SERVICE: Review of Economic Statistics.
6. SRIVASTAVA, J. P.: Report of the Civic Survey. Allahabad Improvement Trust.
7. Report of the Indian Economic Enquiry Committee.
8. RHODES: Elements of Statistics.
9. CONNOR: Statistics.
10. Dubey and Agarwala: Elementary Statistics.
11. Bowley—Robertson Committee Report.

Note: The examination in Statistics shall be divided into two parts (1) Theoretical and (2) Practical. The time allowed for the first part, Theoretical, shall be 1½ hours, and for the second part, Practical, three hours.

Forty marks shall be allotted to the first part and 60 marks to the second. Both examinations shall be set and marked by one examiner, but the two parts shall be printed and given to the students separately. It will not be necessary to pass in each part separately.

Paper XI. — *Mathematical Economics*.—Marginal utility, Indifference curves. The contract curve. Demand and

supply curves. Elasticity of demand and supply. Consumer's and producer's surplus. Equations of the equilibrium of exchange under simple and complex conditions of competition and of monopoly. Supply and demand of the factors of production. Application of the equations of equilibrium to the problem of distribution. Application of mathematical methods to problems of foreign trade, transportation, speculation, population and rent. Distinction between static and dynamic economics. Curves representing historical progress contrasted with curves representing various possible positions at a given time. Conditions of Economic progress. Relations between pure mathematical economics and statistics. Possibility of obtaining equations representing actual conditions.

Books recommended :—

1. MARSHALL : Principles of Economics.
2. BOWLEY : The Mathematical Groundwork of Economics, Oxford, 1924.
3. FISHER : Nature of Capital and Income.
4. FISHER : The Theory of Interest.
5. WICKSTEED : Common Sense of Political Economy.
6. FISHER : Mathematical Researches in the Theory of value and price.

7. ROBINSON, JOAN : Economics of Imperfect Competition.
- 8 EVANS, G. C : Introduction to Mathematical Economics.
9. Econometrica (selected articles).

Paper XII.—*Economic Development of England and India*, with special reference to the period after 1760.

(The syllabus and books to be the same as for B. A. II Year Honours, Paper I —pp. 136 and 137).

Paper XIII—*Economic and Commercial Geography*—The Economic and Commercial Geography of Eurasia and East Africa, the monsoon lands (India, China, Japan, etc.) and the chief commercial countries of Europe will be studied in detail, other parts in outline, more particular attention being given to cases which illustrate general truths or provide illustrations of the growth of industrial or commercial centres. Trade routes, particularly those of the Atlantic and Indian Oceans. (The course will include practical work such as the study and construction of statistical maps and charts and sketch maps.)

Books recommended :—

1. MAC FARLANE : Economic Geography.
2. BROWN, R. N. B. : Principles of Economic Geography.

3. CHISHOLM : Hand book of Commercial Geography.
4. TROTTER, S. : Geography of Commerce.
5. RUSSELL SMITH : Industrial and Commercial Geography.
6. JONES and WHITTLESEY : Introduction to Economic Geography, 2 Volumes.
7. R. N. DUBEY : Economic and Commercial Geography.
8. STAMP : Asia.
9. SMITH D. H. : Economic Geography of Europe.
10. MUKERJI : Economic Geography of India.
11. LYDE : Continent of Europe.
12. LEATS : Natural History of Raw Materials Commerce.
13. GEORGE WATT : The Commercial Products of India.
14. HERBERTSON, A. J. and HOWARTH, O. : The Oxford Survey of the British Empire, 6 Volumes.

Paper XIV — *Transport*

- (1) *Railway Transport*—Capital and Expenditure. Combinations. Rates and Fares. Classification of goods and minerals. Discrimination and undue preference. State Regulation of rates and fares. State ownership and management.
- (2) *Indian Railways*—Development. Relation to the State. Management. Financing. Relation to one another Internal Administration and executive organisation. Changes suggested by the Acworth Commission.
- (3) *Road Transport*—Economics of road construction and maintenance. Theories of rates and fares. Types of road transport Relation to the State. Relation of road to railway transport. Roads and road transport as means of opening up undeveloped and outlying tracts.

Books recommended :—

1. GHOSE, S. C.: *Indian Railway Economics*, Parts I and III.
2. GHOSE, S. C.: *A Paper on Railway Economics*.
3. ACWORTH: *Elements of Railway Economics*.
4. DOUGLAS.KNOOP: *Outlines of Railway Economics*.

5. FENELON, K. G.: The Economics of Road Transport.
6. WILLIAMS, S. C.: Economics of Railway Transport.
7. RIPLEY: Railroad Problems (Selected chapters.)
8. RIPLEY: Railroad—Finance and Organisation.
9. Acworth Commission's Report.
10. Report of the Road Development Committee in India.
11. WELD: India's Demand for Transportation.
12. MEHTA: Indian Railway Rates and Regulations.
13. SANYAL: Indian Railways.
14. SRINIVASAN: The Law and Theory of Railway Freight Rates.
15. STEPHENSON. Communications.

Paper XV.—*Special subject for detailed study such as Co-operation, Famines, Trade Cycles, etc., to be announced each year.*

HISTORY.

There shall be two papers :—

Paper I.—Modern European History.

Books recommended :—

ACTON: Lectures on Modern History, lectures on
 (1) Luther, (2) Counter-Reformation, (3)

Calvin and Henry VIII, (4) Philip II, Mary and Elizabeth, (5) Henry IV and Richelieu, (6) Thirty Years' War, (7) Louis XIV. (3) War of the Spanish Succession, (9) Peter the Great, (10) Frederick the Great.

Books recommended :—

ROBINSON and BEARD: Development of Modern Europe.

RAMSAY MUIR: New School Atlas of Modern History.

HAYES: Political History of Modern Europe.

HEARNSHAW: Main Currents of European History in the XIX Century.

RAMSAY MUIR: General History of England.

*Note :—*No. section of the paper on Modern Europe should contain questions exclusively on English History

Paper II.—One of the following periods of Indian History :—

(a) Ancient India, 600 B. C. to 1200 A. D

Books recommended :—

SMITH, V. A. :—Early History of India (4th edition).

AIYANGAR, S. K. :—Ancient India, Chapter 6.

BHANDARKAR, SIR R. G. :—Peeps into the Early History of India.

MAJUMDAR, R C :—Outlines of Ancient Indian History and Civilisation (omitting Book I).

RAYCHAUDHURI, H. C. :—Political History of Ancient India, 3rd Edition.

(b) Mediæval India—1200—1707 A. D.

Books recommended :—

ISHWARI PRASAD : History of Mediaeval India.

SARKAR : Mughol Administration.

ISHWARI PRASAD : Short History of Muslim Rule in India.

SARKAR AND DUTT : Modern History of India.

SARMA : Mughal Rule in India, 2 Vols.

KINCAID and PARASNIS : History of the Maratha People, Vol. I.

SARKAR : Shivaaji and His Times (latest edition).

(c) Modern India from 1748 A. D

Books recommended :—

1. LYALL : Rise and Expansion of British Dominion in India.
2. RAMSAY MUIR : Making of British India.
3. DODWELL : A Sketch of the History of India (1858—1918 .
4. ROBERTS : History of British India.

HISTORY (Honours) .

Second Year's Course.

In addition to the Pass Course there shall be two papers as follows at the end of the second year.

Paper I.—French Revolution.

Books recommended :—

1. ACTON : Lectures on French Revolution
2. LOUIS MADLEIN : French Revolution.
3. ROBINSON : Readings in European History,
Vol. II.

Papers II.—Napoleon

Books recommended :—

1. ROBINSON : Readings in European History,
Vol II
2. FISHER : Bonapartism.
3. FISHER : Life of Napoleon.
4. J. H. ROSE : The Revolutionary and Napoleonic
Era.

Third Year's Course

There shall be four papers and a *viva voce* test—

Paper I.—Modern Political Theory and Institutions including the Modern Constitutions of England, France and U. S. A.)

Books recommended :—

1. LORD, A. : Introduction to Politics.
2. BRYCE : Modern Democracies (chapters on the U. S. A.)
3. BARKER : Political Thought in England from Herbert Spencer to the Present Day.

4. LASKI : Introduction to Politics.
5. MUNRO : The Governments of Europe.
6. BUELL : New Governments of Europe.
7. SIDNEY LOWE : The Governance of England
New Edition.

Paper II — *Either* (a) Europe from 1815 to 1878

Books recommended :—

1. Cambridge Modern History, Vols. X and XI.
2. HAZEN : Europe, since 181.
3. SEIGNOROS : A Political History of Contemporary
Europe since 1814.
4. ANDREWS : The Historical Development of
Modern Europe.
5. OGG AND SHARP : Economic Development of
Modern Europe.

or

(b) Contemporary Europe (1871—1919.)

Books recommended :—

1. GOOCH : History of Modern Europe
2. HAYES : Social and Political History of Modern
Europe, Vol. II, new edition,
1932.

3. WALLACE : Thirty years of Modern History.
4. GIBBINS : Introduction to World Politics.
5. OGG AND SHARP : Economic Development of
Modern Europe.

Paper III.—British History from 1688 to the present day.

Books recommended :—

1. TREVELYAN : England under the Stuarts.
2. ROBERSON : England under the Hanoverians.
3. MARRIOTT : England since Waterloo
4. EGERTON : Short History of English Colonial
Policy.
5. POLLARD : Evolution of Parliament.
6. ROBERTSON : Constitutional Documents of English
History in the XVIII Century.

Paper IV.—Either (a)—Social and Constitutional History of Ancient India.

Books recommended :—

1. BENI PRASAD : The State in Ancient India.
2. „ „ : Hindustani-Purani Sabhyata.
3. MUKERJI, R. K. : Local Government in Ancient
India.
4. JAYASWAL, K. P. : Hindu Polity.

5. MAJUMDAR, R. C. : Corporate life in Ancient India.
6. FICK : Social Organisation in North-Eastern India in Buddha's Time.
7. Cambridge History of India, Vol. I, Chapters 4 to 12, 16 and 19.
8. JOLLY, J. : Indian Law and Custom.
9. R. K. MUKERJI : Hindu Civilization, Chapters IV—VII.

or

(b)—History of the Delhi Sultanate from 1200 to 1526. (The history of the provincial dynasties is excluded)

Books recommended :—

1. ELLIOT and DOWSON : History of India, Vols. II, III, IV and V.
2. AIYANGAR, KRISHNASWAMI : South India and her Muhammadan Invaders.
3. Ibn Batuta's Travels.
4. AIYANGAR and HABEEB : Campaigns of Ala-ud-din Khalji.
5. LIST OF MONUMENTS : DELHI (Archaeological Department.
6. Cambridge History of India, Vol. III.

7. ISHWAR PRASAD: History of the Qarauna Turks.

or

(c) Constitutional History of British India.

Books recommended :—

1. ILBERT : Government of India.
2. MUKERJI, P. : Indian Constitutional Documents.
3. Montagu-Chelmsford Report.
4. COWELL : Courts and Legislative Authorities in India.
5. G N. SINGH : Landmarks in Indian Constitutional and National Development.
6. KEITH : Speeches and Documents of Indian Policy.
7. KEITH : Constitutional History of India.

POLITICS.**There shall be two papers :—**

Paper I. — General Political Theory with special reference to modern times

Books recommended :—

1. DOYLE : History of Political Thought.
2. LORD : Principles of Politics.

3. DAVIDSON : Political Thought in England The Utilitarians. From Bentham to J S. Mill.
4. BARKER : Political Thought in England from Spencer to To day.
5. JOAD, C. E. M. : Modern Political Theory.
6. GETTLE : History of Political Thought..
7. MCIVER : The Modern State.
8. LASKI : Introduction to Politics.

Paper II — Comparative Politics, comprising a study of (a) the Evolution of the State and (b) the Constitutions of (1) England, (2) The United States of America, (3) Switzerland, (4) France, (5) Canada and (6) India.

Books recommended : —

1. SIDNEY LOW : The Governance of England.
2. BRYCE : Modern Democracies Switzerland, Canada and the U. S. A.)
3. SAIT : The Government and Politics of France.
4. MUNRO : The Governments of Europe.
5. The Government of India Act.
6. STRONG : Modern Political Constitutions.
7. GILCHRIST : Principles of Political Science.

POLITICS (Honours).

Second Year's Course.

In addition to the Pass Course there shall be the following two papers at the end of the second year :—

Paper I.—The Indian Constitutional Development from 1892.

Syllabus.—The Development of the Council of India. Parliamentary supervision over Indian affairs. The growth of the central and provincial legislatures in India. The relations of the Central and Provincial Government. Development of local self-government. The Government of India Act, 1919 Dyarchy. The Government of India Act, 1935.

Books recommended :—

1. Montague-Chelmsford Report.
2. Report of the Indian Statutory Commission, Vol. 1.
3. SPARE : Growth of the Indian Constitution.
4. SIR SIVASWAMI AIYAR ; Indian Constitutional Problems.
5. The Report of the Joint Parliamentary Committee.
6. The Government of India Act, 1935.
7. LAHIRI and BANERJI : The new Constitution of India.

Paper II.—English Constitutional Development from 1688.

Syllabus.—The constitutional significance of the Revolution of 1688. The growth of the Party system. The Cabinet. The relations of the Executive, the Legislature and the Electorate in the 18th Century. The Reform Acts of 1832, 1867, 1884-85 and 1918; the Representation of the People (Equal Franchise) Act of 1928.

Books recommended :—

1. ADAMS : English Constitutional History.
2. POLLARD, A. F. : Evolution of Parliament
3. LOWELL, A. L. : Government of England, Vol. I.
4. Sidney Low : The Governance of England.

Third Year's Course.

There shall be four papers and a *viva voce* test :—

I. Papers I, II, III and IX of the M. A. Politics Course for 1937.

or

II. Paper I.—Either Modern Political Theory (Paper II of the M. A. Politics Course) or Modern Constitutions (Paper IV of the M. A. Politics Course.)

and	Group	A
or	„	B
or	„	C
or	„	D
or	„	E
or	„	F

Paper I—IV and Groups A—C. — The Syllabuses and the books recommended shall be the same as for the M. A. Politics Course.

Group D.

Paper I.—Ancient Indian Political Thought and Institutions.

Syllabus — Vedic Political organisation and political ideas. Political theories and practical as gleaned from the Epics, Sûtras and Jâtakas. Mauryan Political Organisation. Political ideas of the Arthasâstras, Dharma Sâstra and Purânas. Andhra, Gnpta and Vardhanana administrations. General features of Political Life from the 8th to the 12th Century A. D. Chola Administration

Books recommended : —

1. MAHABHARATA : Sânti Parvan, Râjadharmânusâsanâ Prakarana Tr. P. C. Roy.)
2. KAUTALYA : The Arthasâstra (Tr. Shamastry).
3. Cambridge History of India, Vol. I, Chapters IV, V, XIX.
4. BENI PRASAD : Theory of Government in Ancient India (Post Vedic).
5. BENI PRASAD : The State in Ancient India.
6. KRISHNASWAMI AIYANGAR : Ancient India (Chapter on Chola Administration).
7. JAYASWAL, K. P. : Hindu Polity.

Paper II.—Ancient Indian Social Thought and Institutions.

Syllabus.—Vedic Society. Social ideas and practices in the Epics, Sûtras and Jatakas. Buddhist and Jain Social theories. The Social philosophy of the Dharma Sâstras and Artha Sâstras. Development of Caste. Position of Women Regulations on Marriage

Books recommended : —

1. Mahâbharata, Sânti Parvan (Tr. P. C. Roy).
2. Manu Samhitâ (Tr. Bühler or Gangânâtha Jhâ).
3. Arthasâstra (Tr by Shamasastri.)
4. FICK: Social Organisation in North-Eastern India in Buddha's time.
5. MAJUMDAR: Corporate Life in Ancient India.
6. Cambridge History of India (Chapters IV, V, VIII, IX, X, XI, XVI, XIX).

Paper III.—Ancient Indian Ethics.

Books recommended :—

1. Kathopanisad (Tr. Max Müller).
2. Mahâbhârata, Sânti Parvan (Tr. P. C. Roy).
3. Dharmasûtra of Āpastamba :

Praśna 1, Patala 1.

Praśna 1, Patala 2, Khaṇḍas 1—8.

Praśna 1, Patala 4, Khaṇḍas 13, 14.

Praśna 1, Patala 7, Khaṇḍas 20—23

Praśna 2, Patala 1, Khaṇḍa 2.

Praśna 2, Patala 2, Khaṇḍa 5.

Patala 3 Khaṇḍa 7

Patala 4, Khaṇḍas 8 - 10.

Patala 9, Khaṇḍas 21 - 24.

4. Dharmasûtra of Gautama (Chapters II, V, VII, VIII, X, XVIII).
5. Dharmasûtra of Vasiṣṭha (Chapters I, V, VII, VIII, IX, X).
6. Dharmasûtra of Bodhayana ;
 Praśna II, Adhyâya 6, Khaṇḍa 11.
 Praśna II, Adhyâya 10 Khaṇḍa 17
 Praśna III, Adhyâya 12.
7. Dharma Sâstra of Manu (Chapters I, IV, VI, X, XI, XII).
8. Yâjñavalkya, (with special reference to Apadharma Prakaraṇam. Vânaprasthâ Prakaraṇam, Yati Prakaraṇam and Prâyaschita Prakaraṇam of the Prâyaschittâdhyâya).
9. GANGANATHA JHA : Philosophic Discipline.
10. HOPKINS. Ethics of India.
11. MACKENZIE :—Hindu Ethics.
12. RANADE, R. D. : A Constructive Survey of Upanishadic Philosophy, Chapters VI and VII.

GROUP E.

Paper I. — Islamic Political Thought and Polity.

Syllabus.—Islamic Idea of Government. Forms of Government. Khilâfat. Imânat Imârat. Saltanat. Kingship. Divine Right of Kings. Republic. Election. King : his qualifications and duties. King and subjects. The subjects' their duties towards King and State. Civic rights and responsibilities. Ministers and Provincial and Local administrations

Books recommended :—

Same as for Paper XVII of the M. A. Politics Course for 1931.

Paper II. — Islamic Law and Jurisprudence.

Syllabus. — The Muslim Law : its classification. The Sources of Law · their interpretation. Juristic Deduction, Constitutional and Administrative Law. Procedure and Evidence in Courts.

Books recommended :—

1. ABDUR RAHIM · The Principles of Muhammadan Jurisprudence.
2. JUNG, M. U. S. : The Administration of Justice of Muslim Law.
3. MARGOLIOUTH : Hibbert Lectures on the Development of Islam.
4. AMEER ALI · Muhammadan Law.
5. AMEER ALI : Spirit of Islam.

6. MACDONALD : Development of Jurisprudence, etc.

Paper III—Islamic History from 632 A. D. to 1258 A. D.

Syllabus—

1. The first four Caliphs (or the Orthodox Caliphate).
2. The Umayyad Caliphate.
3. The Abbasid Caliphate

Books recommended :—

1. AMEER ALI : A History of the Saracens.
2. ARNOLD : Preaching of Islam
3. ARNOLD : Caliphate.
4. ZAYDEN : (Tr. D. S. Margoliouth) : Umayyads and Abbasids (E. J. W. Gibb Memorial).
5. VON KREMER : Orient under the Caliphs (Tr. Khuda Bakhsh).
6. WEIL : Caliphate (Tr. Khuda Bakhsh).

GROUP F.

Papers I—III (The Syllabuses and the Books to be same as for M. A. Politics, Group D Papers XV, XVI and XVII respectively).

GEOGRAPHY.

There shall be two papers, carrying 75 marks each as follows :—

PAPER I.

1. A brief introduction to the development of Geographical knowledge.
2. The earth and its Planetary Relations.
3. Maps—the principles of field map-making (by plane-table and prismatic compass) and of the most useful map nets or projections, the representation of relief, cartographic method generally, and the preparation of distributional and statistical maps.
4. Weather and Climate. Climatic Types and their distribution.
5. Land forms and their origin.
6. Earth Resources—Water Resources. Biotic Resources. Soils. Mineral Fuels. Ores.
7. Elements of Material Culture—Population, density and distribution, houses and settlements. Agricultural land, pastures, livestock, fishing, industrial plant, mining, transport.
8. Geographic Realms—Humid Tropical, Dry Realms. Humid Mesothermal Realms. Humid Microthermal Realms. Polar Realms.

Books recommended :—

James, P. E. : Outlines of Geography (Ginn and Co.)

De Martonne : A Shorter Physical Geography.

Bergsmark : College Geography (John Wiley).

Tarr and Martin : College Physiography (Macmillan).

Vidal de la Blache Principles of Human Geography
(Henry Hold).

Sauer, Ortwin, and Leighly : An Introduction to
Geography. (Edwards Bros Ann Arbor).

Debenham : Map Making (Blackie .

„ Exercises in Cartography (Blackie).

PAPER II. REGIONAL GEOGRAPHY.

A detailed knowledge of all aspects of the Geography
of the following prescribed areas :—

(i) The British Isles.

(ii) India

Books recommended :—

Lyde : The Continent of Asia.

Dudley Stamp : Asia.

Bergsmark : Economic Geography of Asia.

Stamp and Beaver : British Isles.

Mackinder : Britain and British Seas.

M. A. EXAMINATION. ENGLISH LITERATURE.

There will be five papers and a *viva voce* test—

Paper I.—Literary and Social History of England.

The following books are recommended :—

GREEN : Short History of the English People.

JUSSERAND : Literary History of the English People.

WALKER : Literature of the Victorian Era.

SAINTSBURY : History of English Literature.

TREVELYAN : History of England.

BRADSHAW : Social History of England (Tutorial Press) Book I.

LEGOUIS and CAZAMIAN : History of English Literature
(One volume edition)

Note :—Questions on Literature and Social History will be set on all periods beginning from Chaucer.

Paper II—Poetry 1380 —1798.

CHAUCER : Prologue to the Canterbury Tales.

SPENSER : Four Hymns.

MILTON : Paradise Lost—Books I and II.

DRYDEN : Absalom and Achitophel, Part I.

The Oxford Book of 18th Century Verse :

Pope.

Johnson.

Collins.

Crabbe.

Gray.

Note :—Unseen passages from texts similar to those prescribed in the paper will be set and the question on Unseens will carry 30 marks.

Paper III—Special Subject SHAKESPEARE.

With a detailed study of the following plays :—

Love's Labours Lost ; Othello ; The Tempest ;
Richard II.

Note :—Unseen passages from Shakespeare and the leading Elizabethan Dramatists will be set. The question will carry 30 marks.

Candidates will also be expected to show a general knowledge of the important plays other than the above, and of the present position of Shakespearean criticism.

The following books are recommended :—

BRADLEY : Shakespearean Tragedy.

DOWDEN . The Mind and Art of Shakespeare.

QUILLER COUCH : Shakespeare's Workmanship.

WILSON : Life in Shakespeare's England.

SIDNEY LEE : Life of Shakespeare (Latest Edition).

Shakespeare's England.

ALBRIGHT : The Stage of Shakespeare.

CHAMBERS : Shakespeare.

A Companion to Shakespeare Studies. (Cambridge University Press).

Paper IV—Essay.

Paper V—Principles of Criticism and History of the English Language.

Book *prescribed* for Criticism—An Anthology of Critical Statements (Indian Press, Ltd.).

Books recommended for History of English Language.

CLASSEN : History of Language.

L. P. SMITH : The English Language.

BRADLEY : Making of English.

In this paper 60 marks will be allotted to the question on Criticism and 40 to the section on Language.

SANSKRIT.

Candidates will be required to offer only one of the following groups :—

Three papers will be set on text-books in each group. A fourth paper on Composition will be common for all groups.

In each of the three special papers, questions will be set demanding a knowledge of the History of the branches of literature represented by the Text-books.

The questions shall be distributed over all the books prescribed as far as possible and no undue predominance shall be given to any particular book

Group A.—VEDIC LANGUAGE AND LITERATURE.

Paper I.—

- (a) 1. Sāyaṇācārya—R̥gveda-bhāṣya-bhūmikā.
2. R̥gvedasaṃhitā—Maṇḍala I, Sūktas 1—50 and Maṇḍala IV.

(b) Aitareya Brāhmaṇa. Pañcikās I—III (Ānand-
āgrama Series, Vol. XXXII, Part I).

Books recommended :—

1. MACDONELL—Vedic Grammar for Students.
2. WINTERNITZ:—History of Indian Literature,
Vol. I, Part I.

Paper II—

- (a) Mādhyandina Saṁhitā, Chapters I and II.
- (b) Śatapatha Brāhmaṇa, Chapter (Kāṇḍa) I.
- (c) MAṆḌANA MIŚRA: Mīmāṃsānukramaṇikā,
Chapters I—III.

Paper III—

- (a) Ṛkprātisākhya—Paṭalas I—XV.
- (b) Nirukta—Chapters I—III.
- (c) 1. Yasna IX, XXIX, XXX.
2. Behistun Inscription of Darius, Column IV.

General comparison between Sanskrit and Old Iranian
in Phonology and Morphology.

Books recommended :—

P. D. GUNE: Introduction to Comparative Philology,
pages 116—130.

JACKSON, A. V. W.: Avesta Grammar.

JOHNSON, E. L.: Historical Grammar of the Ancient
Persian Language.

N. B.—Questions on Vedic Religion and Mythology will be
distributed over Papers I and II.

Paper IV.—Composition.

**Group B.—SANSKRIT LANGUAGE AND
LITERATURE.**

Paper I { Kāvya prakāśa.
Vṛttaratnākara (omitting Chapter VI).
Padya-racana.
NB—Three fourths marks of the paper should
be assigned to Kāvya-Prākāśa.

Paper II { Daśarūpaka
Ratnāvalī.
Mīchhakatikā.
Svapnavāsavadattam.
Mudrārākṣasam

Paper III (a) Naiṣadhīyacarita, Cantos XIV - XVII.

(b) Kādambarī (Uttarabhāga).

(c) Siddhānta-Kaumudī—

Strīpratyaya, Samāsa, Dviruktaprakriyā
and Lūṅgānuśāsana.

(d) Mahābhāṣya (Āhnika I).

N.B.—Questions on the history of Sanskrit literature will be distributed over Papers I—III.

Books recommended:—

1. MACDONELL: History of Sanskrit Literature.
2. KEITH, A. B.: History of Sanskrit Literature.
3. KEITH, A. B.: Sanskrit Drama.

Paper IV — Composition.

Group C.—DHARMAŚĀSTRA.**Paper I—**

- (a) JAIMINI : Mīmāṃsā-Sūtras with Śabara-
bhāṣya, Adh. I, Pāda 1 only.
- (b) MANḌANA MIŚRA : Mīmāṃsānukramaṇikā,
Chapters I—III.
- (c) KUMĀRILA BHATTA : Tantra-vārtikka,
Smṛtipāda.

Paper II—

1. YĀJÑAVALKYA : Yājñavalkya-Smṛtī with
Mitākṣarā on Vyā-
vahārādhyāya.
2. MANU : Mānava-Dharmaśāstra.

Paper III—

1. KĀTYĀYANA : Śrauta Sūtra --Section on
Darsāpaurṇamāsa.
2. PĀRASKARA : Gṛhya-Sūtra.
3. ĀPASTAMBA : Dharma-Sūtra.

N.B.—Questions on the history of Dharmaśāstra and Mīmāṃsā literatures will be distributed over Papers I—III.

Books recommended :—

2. BÜHLER : Sacred Laws of the Āryas and
Institutes of Manu (S. B. E.,
Vols. II, XIV and XV, Intro-
ductions only).

2. OLDENBERG : The Gṛhyasūtras (S. B. E. XXIX and XXX, Introductions only).
3. JOLLY : Tagore Law Lectures (Lecture I).
4. POLLOCK (Editor) : Maine's Ancient Law.
5. DR. GANGANATHA JHA : Prābhākara School of Pūrva-Mīmāṃsā.
6. P. V KANE : History of Dharmaśāstra, Vol. I.
7. JOLLY, J . Indian Law and Custom.
8. Dr. GANGANATHA JH : Hindu Law in its Sources, Vols I—II.

Paper IV.—Composition.

Group D — PHILOSOPHY.

Paper I—

1. GAUTAMA : Nyāyasūtra with Vātsyāyana Bhāṣya, Chapter I.
2. Nyāya-Muktāvalī (Pratyakṣa and Śabda Khaṇḍas).
3. Praśastapāda-Bhāṣya.

Paper II—

1. Yogasūtras with Vyāsa-bhāṣya.
2. Māṇḍūkya-Upaniṣad with Gauḍapāda's Kārikā.
3. Bodhicaryāvatāra, Chapter IX (Prajñāpāramitā).

Paper III—

I. BĀDARĀYAṆA :—(1) Brahmasūtra with Śaṅkara-Bhāṣya, Adhyāya I, Pāda 1.

„ II. „ 2.

„ III „ 2.

„ IV. „ 1.

(2) Vedānta-Paribhāṣā.

(3) Sīdhāntaleśa, Chapter IV.

Books recommended :—

MAX MÜLLER : Six Systems of Indian Philosophy.

Paper IV.—Composition.

Group E — EPIGRAPHY AND PALÆOGRAPHY.

Paper I—

Aśoka Inscriptions.

History of the Northern Indian Alphabets with special reference to Brāhmī and its derivatives.

Books recommended :—

HULTZSCH, E. : Corpus Inscriptionum Indicarum, Vol. I.

BÜHLER, G. : Indian Palæography (English Version).

BÜHLER, G. : Origin of the Brāhmī Alphabet.

GAURISHANKAR, H. OJHA : Prācīnalipimālā.

Paper II—

Gupta Inscriptions.

The origin and use of the Vikrama and Śaka eras.

Books recommended :—

Corpus Inscriptionum Indicarum, Vol. III by Fleet.

Indian Antiquary, Vols XIX-XX, XXII—XXVI.

SEWELL and DIKSITA : Indian Calendar, Section I
(dealing with Indian Calendar Terms)

Bhandarkar Commemoration Volume.

Paper III—Early History of India (600 B. C. to 1200 A.C.) with special reference to the Maurya, Kuṣaṇa and Gupta periods.

Books recommended :—

SMITH : Early History of India, 4th edition.

RHYS DAVIDS : Buddhist India.

YUAN CHWANG : Travels in India (Edited by Watters).

KALHAṆA : Rājatarāṅgiṇī Introduction by Stein.
Cambridge History of India, Vol. I.

RAYCHAUDHURI, H C. Political History of Ancient India, 3rd edition.

BHANDARKAR, D. R. : Carmichael Lectures (First Series).

For all papers—Chapters I—VI of the Imperial Gazetteer, Vol. II.

N.B.—Candidates will be expected to decipher in facsimile any of the prescribed Aḡoka and Gupta Inscriptions.

Paper IV—Composition.

Group F — PĀLI AND PRAKRIT.**Paper I—Pali Texts.**

- (1) Suttanipāta.
- (2) Mahāparinibbānasuttanta.
- (3) Milindapañho, pp 1—89 (Royal Asiatic Society, London, edition, 1923).
- (4) Aśoka Inscriptions (the 14 Rock Edicts).

Paper II — Jain Prakrit Texts.

- (1) Ācārāṅga-Sūtra, Part I.
- (2) Uttarādhyayana Sūtra, I—XI.
- (3) Uvāsagadasāo (Adhyāyas I and II).
- (4) Davvasaṅgaha.

Paper III — Lirerary Prakrit Texts.

- (1) Karpūramañjarī
- 2) Hāla—Sattasaī.
- (3) Jasaharacariu (Paricchedas I and II).
(Karanja Jain Series, Vol. 1).

N.B.—Questions on Grammar and History will be distributed over Papers I—III.

Books recommended :—

- (a) (1) MÜLLER : Simplified Pali Grammar.
- (2) KACCĀYANA : Pali Grammar.
- (3) VARARUCI : Prākṛtraprakāśa.
- (4) HEMACANDRA : Prakrit Grammar (Portion dealing with Jaina Prakrit)

- (5) WOOLNER: Introduction to Prakrit.
 b) — (1) MRS. RHYS DAVIDS: Buddhism.
 (2) KERN: Manual of India Buddhism.
 (3) STEVENSON: Heart of Jainism.
 (4) Articles on Buddhism and Jainism in the
 Encyclopædia of Religion and Ethics
 (5) Articles on Pali and Prakrit in the Encyclo-
 pædia Britannica.
 (6) E. J. THOMAS: History of Buddhist Thought.
 (7) B. C. LAW: History of Pali Literature.

Paper IV—Composition.

ARABIC

There will be four papers, each carrying 100 marks, and a *viva voce* test of 100 marks.

Papers I, II and III—any three of the following groups only :—

(a) Pre-Islamic poetry—

Books prescribed :—

- (1) *Diwān al-Hamāsa*, *Bāb al-Adab*, and *Bāb al-Nasib*.
 (2) *Shanfarā al-Azdi*, *Lāmiyyatu'l 'Arab*.
 (3) *Diwān al-Nābiḡhat-al-Dhubyānī*, up to the end
 of the *Qāfiya Rā*.

(b) *Mukhaḍramūn*—

Books prescribed :—

- (1) *Dīwān Abū Miḥjan al-Thaqafi*.

(2) *Dīwān Jarwal b. Aws al-Huṭay'a*.

(c) Muwalladūn —

Books prescribed : —

(1) Abul-' Alā al Ma arrī. The *Saqtu'z-Zand*; poems beginning with : —

(۱) امی و خداقلاس کشفتم حالا

(۲) یا ساهر البرق ایقظ راقدا السهر

(۳) معان من اجتنی دمعان

(2) The poets Kumayt, Akhtal, Jarīr and Farazdaq *Al-Mulhamāt* as contained in the *Jamharatu Ash'aril-Arab* (Egyptian edition).

(3) *Diwān al Mutanabb' Qāfiya Bā*.

(d) Prose —

Books prescribed : —

(1) The *Rasā'il* of Badī'uz Zamān al-Hamadhānī entitled the *Kashful-Ma'd'ūni wal-Bayān' an Rasā'il i Badī'iz Zamān*, Catholic Press, Beyrout, 1921 (pages 28-84 both included).

(2) *Rasā'ilul Bulaghā* (ed. by M. Kurd Ali, Cairo, 1913, *Al Qism al Thānī*, pp. 176 to the end.

(e) History of Islam : —

One of the following periods : —

(i) Early Islamic period, comprising the *Sīrah* and the reigns of the first four caliphs.

(ii) The Umayyad period (Eastern).

(iii) The Umayyad period (Western).

(iv) The Abbasid period.

Books recommended :—

- (1) The *Chronicles* of Ṭabarī.
- (2) The *Kāmil* of Ibn-al-Athīr.
- (3) Amir Ali, *History of the Saracens*.
- (4) Amir Ali, *Spirit of Islam*.
- (5) Hell's *Arab Culture*, translated by S. Khuda Bakhsh.

(j) History of the Arabs in India—

Books recommended :—

- (1) Al Balādhurī, *Futuhul-Buldān*.
- (2) Al-Bīrūnī, *Kitāb al Hind*
- (3) The *Rihla* of Ibn Battūṭah.
- (g) Comparative philology of the Semitic languages—

Books recommended :—

W. Wright, *Comparative Grammar of the Semitic Languages*.

(h) Logic and Metaphysics.

Books recommended :—

- (1) *At-Taṣawwurāt* of Qādī Mubārak.
- (2) *At-Taḍdīqāt*, as contained in the *Hamdullāh*.
- (3) *Ṣadrā*, up to the discourse on *Al-Muthannāt bi't-takrīr*.

(i) Tafsīr—

Commentary on the Qur'ān. Al-Juz' al-awwal, as contained in either the *Bayāḍāwī* or the *Jāmi'ul-Jawāmi'* of Tabrisī.

(j) Hadīth :—

Books recommended :—

Either - *Ṣaḥīḥu'l-Bukhārī* : Kitābu's-Ṣulh, Kitābu't-Tafsīr, and Kitābu'l-Adab and the corresponding Books of *Ṣaḥīḥ* Muslim ;

Or *Al-Uṣūl fi'l-Kāfi* : Kitābu't-Tawḥīd and Kitābul-Imān.

(k) Muslim Law :—

Kitābun-Nikāḥ Kitābut-Ṭalāq, Kitābush-Shuf'a, Kitābul-Bay', Kitābul-Waqf, as contained in *either* the *Hidāya*, or the *Sharā'i'ul-Islām*

(l) Taṣawwuf—

Books recommended :—

(1) *Al-Risālat al-Qushayriyya*, Chapters on tafsīru al-āzin tadūru bayna hādhiḥit-tawā'if, attaṣawwuf, at-tawḥīd, al-ma'rifat billāh, al-maḥabbat, al-shawq, al-waṣiyyat bil-murīdīn.

(2) *Iḥyā-ul-'Ulūm* of Al-Ghazzālī, Chapters on Bayānu Haqīqatin-ni'mat, Al-Kitāb fi'z-zuh, Kitābut-tawḥīd wat tawakkul, Ash-shawāhid al-shar'iyya fi maḥabbati-'abdi'llāh. Al qawl fi ma'nā riḍa bil qaḍā.

Paper IV.—Essay in Arabic on a subject connected with Arabic literature or culture.

A *viva voce* test on the subjects offered for the first three papers.

PERSIAN.

There be will four papers, each carrying 100 marks, and *viva voce* test of 100 marks.

Paper I.—(a) Poetry ... 80 marks.

(b) Rhetorics and
prosody ... 20 „

(a) Poetry—prescribed :—

(1) *Qasā'id-i Qā-ānī*, edited by Jalāluddin Ja'fari. (Anwār Ahmadi Press, Allahabad) excluding the following *qasidas* :

(۱) نسیم خلد می و زن مگرز حوییارها -

(۲) فرو بگرفته گیتی را بباغ و راغ و کوه و در -

(2) *Qasā'id-i Ghālib*. The following *qasīdas* :—

(۱) آن بلبل که در چمنستان بشاخسار -

(۲) صبحی که در هوای پرستاری و صن -

(۳) در روزگارها نتواند شمار یافت

(3) *Devalrānī Khizr Khān* by Amir Khusraw, pages 1 to 56 (both inclusive) of the Aligarh edition.

(b) Rhetorics and Prosody—

Books recommended :—

(1) *Hadā'iqul-Balāghat*.

(2) *Mi'yārul-Ash'ār*.

Paper II—Prose—

(a) Persian Prose ... 80 marks.

(b) Elementary Arabic ... 20 „

Books prescribed for (a) :—

- (1) *Inshā-i-Abul Faḍl*, Daftar III first half.
- (2) *Shabnam-i-Shādāb*, Ed. by M. N. Rehman (Kitābis-tan, Allahabad).
- (3) *Hājī Bālā Isfahānī*, the first 12 *Guftārs*.
- (4) *Wukalā-i-Murāfa'ah*, (published by the Anwār Ahmadi Press, Allahabad).

Books prescribed for (b) :—

Durūsul-Adab, Part II, by Sulaiman Nadwi.

Arabic Grammar ; Khawāṣṣul-abwāb, and 'Awāmil-i-naḥwi.

Paper III.—Special study of one of the following groups,
to be selected by the Head of
the Department at the beginning
of the session.

(a) Poetry—

Books prescribed :—

(i) Hāfiz, *Diwān*, Radīf Dāl, from Ghazal No. 115 to 200 (both included). as contained in the Calcutta edition by H. S. Jarrett.

(ii) Mawlānā Rūm, *Mathnawī*, from the beginning
up to :

سالها تو سنگ بودی دلخراش
آزمون را يك زمانی خاک باش

(b) Introduction to Iranian Philology—

Books recommended :—

(i) *Grundriss der Iranischen Philologie*, Vol. I Part II first 191 pages.

(ii) Huebschmann's *Persische Studien*, Part II, dealing with phonology.

(c) History of Islam—

(i) The Prophet and the first four Caliphs.

(ii) *Either* the period of the Umayyads, *or* that of the Abbasids up to the reign of Al-Mutawakkil, as given in the *Rawḍatu's-Safā* *or* *Habību's-Siyar* and the Persian translation of the Chronicles of Ṭabarī, and Amir 'Alī's *History of the Saracens*.

(d) Philosophy, with special knowledge of Sufism—

Books recommended :—

(i) Al Ghazzālī, *Kīmīyā-i-Sa'ādāt*.

(ii) *Akhlāq-i Jalālī*, omitting the discourse on *Naghma*.

Paper IV.—Essay in Persian on a subject connected with Persian literature or culture.

A *viva voce* test on the subjects offered for the first two papers.

*Note:—*Students are required to have such knowledge of the etymology of the Arabic language as will enable them to explain all Arabic words and phrases which may occur in the Persian texts.

HINDI.

There will be four papers and a *viva voce* test.

Paper I.—Poetry : Krishnakavya

SURDAS : Sursudha (edited by Mishrabandhus)

SURDAS : Bhramargit Sar.

Songs 1-35, 51-90, 167-180, 307-326,
360-382

MIRABAI : Lyrics (Belvedere Press, Allahabad).

NANDADAS : Raspanchadhyayi.

JANARDAN MISHRA : Vidyapati.

PRITHIRAJ : Veli Krishan Rukmani ri.

JAGANNATH DAS RATNAKAR . Udhava Shataka

Books recommended for reference :—

RUP NARAIN PANDE : Shukoktisagar.

VIYOGI HARI : Braj Madhuri Sar.

JANARDAN MISRA : The religious poetry of Surdas

Paper II.—Prose and Drama.

(a) Essay :

BALKRISHNA BHATTA : Sahitya Suman.

PRATAP NARAIN MISRA : Nibandha Navanita.

MAHABIR PRASAD DVIVEDI :—Rasajya Ranjan.

PADMA SINGH SHARMA : Hindi, Urdu aur Hindustani.

(b) NOVEL :

PREMCHAND : Karma Bhumi.

JAINENDRA KUMAR : Parakh.

BRINDABAN LAL VARMA : Garh Kunder.

(c) Short Story :

Madhukari, { Part I 1(i), 3(i), 6(i), 7, 8, 11(i), 12, 13(i),
14(ii)
Part II 4, 6, 9, 12, 17, 18, 21.

(d) DRAMA :

HARISHCHANDRA : Chandravali.

JAYASHANKAR PRASAD : Chandragupta.

GOVINDH BALLABH PANT : Varmala.

Candidates are expected to have a sound knowledge of the development of Hindi prose and drama. The

following books are recommended : —

GOKULNATH : Ashtachap

LALLULAL : Premsagar.

INSHA ALLA KHAN : Rani Ketki-ki-Kahani.

AYODHYA SINGH UPADHYAYA : Theth , Hindi
ka Thath.

LAKSHMAN SINGH : Shakuntala.

SATYA NARAIN : Malti Madhav.

SHRI NIWAS DAS : Randhir Prem Mohini.

DEVI PRASAD PURNA . Chandrakala Bhanu
Kumar.

Books recommended for the study of the principles
of Indian Dramaturgy :—

DHANANJAYA : Dasharupa.

SHYAM SUNDAR DAS : Rupak Rahasya.

NIOELL : Theory of Drama.

KEITH : Sanskrit Drama.

**Paper III.—Principles of the Science of Language and
Historical Grammar of Hindi.**

The following syllabus is prescribed :—

A.—Principles of the Science of Language ;

Scope, divisions and history of the science ; origin, nature and classification of language ; linguistic change and its causes ; mechanism of speech and classification of sounds ; sound changes—conditional and unconditional ; morphological development of language ; semantic change and its causes ; historical syntax ; change in vocabulary ; history of writing.

B.—Historical Grammar of Hindi.

The Hindi sound system and outlines of its evolution ; treatment of foreign sounds ; accent ; formation of the nominal stem ; history of case ; gender and number ; origin of the postpositions ; numerals ; pronouns ; structure of verbal stems ; auxiliary verbs ; participles ; formation of tenses ; voice ; causative ; compound verbs ; indeclinables.

Note.—Candidates will be expected to study historical grammar of Hindi with special reference to standard Khari Boli, but the study of the special features of other important dialects, such as Braj and Awadhi, should not be neglected. A general comparative knowledge of the chief characteristics of the New Indo-Aryan languages is also desirable.

They are also to have a general acquaintance with the history of the development of the Indo-Aryan speech

in the Old Indo-Aryan (Vedic, Brahmanic and Sanskrit) and Middle Indo-Aryan (Pali, Prakrit and Apabhhransa) periods.

Books recommended for reference :—

TARAPOREWALA : Elements of the Science of Language.

JESPERSON : Language, its Nature, Development and Origin.

BLOOMFIELD : Study of Language.

GRAFF : Language and Languages.

VENDRYES : Language.

DHIRENDRA VERMA : Hindi Bhasha ka Itihas.

BEAMES : Comparative Grammar of Modern Aryan Languages of India.

HOERNLE : Grammar of the Gaudian Languages.

KELLOG : Grammar of Hindi Language.

CHATTERJI : Origin and Development of Bengali Language (Introduction).

GRIERSON : Linguistic Survey of India, Volume I, Part I.

Paper IV.—Essay.

URDU.

There will be four papers and a *viva voce* test.
Paper I.—Modern Prose.

- (۱) ادبی خطوط غالب
- (۲) مقدمات عبدالحق حصہ اول
- (۳) دکن ہادی - - امراؤ خان آں
- (۴) تہذیب الاخلاق جلد چہارم
- (۵) رتن نانہہ سرشار - سیر کہسار جلد اول
فسانہ آراں جلد اول (از صفحہ ۱ تا صفحہ ۲۰۸)
- (۶) منشورات باستانہ گل گلاب—نئی شاعری کا
پہلا مشاعرہ—نظر اور حود نظری—تشبیہ

Paper II.

Marsiya :—

سودا { مرثیہ مشمولہ دواویں سودا و میر
میر

ضمیر - پانچ مرثیہ از ابتدائے جلد اول

انیس - چلد اول مکمل مطبوعہ نظامی پریس

بدایوں

دبیر - جلد اول مکمل مطبوعہ نولکشور پریس لکھنؤ

Books to be consulted :—

موازنہ انیس و دبیر - حیات دبیر -

یادگار انیس - المیزان -

واقعات کربلا مرلفہ و مرتبہ مولوی سید ضامن علی

اردو شہ پارے Relevant portion of

The short History of Saracens. Chapter VII by
Amir Ali Syed.

Paper III.—Qasida and Ghazal.

(a) Qasida :—

(۱) سودا (a) اٹھ گیا بہمن و دے کا چمنستان سے عمل

(b) کہے ہے کاتب دوراں سے منشی تقدیر

(c) سوائے خاک نہ کھیلچونگا منت دستار

(۲) ذوق (a) شب کو میں اپنے سر بستر خواب راحت

(b) زہے نشاط اگر کیجئے اسے تحریر

(c) لاتا نیرنگ سے ہے رنگ نئے چرخ مکیل

(۳) مومن (a) صبح ہوئی تو کیا ہوا ہے وہی تیرہ اختری

(b) چاہنا خلق کو صہبا و صنم سے مکروم

(۴) غالب (a) صبح دم درو ازہ خاور کھلا

(b) دھر جز جلوہ یکتائی معشوق نہیں

(۵) انشا (a) اے خداوند مہر و ثریا و شفق

(b) بگھیاں نور کی تیار کر اے بوئے سمن

(۶) منیر (a) غرق ہوا چاہ میں یوسف گل پیرھن

(b) نور خورشید دو ہو صاعقہ طور حمل

امیر—(۱) تخت کاغذ پر ہوا صدرنشین شاہ قلم

مژدہ ای اہل تماشہ کہ ہے ہنگام نظر

(۸) عزیز (a) ہے تابہ عرش گلستان کا گوشہ دستار

(b) نصاب مکتب پیر مغان ہے درس عرفانی

Not less than 100 couplets be selected from lengthy Qasidas.

(b) Ghazal.

(1) Wali 'ی' ردیف only.

(2) دیوان عبدالکی تابان

(3) دیوان یقین

Paper IV.—Essay in Urdu.

The following books are recommended for consultation :—

I. Qawaid-i-Urdu by Abdul Haq.

II. Majma-ul-Fawa'id by Moulvi Syed Hamid Ali.

N.B.—M. A. students are expected to have a sound knowledge of Grammar, Rhetoric and Prosody. Questions on the above subject may be put in Papers I and II.

MENTAL AND MORAL SCIENCE.

There shall be four papers and a *vivâ voce* test.

Paper I.—Contemporary Philosophy, as defined by books in the following list :—

BRADLEY : Appearance and Reality.

PERRY : Philosophy of the Recent Past.

PRINGLE-PATTISON : Idea of God.

BERGSON : Introduction to Metaphysics

Papers II and III.—Any *two* of the following subjects :—

- (1) The Philosophy of Plato, to be studied from his principal Dialogues, as well as books on the Philosophy of Plato.

The following works are recommended :—

- (i) The Republic.
 - (ii) The Timæus
 - (iii) The Philebus.
 - (iv) The Parmenides.
 - (v) ZELLER : Plato and the Older Academy.
 - (vi) TAYLOR : Plato—the Man and his Work.
 - (vii) BURNET : Greek Philosophy from Thales to Plato
- (2) The Philosophy of Aristotle, to be studied from his principal works, as well as books on the Philosophy of Aristotle.

The following works are recommended :—

- (i) Metaphysics (Vol. VIII) Oxford Trans.
 - (ii) De Anima (R. D. Hicks, Cambridge, 1907).
 - (iii) Physics (Oxford Trans).
 - (iv) Nicomachean Ethics (Oxford Trans).
 - (v) ZELLER : Aristotle (2 Vols.).
 - (vi) ROSS : Aristotle.
- (3) The Philosophy of Kant, to be studied from his Critiques, as well as books on the Philosophy of Kant.

Books prescribed :—

(i) WATSON : Selections from Kant.

The following works are recommended :—

(i) SMITH, N. K. : A Commentary to Kant's
Critique of Pure Reason.

(ii) CAIRD, E. : The Critical Philosophy of Kant
(2 Vols.).

(iii) WARD, J. : A Study of Kant.

(4) The Philosophy of Bergson, to be studied from
his principal works, as well as books on the
Philosophy of Bergson.

The following works are recommended :—

(i) The Creative Evolution.

(ii) Time and Free Will.

(iii) Matter and Memory.

(iv) CUNNINGHAM : The Philosophy of Bergson.
(Longmans, Green & Co.).

v) LINDSAY : The Philosophy of Bergson.
(Dent & Sons.).

(vi) H. WILDON CARR : The Philosophy of Change.

(5) Philosophy of Religion.

Books recommended :—

(i) CAIRD, J. : Introduction to the Philosophy of
Religion.

(ii) PRINGLE-PATTISON : Philosophy of Religion.

(iii) PRINGLE-PATTISON : Idea of Immortality.

(iv) SELBIE : Psychology of Religion.

(6) Epistemology and Logic.

The following works are recommended :—

(i) BOSANQUET : Logic or the Morphology of Knowledge, 2 Volumes

(ii) WALLACE : Prolegomera to the Study of Hegel's Logic.

(7) History and Principles of Education

Books recommended :

1. CUBBERLY, E. P. : History of Education *or* MONROE : Text-book in the History of Education.

2. R. RUSK. The Philosophical basis of Education.

3. CHARLES FOX : Educational Psychology.

(8) Philosophy of Shankaracharya.

Papers II and III.—Two Special Systems of Indian Philosophy, one the Nyaya-Vaiseshika, and the other the Vedanta, as in Sanskrit M. A. Final Examination, Group D, Philosophy, Papers I and III.

N.B.—Under new regulations, *either* or *both* of these systems may be offered by Philosophy students, provided that if they offer the Vedanta System, they will not be allowed to take the (8th) optional above, *viz* , the Philosophy of Shankaracharya.

Paper IV.—Essay.

ECONOMICS.

Detailed Syllabus printed on pages 138—161.

HISTORY.

Candidates will be required to offer one of the following groups (A, B, or C,) in addition to a common Essay Paper and *vivâ voce* examination.

Group A.—Ancient India.

Paper I.—The Mauryas, 325—184 B. C.

Books recommended :

1. HULTZSCH : *Corpus Inscriptionum Indicarum*, Vol. I.
2. Cambridge History of India, Vol. I, Chapters XVI to XXIII.
3. Kautilya : *Arthasastra*, translated by R. Shamasastry
4. SMITH : *Early History of India*.
5. MCCRINDLE : *Ancient India as described by Megasthenes and Arrian*.
6. MUKERJI : *Asoka*.

Paper II.—The Guptas, 320—650 A. D.

Books recommended :—

1. FLEET : *Gupta Inscriptions*.
2. RAI CHAUDHURI : *Political History of Ancient India*, pp. 332—377.
3. ALLAN : *Gupta Coins*.
4. SMITH, V. A., : *Early History of India*, 4th edition.
5. MUKERJI : *Harsha*.
6. WATERS : *On Yuan Chwang*.

7. GILES : Fa Hien.
8. BANERJI, R. D. : The Age of the Imperial Guptas.
9. BASAK, R. G. : The History of North-Eastern India (Chapters I-VII).

Paper III.—Archæology including Epigraphy, Numismatics, Art (Architecture, Sculpture, Painting).

Books recommended :—

1. The Imperial Gazetteer of India, Vol. II, pp. 1—201.
2. BUHLER : Indische Paleographie.
3. OJHA : The Palæography of India.
4. COOMARASWAMY, DR. . History of Indian and Indonesian Art, London, 1927.
5. GRUNWEDEL : Buddhist Art in India, translated by Gibson, London, 1901.
6. MITRA, P. : Pre-historic India.
7. MARSHALL, J. : Mahanjo-Daro and the Indus Civilisation, Vol. I, Chapters 1 to 8.
8. RAPSON : Indian Coins.
9. SMITH : Catalogue of the Indian Coins in the Indian Museum, Vol. I.
10. MAOKAY, E. : The Indus Civilisation.
11. CHAKRAVARTI, S. K. : Study of Ancient Indian Numismatics.

12 VOGEL: Buddhist Art.

Group B.—Mediæval India.

Paper I.—Babur to Akbar.

Books recommended .—

1. Memoirs of Babur trans. by Beveridge.
2. GULBADAN BEGUM : Humayun Namah.
3. ELLIOT and DOWSON : History of India, Vols. IV, V, VI.
4. Akbarnamah, trans. by Beveridge.
5. Muntakhab-ut-Tawarikh, Badauni, trans. by Lowe.
6. BLOCHMANN and JARRETT : Ain-i-Akbari.
7. MORELAND : India at the Death of Akbar.
8. MORELAND : Agrarian System of Muslim India.

Paper II.—Jahangir to Aurangzeb.

Books recommended :—

1. ROGERS and BEVERIDGE : Memoirs of Jahangir.
2. ELLIOT and DOWSON : History of India, Vols. VI and VII.
3. BALL : Tavernier's Travels.
4. MORELAND : India from Akbar to Aurangzeb.
5. KINCAID and PARASNIS : History of the Mahratta People, Vol. I.
6. HODIVALA : Mughal Numismatics.
7. RUSHBROOK-WILLIAMS : An Empire Builder of the 16th century.
8. BENI PRASAD : History of Jahangir.

9. SAXENA, B. P.: Shah Jahan.
10. SARKAR: History of Aurangzeb.
11. QANUNGO: Dara Shikoh.

Paper III.—Cultural History of Northern India from
1200 to 1700.

Books recommended :—

1. PERCY BROWN: Indian Painting under the
Mughals.
2. FURGUSSON: History of Eastern Architecture,
Vol. II.
3. SMITH, V. A.: History of Fine Art.
4. BADAONI: Muntakhab-ut-Tawarikh, Vol. III.
5. TITUS: Indian Islam.
6. CARPENTER: Theism in India.
7. Dabistan-i-Mazaheb.
8. Cambridge History of India, Vol. III, Chapter
on Art.
9. MUHAMMAD HABEEB: Amir Khusrau.
10. TARA CHAND: Influence of Islam on Indian
Culture.
11. R. P. TRIPATHI: Some Aspects of Muslim
Administration in India.
12. MUHAMMAD ASHRAF: Life and Condition of
the People of Hindustan.

Group C.—Modern India: *Any Three* of the following
papers.

Paper I.—European Settlements in India upto 1772.

1. HUNTER : History of India, 2 Vols.
2. KHAN SHAFAT AHMAD : East India Trade
in the 17th Century
3. KHAN, SHAFAT AHMAD : Sources for XVII
Century British India.
4. KHAN, SHAFAT AHMAD : John Marshall
in India.
5. KHAN, SHAFAT AHMAD : Anglo-Portuguese
Negotiations relating to Bombay.
6. BALAKRISHNA : Commercial Relations of
India.
7. FOREST : Clive.
8. DODWELL : Dupleix and Clive.
9. HILL : Bengal, 1756-57—Introduction.
10. BASU, B. D. : Rise of the Christian Power
in India, Vol. I.
11. FOSTER : Early Travels in India.
12. NANDA LAL CHATTERJI : Mir Qasim

Paper II.—Warren Hastings to Lord Hastings.

Books recommended :

1. FORREST : State Papers of the Governors-
General, Warren Hastings and
Cornwallis.
2. OWEN : Selection from Wellesley's Despatches.
3. MALCOLM : Political History of India.
4. RAMSBOTHAM : Land Revenue Policy of
Warren Hastings.

5. FIRMINGER : Introduction to the Fifth Report.
- 6 The Private Journal of the Marquess of Hastings.
7. PRINSEP : Political and Military Transactions of Lord Hastings.

Part III.—Bentinck to Canning.

Books recommended :—

KAYE : Administration of the East India Company.

DURAND : First Afghan War.

KAYE : History of the Sepoy War, Vol I.

CUNNINGHAM : History of the Sikhs.

DUFF : Economic History of India in the Victorian Age.

LEE-WARNER : Life of Dalhousie, 2 Vols.

Paper IV. - Contemporary India from 1858 comprising Political History and movements, Foreign and Frontier Policy, Indian States, Nationalist movement, and Economic and Administrative development.

1. MUKERJI : Indian Constitutional Documents.
2. G N. SINGH : Indian States and British India.
3. LEE-WARNER : The Native States of India.
4. DUFF : Economic History of India in the Victorian Age.
5. LADY BETTY BALFOUR : Lord Lytton's Indian Administration.
6. RONALDSHAY : Life of Curzon, Vol II.

7. SURENDRANATH BANERJEE : A Nation in Making.

Paper V.—Economic History of India in the 19th Century
 comprising the study of agricultural, industrial and commercial development ; financial and fiscal policy ; the growth of Public Works and means of communication ; Famines and famine-relief.

1. R. C. DUTT : Economic History of India in the Early British Period.
2. R. C. DUTT : Economic History of India in the Victorian Age. *
3. RICHARD STRACHEY : Finances and Public Works of India.
4. MORISON : Economic Transition of India.
5. GADGIL : Industrial Development.
6. ANSTEY : Economic Development of India.
7. BANERJI P. : Indian Finance in the days of the Company.
8. K. T. SHAH : Sixty years of Indian Finance.

POLITICAL SCIENCE.

There will be eight papers and a viva voce test.

Paper V (Essay) and the viva voce must be offered in the Final Examination.

Papers I – V shall be compulsory. Besides them each candidate shall offer any one of the Groups A – D.

Paper I.—Ancient and Mediæval Political Theory.

Syllabus.—The Political Thought of Plato and Aristotle

and the successors of Aristotle. The Problem of the Church and State in the Middle Ages. The Mediæval Theory of Corporations. Feudal Theory. Theories of the Conciliar Epoch.

Books recommended :—

PLATO : The Republic (Tr. Jowett).

ARISTOTLE : Politics.

E. BARKER : Plato and his predecessors.

HEARNSHAW : Social and Political Ideas of Great
Mediæval Thinkers.

GIERKE : Political Theories of the Middle Ages,
translated by Maitland.

FIGGIS : From Gerson to Grotius.

C. N. MACILWAIN : Political Theory in the West.

M. D. FOSTER : Plato and Hegel.

Paper II.—Modern Political Theory.

Syllabus—Theories of Contract. Natural Rights.

The Historical School. The Utilitarians. The Idealists.

Books recommended :—

HOBBS : The Leviathan.

LOCKE : On Civil Government.

ROUSSEAU : The Social Contract.

ALLEN : Political Theory in the 16th Century.

HEARNSHAW : The Political Theories of the Renaissance
and the Reformation.

MILL : Representative Government.

GREEN : Lectures on the Principles of Political
Obligation.

BOSANQUET : Philosophical Theory of the State.

LASKI : Grammar of Politics.

VAUGHAN : Studies in Political Theory.

HOBHOUSE : The Metaphysical Theory of the State.

Paper III.—Ancient and Mediæval Political Institutions.

Syllabus.—The Rise and Development of the Ancient City-State. The Roman Empire and Provincial Administration. The Papacy and Holy Roman Empire. Feudalism. Mediæval guilds. Development of English constitution during the Middle Ages.

Books recommended :—

SIDGWICK : Development of European Polity.

GREENIDGE : Greek Constitutional History.

FUSTAL DE COULANGES : The Ancient City.

GREENIDGE : Roman Public Life.

HOMO : Roman Political Institutions.

ADAMS : Civilization during the Middle Ages, chapter on Feudalism.

JENKS : Law and politics during the Middle Ages.

VINOGRADOV : Historical jurisprudence, Vol. II.

The Cambridge Mediæval History (Chapters on Feudalism and the Cities).

Paper IV.—The Modern Constitutions. England, Australia, Switzerland, the United States of America, Japan, Turkey, Italy, Russia.

Books recommended :—

DICEY : The Law of the Constitution.

ZIMMERN : The Third British Empire (Revised edition).

BRYCE : Modern Democracies.

BRYOE : The American Commonwealth.

The Select Constitutions of the World.

GRAHAM : Governments of Eastern Europe.

ROGERS AND MOBAIN : New Constitutions of Europe.

QUIGSLEY : Government and Politics of Japan.

BUELL : New Governments of Europe.

SPENCER : Government and Politics of Italy.

TOYNBEE AND KIRKWOOD : Turkey.

RAMSAY MUIR : How Britain is governed.

IVOR JENNINGS : The Law and the Constitution.

Paper V.—Essay.

GROUP A.

Paper VI.—Social Government (with special reference to the development of the Family, Tribe, Morals, Religion, Law, Justice and Social classes).

Books recommended :—

JENKS : The State and the Nation.

WARD FOWLER : The City State of the Greeks and Romans.

MAINE : Ancient Law.

MARRET : Anthropology.

VINOGRADOFF : Historical Jurisprudence, Vol. I.

RIVERS : Kinship and Social Organisation.

LOWIE : Primitive Society.

FRAZER : The Golden Bough (One Volume edition).

Paper VII —Social Psychology and Philosophy.

Syllabus—Society as an interaction of minds. Evolution of morals and social instructions. The biological and idealistic views of human society. Government in relation to Society. Instinct and Intellect in social organisation.

Books recommended :—

McDOUGALL : The Group Mind.

McDOUGALL : Social Psychology.

GRAHAM WALLAS : The Great Society.

GRAHAM WALLAS : Human Nature in Politics.

HOBHOUSE : Social Development.

GENSBERG : Social Psychology.

Paper VIII.—Moral Philosophy.

Books recommended : Same as for B. A. Honours Philosophy Third Year Paper IV.

GROUP B. .

Paper IX.—Either.

(a) Administration with special reference to India and England.

Books recommended :—

ILBERT : Government of India.

LAHIRI AND BANERJI : New Constitution of India.

The Defence of India (Central Publicity Bureau).

RAMSAY MUIR : How Britain is governed.

HEWART : The New Despotism.

A. K. GHOSH : Public Administration in India.

For reference :—Provincial Government Reports submitted to the Royal Statutory Commission.

FINER : Theory and Practice of Modern Government
(Chapters on State activity and Civil Service).

The publications in the whitehall Series on the various
Departments.

(b) Local Self-Government in India, England, the
United States and Germany.

Books recommended :—

K. T. SHAH : Constitution and Functions of
Indian Municipalities.

MUNRO : Government of European Cities.

MUNRO : Government of American Cities.

DAWSON : Municipal Government in Germany.

ROBSON : Local Government in England.

KEITH : Constitutional History of India. Simon
Commission Report, Vol. I.

Niemeyer Report.

FINER : The British Civil Service.

OGG : English Government and Politics.

The Foreign and Home offices, Ministry of Health,
Board of Trade, Ministry of Labour and the Treasury in
the Whitehall series.

Paper X.—Public Finance (with special reference to
India).

Syllabus.—Expenditure. Productive and Unproductive
expenditure. Expenditure on national defence, peace and
order, moral and material development, etc. Forests,
Irrigation, etc. Provincial Finance, Municipal and other

Local Finance, Public Credit and Debt, Financial Administration (The Budget, etc.)

Revenue—Sources—rates, fees and taxes.—Public lands and Public undertakings—various kinds of Canon of taxation—shifting and incidence of taxation. Re-action of taxation on production and distribution of wealth. Use of taxation for moral or other social purposes. Construction of the Tax System—Division of resources between the Central Government, Provinces, Municipalities and District Boards, or other authorities.

Books recommended :—

STAMP, J. : Principles of Taxation.

PLEHN : Introduction to Public Finance.

SHIRAS, G. F. : Science of Public Finance.

VAKIL, C. V. : Financial Development in Modern India.

GYAN CHAND : The Financial System of India.

Budget for the current year.

Civil Estimates of the Provincial Government for the current year.

SHAH, K. T. : Constitution, Functions and Finance of Indian Municipalities (Book III only).

Report of the Taxation Committee.

Paper XI.—Economic Activities of the State.

Syllabus—Principles of State participation in economic enterprise, Laisser-Faire, State control and Nationalization.

Social Insurance Workman's Compensation, Old Age, Invalidity and maternity.

Unemployment, brief study of causes and remedies, and State assistance especially applicable to India.

Factory, Mines and Shipping Legislation, and Machinery for inspection.

Regulation of Production ; adulteration of food and drink—Ghee, Milk, etc.—drugs, narcotics. Excise and Opium policy and State control and regulation. Pharmaceutical education and compilation of Indian Pharmacopia.

Government regulation of Prices and Monopolies—normal and abnormal in times of War, famine, other calamities. Regulation of Produce Exchanges, Grading, Prevention of speculation—Cotton, wheat, etc.

State aid to industries—a study of methods. State control of Public Works and Public Utility.

Services—Roads and Bridges, Railways, Posts, Telegraph. Telephone and Broad Casting Services, Aviation. Agencies of control.

The League of Nations—the Health Committee, the Committee on White Slave Traffic—and the International Labour Organisation.

State and Public Research and Information. Direct participation and other methods of assistance.

N B.—This paper will be studied with special reference to India. Reference to Foreign countries is to illustrate the principle and methods.

Books recommended :—

HAROLD LASKI : Grammar of Politics (Economic Institutions).

H. T. HADLEY : The Economic Problems of Democracy.

A. C. PIGOU : Economics of Welfare (Specified chapters to be indicated).

GILBERT SLATER : Property and the State.

J. M. KEYNES : End of Laissez-Faire.

H. A. SILVERMAN : Economics of Social Problems.

J. C. KYDD : Factory Legislation

A. C. CLOW : Indian Workmen's Compensation Act.

H. R. SEAGER : Social Insurance.

A. C. PIGOU : Industrial Fluctuations (Specified chapters).

SIR WILLIAM BEVERIDGE : Unemployment (1931 edition).

W. PATON : Opium in India.

Indian Factory Acts, Mining Acts, Annual Reports on Factory and Compensation Acts, Maternity Benefit Acts. Provincial and Indian States Committees Reports on Unemployment ; Government of India Central Board of Revenue Memorandum on Alcohol Question, 1925 ; Indian Excise Committee Report, 1905-06, United Provinces Excise Report, 1921. Reports of the League of Nations and the International Labour Organisation.

Government and other publications will be indicated as the course proceeds during the Sessions.

Or

GROUP C.

Paper XII.—International Affairs.

Syllabus.—Political Position of the Great Powers
Diplomacy. Nationalism and Internationalism. The
British Empire as world-force. The Hague Conventions.
The League of Nations. The International Labour Office.
The Permanent Court of International Justice. Problems
of the Pacific.

Books recommended :—

SCHUMANN : International Affairs.

SIMONDS AND EMNETT : International affairs.

HAMPDEN JACKSON : The Post-War World

ZIMMERN : The Third British Empire.

DRUMMOND, SIR E. : Ten Years of World Co-
operation.

MADRIAGA : Disarmament.

TREET : The Far East.

ELIZABETH VON MAUSEN : The Mandates.

TOYNBEE : Survey of International Affairs.

GATHORNE HARDY : A short History of International
affairs.

Paper XIII.—International Law.

Books recommended :—

LAWRENCE : Principles of International Law.

HALL : International Law.

FENWICK : International Law, 1934 edition.

(Or) OPPENHEIM : International Law 5th edition, edited
by McNair.

GARNER : Recent Development in International
Law.

PITT COBBETT : Leading Cases on Institutional Law.

Paper XIV.—Jurisprudence.

Books recommended :—

ALLENS : Law in the Making.

GELDART : Elements of English Law.

MAIN : Ancient Law.

DUIGUIT : Law and the State.

GREY : Nature and Source of Law.

SALMOND : Jurisprudence.

BRYCE : Studies in History and Jurisprudence
(Vol. I, Essays on Obedience and on
the Law of Nature)

HOLLAND : Jurisprudence.

Or

GROUP D

Paper XV.—Ancient Indian Political Thought and Government.

Books recommended :—

The Mahabharata Santiparvan, Rajadharmanusasna Prakarana (tr.) P. C. Roy.

KAUTALYA : The Arthasastra. (tr.) Shamasastri.

The Cambridge History of India, Vol. I. (Chapters IV, V, X, XI and XII).

JAYASWAL, K. P. : Hindu Polity.

MAJUMDAR : Corporate Life in Ancient India.

AIYANGAR : Aspects of Ancient Indian Polity.

KRISHNASWAMI AIYANGAR : Ancient India (Chapter on the Chola Administration).
Paper XVI.—Islamic Political Thought and Polity.

Books recommended :—

Cambridge Mediæval History of Europe (Vol. II, Ch. X; Vol. III, Ch. XVI; Vol. IV, Ch. X, A and B).

KHUDA BAKSH : Contributions to the History of Islamic Civilisation.

ABUL FAZL : Ain-i Akbari (Chapter I).

IBN KHALDUN : Muqqaddamaih.

MCDONALD : Development of Muslim Jurisprudence, etc.

AGHINIDES : Theories of Musalman Finance.

ARNOLD : The Caliphate

KHUDA BAKSH : Arab Civilisation.

ABDUR RAHIM : Muslim Jurisprudence (Chapter on Public Law).

HITTI : Studies in Islamic Jurisprudence.

Paper XVII.—The Development of the Modern Indian Constitution.

Books recommended :—

MUKERJI, P. : Indian Constitution.

MUKERJI, P. : Indian Constitutional Documents.

The Montagu-Chelmsford Report on Indian Constitutional Reform.

The Joint Committee's Report on the Government of India Bill, 1919.

The Government of India Act, 1919.

ILBERT : Government of India.

MORLEY : Recollections (2nd volume—letters to Lord Minto).

SAPRU : Indian Constitution.

The Muddiman Committee Report.

MATHEMATICS.

(Same as for the M. Sc. Examination.)

DOCTOR OF PHILOSOPHY.

(See Ordinances in Chapter XXXVII-I) pp. 21—28.)

DOCTOR OF LETTERS.

(See Ordinances in Chapter XXXVII-E, pp. 28—34)

DOCTOR OF LETTERS IN ECONOMICS.

(See Ordinances in Chapter-XL-C, pp 65—67.)

B.Sc. EXAMINATION.

ENGLISH LITERATURE.

As in the General Section prescribed for the B. A., there will be two papers:—

1st Paper :—An Essay on a subject of general interest ; maximum marks 50.

Paper II.— Modern Prose—Maximum marks 35.

BOOK PRESCRIBED : Ratchiff : Prose of our Time (Nelson).

ALTERNATIVE BOOK FOR B. SC. AND B. COM. STUDENTS :

ASQUITH : Occasional Addresses (Macmillan).

Viva voce—A test of general reading and command of the language. Maximum marks 15.

KRISHNASWAMI AIYANGAR : Ancient India (Chapter on the Chola Administration).

Paper XVI.—Islamic Political Thought and Polity.

Books recommended :—

Cambridge Mediæval History of Europe (Vol. II, Ch. X; Vol. III, Ch. XVI; Vol. IV, Ch. X, A and B).

KHUDA BAKSH : Contributions to the History of Islamic Civilisation.

ABUL FAZL : Ain-i Akbari (Chapter I).

IBN KHALDUN : Muqqaddamaih.

MCDONALD : Development of Muslim Jurisprudence, etc.

AGHINIDES : Theories of Musalman Finance.

ARNOLD : The Caliphate

KHUDA BAKSH : Arab Civilisation.

ABDUR RAHIM : Muslim Jurisprudence (Chapter on Public Law).

HITTI : Studies in Islamic Jurisprudence.

Paper XVII.—The Development of the Modern Indian Constitution.

Books recommended :—

MUKERJI, P. : Indian Constitution.

MUKERJI, P. : Indian Constitutional Documents.

The Montagu-Chelmsford Report on Indian Constitutional Reform.

The Joint Committee's Report on the Government of India Bill, 1919.

The Government of India Act, 1919.

ILBERT : Government of India.

MORLEY : Recollections (2nd volume—letters to Lord Minto).

SAPRU : Indian Constitution.

The Muddiman Committee Report.

MATHEMATICS.

(Same as for the M. Sc. Examination.)

DOCTOR OF PHILOSOPHY.

(See Ordinances in Chapter XXXVII-D pp. 21—28.)

DOCTOR OF LETTERS.

(See Ordinances in Chapter XXXVII-E, pp. 28—34)

DOCTOR OF LETTERS IN ECONOMICS.

(See Ordinances in Chapter-XL-C, pp 65—67.)

B.Sc. EXAMINATION.

ENGLISH LITERATURE.

As in the General Section prescribed for the B. A., there will be two papers:—

1st Paper :—An Essay on a subject of general interest ; maximum marks 50.

Paper II.— Modern Prose—Maximum marks 35.

BOOK PRESCRIBED : Ratchiff : Prose of our Time (Nelson).

ALTERNATIVE BOOK FOR B. SC. AND B. COM. STUDENTS :

ASQUITH : Occasional Addresses (Macmillan).

Viva voce—A test of general reading and command of the language. Maximum marks 15.

Viva Voce.—A test of general reading and command of the language maximum marks 15.

MATHEMATICS.

There will be three papers :—

Part I.—*Algebra, Trigonometry and Analytical Geometry of two dimensions.*

Algebra :

Inequalities, elementary theorems on convergence and divergence of series, binomial theorem for any rational index, exponential and logarithmic series, partial fractions, simple continued fractions and easy determinants.

Trigonometry :

De Moivre's theorem, summation of simple trigonometrical series, expansions of simple trigonometrical functions in power series and hyperbolic functions.

Analytical Geometry of two dimensions :

Straight lines, circles, parabola, ellipse and hyperbola, treated by rectangular, oblique and polar co-ordinates.

Paper II.—*Differential Calculus, Integral Calculus and Differential Equations :*

Differential Calculus :

Limits, differentiation of a function of a single variable, successive differentiation, use of Taylor's and Maclaurin's theorems, indeterminate forms, maxima and minima of a function of a single variable, partial differentiation, tangents, normals, asymptotes, double points, points of inflexion, curvature, evolutes and involutes, envelopes, and simple curve-tracing.

Integral Calculus :

Standard forms, integration by substitution, by parts and by other simple methods, simple reduction formulæ, rectification and volumes of solids of revolution.

Differential Equations :

Ordinary equations of 1st order (including orthogonal trajectories but excluding singular solutions) and linear equations with constant co-efficients.

Paper III.—*Statics and Dynamics and either Hydrostatics or Astronomy.*

Statics :

General conditions of equilibrium of a particle and of a rigid body under the action of forces in one plane, principle of virtual work, friction, centre of gravity and simple machines

Dynamics :

Velocity and acceleration, Newton's laws of motion, work and energy, rectilinear motion, Hooke's law, projectiles in vacuum, circular and harmonic motions, simple and cycloidal pendulum and impact.

Hydrostatics :

Fluid pressure, centre of pressure in simple cases, total and resultant pressures on immersed surfaces, equilibrium of floating bodies (excluding meta-centre and stability). properties of gases, determination of heights by barometer and simple machines.

Astronomy :

A brief history of Astronomy up to the invention of

the telescope, observed movements of the heavenly bodies, early explanations. Fundamental definitions; transit circle : detection and mechanical correction of errors of adjustment ; clock, its error and rate : determination of right ascension and declination ; equatorial ; measurement of small angular distances by photography ; theodolite. Refraction $= k \tan z$ deduced on Cassini's hypothesis : determination of k by observation : shape of sun's disc near horizon, Ecliptic ; Flamsteed's method for finding the right ascension of a star ; Kepler's law (enunciation) ; synodic period of planets ; elongation of planet from the sun when it is stationary. Parallax in zenith distance ; determination of the distance of moon by simultaneous observation at two observatories : distance of the sun by observation of Eros, and of nearer stars by trigonometrical method Precession in longitude ; physical cause ; nutation in obliquity ; calculation of ancient dates by precession. Cause of aberration ; it varies as sine of Earth's way. Equation of time : it vanishes 4 times a year ; sidereal time ; conversion of time : summer ; estimation of time by naked eye observation of stars : measurement of time by meridian observations : Gregorian calendar ; Calendar reform ; equatorial sun-dial Latitude by meridian observations ; longitude by wireless. Synodic and sidereal period of moon ; Meton's cycle ; *this* ; determination of height of lunar mountains. Cause of eclipses ; size of earth's shadow at moon ; conditions for eclipses : ecliptic limits ; maximum and minimum number of eclipses in one year ; Saros of

Chaldeans. Lunar tides and their effect on the length of the day and month and the moon's orbit. A brief outline of the nebular hypothesis.

A knowledge of spherical trigonometry would not be required

MATHEMATICS (Honours)—1940 & 1941.

There will be six papers :

Paper I.—*Algebra. Trigonometry and Theory of Equations*

Algebra :

In addition to the pass course, summation of series and recurring continued fractions.

Trigonometry :

In addition to the Pass course, expansions of $\sin \phi$ and $\cos \phi$ as infinite products.

Theory of Equations :

General properties of equations, relations between roots and co-efficients, symmetric functions of the roots, transformations of equations, algebraic solutions of cubics and biquadratics, n th roots of unity, properties of derived equations, limits of the roots of equations, approximate solutions of numerical equations and determinants.

Paper II—*Pure Plane Geometry and Analytical Geometry of two and three dimensions.*

Pure Plane Geometry :

Ranges and pencils, cross ratios, projections orthogonal and conical, Desargue's theorem, harmonic properties

of simple figures, and polars and other simple projective properties of conics, circular points at infinity, reciprocation. Pascal's and Brianchon's theorems.

Analytical Geometry of two dimensions :

In addition to the Pass course reduction of the general equation of the 2nd degree to standard forms and system of conics

Analytical Geometry of three dimensions :

Planes, straight lines, properties of conicoids and confocal conicoids referred to principal axes, plane sections, generating lines and reduction of general quadrics to standard forms

Paper III.—*Differential Calculus, Integral Calculus and
Differential Equations.*

Differential Calculus :

In addition to the Pass course, rational and irrational numbers, sequences and limits, concept of a function, continuity, differentiability, the mean value theorem, Taylor's theorem, maxima and minima of functions of two or more variables, change of variables.

Integral Calculus :

In addition to the Pass course, Riemann's definite integral, mean value theorems, improper integrals, definite integrals involving Beta and Gamma functions, change of variables and of order of integration, multiple integrals with simple applications, Green's theorem, use of Fourier's series.

Uniform convergence and term by term differentiation and integration of series.

Differential Equations :

In addition to the Pass course, singular solutions, linear equations of 2nd order, variation of parameter, homogeneous and exact equations.

Relevant portions from the following books are recommended :—

CARSLAW :—Fourier Series and Integrals.

GOURSAT-HEDRICK :—Mathematical Analysis, Vol. I.

HARDY :—Pure Mathematics,

MURRAY :—Differential Equations.

Paper IV — *Elements of Vectors, Statics and Hydrostatics, Elements of Vectors :*

Fundamental notions, addition, subtraction, multiplication and division of vectors, simple geometrical and mechanical applications.

Statics :

In addition to the Pass course, graphical statics in two dimensions, forces in three dimensions, virtual work, stability and centre of gravity. Attractions and potentials of rods, discs, spheres and circular cylinders.

Hydrostatics :—As in the Pass course.

Paper V.—*Dynamics of a Particle and Rigid Dynamics in two dimensions.*

Dynamics of a Particle in two dimensions :

In addition to the Pass course, motion in a resisting

medium, hodograph, constrained motion, central orbits and disturbed elliptic motion

Rigid Dynamics in two dimensions :

Moments of inertia, D'Alembert's principle and motion in two dimensions

Paper VI.—Either.

(a) *Spherical Trigonometry and Spherical Astronomy*

Or

(b) *Electricity and Magnetism*

Spherical Trigonometry :

Simple relations between trigonometrical functions of the sides and angles of a spherical triangle, solutions of triangles, areas, and properties of spherical triangles.

Spherical Astronomy :

Systems of co-ordinates and their determination, figure of the earth, astronomical instruments, diurnal and annual motions of the earth, twilight, the seasons, Kepler's laws, refraction, parallax, aberration, precession, nutation, motion and phases of the moon, eclipses, equation of time, reduction and conversion of time, determination of terrestrial latitude and longitude.

The course is approximately indicated by the relevant portions of Smart's Spherical Astronomy.

Electricity and Magnetism :

Properties of potentials, lines of force, dielectrics, condensers and conductors, images, application of methods

of inversion and Spherical Harmonics to electrostatic problems. Steady currents in linear conductors. Permanent and Induced Magnetism. The Magnetic Field produced by Electric currents. Induction of currents in linear circuits.

MARKS.

Six papers of 125 each=750

PHYSICS

The examination will consist of two papers and a practical test.

For the year 1940, the subjects of the papers will be—

(1) General Properties, sound and

Heat ...	...	50 Marks

(2) Light Electricity and Magnetism	50	..

(3) Practical test...	...	50 ..

General properties of Matter.—Units and dimensions. Planetary motion Mean, Solar and siderial time. Rotational inertia. Simple and compound pendulums. Laws of gravitation. Determination of 'G'. Elementary problems on attraction. Potential and its calculation in a few simple cases. Hooke's law. Young's modulus. Rigidity. Bulk modulus. Bending of rods Elementary ideas of surface tension phenomenon. Viscosity and diffusion. Air pumps and manometers.

Sound. --Wave motion Propagation of sound waves Reflection Refraction and diffraction of sound waves.

Kinematics of simple harmonic motion. Composition of vibrations. Lissajous' figures. Beats, Free, damped and forced vibrations of simple systems. Equations of wave motion. Stationary waves. Velocity of transverse wave in a string. Possible modes of vibration of strings with fixed ends. Vibration of sound board. Velocity of sound in different media. Effect of temperature and humidity. Döpler's principle. Vibration of air columns. Organ pipes. Recording and reproduction of sound. Non-harmonic vibrations of bars, membranes, plates, (simply the results) Chladni's figures. Experimental study of forced vibrations, and resonance Consonance, temperament and diatonic scale Determination of velocity, frequency and wave-length. Simple applications of acoustical principles to direction finding and sound ranging. Elementary ideas about the acoustics of halls.

Heat.—Construction and theory of thermometers. Pyrometry, Calorimetry. Elementary ideas of the Kinetic theory of gases, Van der Waals' Equation. Change of State. Vapour Pressure. Liquefaction of gases Coefficients of expansion. Conductivity of solids, liquids and gases. Carnot's and other heat engines. First and Second laws of Thermodynamics. Entropy Absolute scale. Simple thermodynamical formulæ Radiation Kirchhoff's law Experimental study of total and spectral radiation. Radiation Pyrometry. Elementary meteorology.

Light.—Velocity of Light. Photometry. Reflection and refraction at plane and spherical surfaces. System of

lenses. Elementary ideas on defects of image Aberrations and their removal in telescopes, microscopes, eye-pieces and other optical instruments. Human Eye. Rainbow.

Wave theory of Light. Reflection and Refraction of Light Interference of Light Newton's rings and colours of thin films. Michelson's Interferometer. Applications of interference of Light Diffraction of Light. Zone plate Plane and concave gratings and their dispersive and resolving powers. Polarisation of Light. Double refraction in uniaxial crystals Plane, circularly and elliptically polarised light. Rotation of the plane of polarisation. Use of polarimeter Spectroscope and spectrum analysis. Simple Bohr's theory of Hydrogen spectrum. Elementary ideas of Scattering of Light. Production of spectra by prisms and gratings.

Magnetism.—Lines and tubes of force. Potential due to small magnets and magnetic shells Determination of magnetic moment. Determination of the horizontal and vertical components of the Earth's field. Angles of dip and declination. Magnetic Induction. Susceptibility. Permeability. Ferrn-, para-, and dia-magnetism, Gauss' Theorem. Terrestrial magnetism.

Electricity.—Proof of Coulomb's law. Dielectric constant. Quadrant and Absolute electrometers, Electroscopes. Calculation of potential, capacity and energy of simple electrical systems. Frictional and induction machines. The electric current. Primary, secondary and standard cells. Galvanometers, ammeters, voltmeters, and other electrical

measuring apparatus. Determination of high and low resistances. Wheatstone's Bridge. Carey Foster's Bridge. Joule's law. Determination of electromotive force and its calculation from thermochemical data. Electrolysis and electrochemical equivalents. Thermoelectric phenomena. Electromagnetic Induction. Induction coil. Growth and decay of current. Alternating currents. Simple A. C. circuits. Vector diagrams and use of imaginary quantities. Vibration galvanometer. Units, Ampere, Volt, Farad, Ohm, Watt. Absolute measurement of current and resistance. Elementary theory of dynamo, motor and transformer. Generation and detection of electromagnetic waves ; their relation to light. Triode valve and its uses. Discharge of electricity through gases. Cathode rays. Measurements of e/m and e Positive rays. Isotopes. X rays. Elements of Radioactivity. Photoelectricity.

Experiments : —

1. Determination of Young's modulus by—
 - (i) Stretching.
 - (ii) Bending of a bar,
 - (iii) Vibration.
2. Determination of modulus of rigidity—
 - (i) Static method
 - (ii) Dynamic method.
3. Moment of inertia of—
 - (i) Fly-wheel.

- (ii) Rectangular lamina.
- (iii) Any solid by means of torsion pendulum
- 4. Experiment with the compound Pendulum
- 5. Spiral Spring.
- 6. Determination of surface tension by capillary rise method.
- 7. Kundt's Tube.
- 8. Sextant.
- 9. Determination of refractive index by total internal reflection
- 10 Spectrometer (i) Determination of the refractive index of the prism, (ii) Calibration of the spectrometer, (iii) Wave length of light by diffraction grating, (iv) Dispersive power of prisms.
- 11 Focal lengths of combination of lenses.
- 12. Photometry.
- 13. Polarimeter.
- 14. Bi-prism.
- 15. Newton's ring.
- 16. Specific heat by steam calorimeter.
- 17. Constant pressure air thermometer.
- 18. Mechanical and electrical determination of J.
- 19. Thermal conductivity.

- 20 Ratio of specific heats of gases by Clement and Desormes' apparatus.
21. Determination of H.
22. Carey Foster's Bridge.
23. Use of post office box.
24. Resistance of (i) Cell, (ii) Galvanometer, (iii) Accumulator, (iv) Ammeter (v) Voltmeter.
25. Platinum Thermometer
- 26 Potentiometer and its applications.
27. Determination of E. C. E. of copper.
28. Comparison (De-Sauty) and absolute measurement of capacities
29. Self Inductance.
30. Mutual Inductance
31. Calibration of meters.
- 32 Practice with a single valve receiving set.
33. Study of model dynamo.
34. Thermoelectric curve.
35. Measurement of magnetic field by search coil.
36. Characteristic curve of a triode valve.

PHYSICS (Honours)—1940.

The syllabus is printed in the Prospectus for 1939.

PHYSICS—(Honours) 1941.

There will be five papers and a practical examination :—

(1) (a) General Properties of Matter.

(b) Mechanics of solids and fluids including vibrations and wave motions and elements of aerodynamics.

(2) Heat (Kinetic theory of gases thermodynamics and internal combustion engines)

(3) Light

(4) Electricity and Magnetism.

(5) Electron Theory.

The following is the detailed syllabus :—

(In addition to what is included in the Pass course.

General Properties of Matters :—

a) Surface tension phenomena. Thin films Viscosity of liquids and gases. Lubrication. Compression of liquids and gases. Modern pumps. Theorem.

(b) Vibrating systems with illustrative examples of strings. Air columns, Resonators, etc Forced vibrations and maintenance. Mechanics of solids—its application to bending of bars, helical springs, cylinders and plates. Waves and ripples. Wave motion in gases Acoustical measurements and instruments. Applications of Acoustics.

Elements of Aerodynamics:

AEROPANE : Various components and their
 functions.

PRINCIPLES OF FLIGHT : Lift, drag, etc.

Flow round an aerofoil.

Airscrew.

Stability and control

Heat :

(a) Measurement of high and low temperatures. Kinetic Theory of Gases. Mean free path. Transport phenomena, and molecular dimensions. Phenomena in gases at very low pressures. Andrews' experiments. Equations of state. Conductivity of solids, liquids and gases and its absolute determination. Six thermodynamic formulæ and their applications. Correction of gas thermometers. Thermodynamical functions. Equilibria of systems. Radiation. Deduction of laws of radiation and their verification. Radiation constants. Solar constant. Quantum theory of specific heat of solids and gases. Nernst's Heat theorem. Absolute value of entropy and chemical constant.

Internal Combustion Engine :

Various types and their development,

Heat cycles and their application.

Practical limitations. Efficiency, etc.

Ignition system.

Instruments.

Effect of altitude, supercharging, etc.

Light :

Nodal points. Cardinal points. Interference of polarised light. Fresnel's theory of double refraction to crystals. Spectroscopy of infra-red and ultraviolet. Series spectra. Elements of electro-magnetic theory of light. Anomalous dispersion. Elementary knowledge of the effect of electricity and magnetism on light. Scattering of light. Anisotropy of molecules.

Electricity and Magnetism :

Measurement and production of high magnetic and electrical fields. Application of the method of electrical images to easy problems. Electrometers and Electroscopes. Methods of determining capacity and self and mutual inductances. Determination of Ampere, Ohm and Volt. Generators, Motors, Transformers, A. C. measuring instruments. Simple wireless receiving and transmitting sets.

Electron theory :

The electron. Determination of e/m and e . Positive ray analysis. Elementary notions of radioactivity, Scattering of α and β particles. The nuclear hypothesis. Theories of radioactivity. Scattering of X-rays. Compton effect. Photo-electricity : Bohr's theory and its generalisation. Radiation and ionisation potentials. Theories of X-ray spectra. Thermionics. Theories of magnetism. Electronic theory of metallic conduction. Structure of the atom.

Experiments :

- (1) Lift and drag of a flat plate.

6 EXPERIMENTS.

K_L , K_D , L_D for at least 2 speeds.

- (2) Lift and drag of an aerofoil.

6 EXPERIMENTS.

K_L , K_D , L_D for at least 2 speeds.

- (3) Resistance of Cylinders.

- (4) Resistance of spheres.

- (5) Drag and crosswind force on strut—ordinary and streamlined.

- (6) Kater's Pendulum.

- (7) Modulus of torsion.

(a) Dynamical method.

(b) Statical method.

- (8) Viscosity of liquids and of gases.

- (9) Stroboscopic determination of frequency.

- (10) Kundt's tube

- (11) Ratio of Specific Heats.

- (12) Conductivity of copper and glass by Forbes' and Lees' methods respectively.
- (13) Calibration of a spectroscope.
- (14) Variation of refractive index of a liquid with temperature.
- (15) Polarimeter.
- (16) "Resolving power of a telescope." Numerical aperture of a microscope.
- (17) Elliptically and circularly polarised light.
- (18) Platinum thermometer.
- (19) Standardisation of ballistic galvanometer.
- (20) Self-induction
- (21) Mutual-induction.
- (22) Hysteresis curve.
- (23) Quadrant electrometer
- (24) Law of total radiation (Stefan's Constant).
- (25) Constants of valves.
- (26) Practice with receiving sets.
- (27) Valve as an oscillator.

				MARKS
5 Papers of 100 each	..	..		500
Practical—				
Class record	..	..	50	} 250
Practical	..	..	200	
Total	...			750

CHEMISTRY.

The examination in Chemistry will comprise of two papers and a practical examination. Candidate must gain minimum pass-marks in the practical examination as well as pass in the total of the papers in the Science subjects.

Atomic theory, Avogadro's hypothesis and its application. Determination of equivalents. Specific heats of elements and compounds. Isomorphism. The periodic classification of elements. Methods of determining atomic and molecular weights. Kinetic theory of gases. Laws of mass action and its applications. Ionic theory of solutions. Osmotic pressure, influence of solutes on freezing and boiling points. Laws of Electrolysis, electro chemical equivalents, determination of conductivity, transport numbers, avidity of acids and bases. Elementary ideas about phase rule, catalysis and colloids. Elements of spectrum analysis and thermochemistry.

(a) Elementary ideas about the following :—different kinds of soil, carbon dioxide cycle, nitrogen cycle, fixation of nitrogen, improvement of soil by manures and fertilizers.

(b) Ideas about the chemical analysis of the essential constituents of soil, manures and fertilizers.

Inorganic Chemistry.—The occurrence, preparation and properties of the following elements and their important compounds treated especially with regard to the periodic classification. Outlines of the main metallurgical processes

of the metals indicated by an asterisk :—Hydrogen, Argon, Helium, Li, *Na, *K, *Cu, *Ag, *Au, Mg, Ca, Sr, Ba, *Zn, Cd, *Hg, B, *Al, C, Si, Sn, *Pb, N, P, As, Sb, Bi, O, S, Cr, F, Br, Cl, I, Mn, *Fe, Co, *Ni and *Pt.

Practical Inorganic Chemistry.—Qualitative analysis of mixtures of substances containing not more than five radicals positive or negative by dry or wet methods :—

Basic radicles —NH₄, Na, K, Mg, Ca, Sr, Ba, Zn, Mn, Ni, Co, Al, Cr, Fe, Cu, Bi, Hg, Cd, As, Sb, Sn, Pb, Ag ;
acid radicals :—CO₃, NO₂, S, SO₃, SO₄, F, Cl, Br, I, NO₃, ClO₃, CH₃ COO, borate, oxalate, phosphate.

Acidimetry, and Alkalimetry, Iodometry, (using Thiosulphate, Arsenite, Permanganate and Dichromate, Titration of Iron with Potassium permanganate and dichromate, standardisation of permanganate by oxalic acid.

Standardising sodium thiosulphate solution by means of potassium dichromate and potassium permanganate

Estimation of arsenious oxide and alkaline arsenites with iodine.

Estimation of silver ion by chloride ion (indicator chromate ion) and thiocyanate ion (indicator ferric ion.)

Gravimetric estimation of Cu, Ag, Pb, Zn, Fe, Cr, Ba, Sulphate and Chloride acid radicals.

Organic Chemistry.—The following indicates the scope of the Examination for the B. Sc. pass degree in organic chemistry. The comparison and relation of the typical

carbon compounds, isomerism including optical isomerism purification of organic substances, distillation and crystallisation. Criteria of purity, for example boiling point, melting point. Methods of ultimate analysis of organic compounds Calculation of molecular weights from empirical formula. Constitutional formulæ

The modes of occurrences, general methods of preparation, characters, constitutional formulæ of the saturated hydrocarbons upto 5 carbon atoms and the unsaturated hydrocarbons upto 2 carbon atoms and the following monoderivatives of the saturated hydrocarbons :—

(1) Halides.	} containing upto 3 carbon atoms only.
(2) Alcohols.	
(3) Ethers.	
(4) Aldehydes and ketones.	
(5) Acids, acid chlorides, esters, amides and anhydrides	
(6) Haloid acids	
(7) Amino acids.	

Cyanogen and cyano-derivatives containing upto 3 carbon atoms only. Cyanacetic acid. Organo-metallic compounds of Zn and Mg and mercaptans upto 2 carbon atoms. In addition to the above the following derivatives have also to be studied :—Methylene chloride, methylene iodide, chloral, chloroform, iodoform, carbon tetrachloride, diethyl ether, glycol, glycerol, urea, the methyl and ethyl amines, oils and fats, soap (glycerides of palmitic, stearic

and oleic acids) butyric, oxalic, malonic, succinic, tartaric, malic, glycollic, lactic and citric acids. General properties, occurrence and reactions of carbohydrates, glucose, fructose, saccharose, starch and cellulose.

The distinction between fatty and aromatic compounds. Benzene, toluene, action of chlorine on toluene, benzyl chloride, nitrobenzene, aniline, diazobenzene chloride and diazo reactions, benzaldehyde, benzoic acid, phthalic acids, benzene sulphonic acid, benzoyl chloride, benzyl alcohol, salicylic acid, phenol, catechol, resorcinol, hydroquinone, pyrogallol, naphthalene, α and β naphthalene, sulphonic acids, α and β naphthol, α and β nitro-naphthalene, α and β naphthylamine, pyridine.

Practical Chemistry.—Identification of C, H, N, S, P, and halogens qualitatively in organic compounds. Determination of boiling and melting points.

Identification of common organic compounds.—Methyl and ethyl alcohols, glycerine, formaldehyde, acetaldehyde, acetone, formic and acetic acids, oxalic acid, tartaric acid, citric acid, ethyl ether, grape sugar, cane sugar, starch, chloroform, iodoform, chloral hydrate, urea, benzene, phenol, benzoic and salicylic acids, aniline, resorcinol, phthalic acid, nitrobenzene, naphthalene, pyrogallol, succinic acid, benzamide, acetamide, and acetanilide.

Attention should be paid to the following manufacturing processes;—Petroleum, industrial alcohol, glycerol and its

nitro compounds, vinegar, soaps and candles, sugar (saccharose), paper, nittrocellulose, coal gas and coal tar distillation.

Books recommended :—

1. CAVEN AND LANDER: Systematic Inorganic Chemistry.

2. ALEXANDER SMITH: Introduction to Inorganic Chemistry (Revised by Dr Kendall).

3. WALKER: Introduction to Physical Chemistry.

4. COHEN: Theoretical Organic Chemistry.

5. BUTLER: The Chemical elements and their compounds.

6. BRUCE AND HARPER: Practical Chemistry.

7 DOBBIN AND MACKENZIE: Salts and the reactions.

CHEMISTRY (Honours)—1940.

The syllabus is printed in the Prospectus for 1939.

CHEMISTRY (Honours) — 1941.

The Honours Examination in Chemistry will comprise of four papers and a practical examination, Part I—Physical Chemistry; Paper II.—Inorganic Chemistry; Paper III—Organic Chemistry; Paper IV—Historical Analytical and Applied Chemistry. Candidates must gain minimum pass marks in the practical examination as well as pass in the total of the papers in Chemistry.

Physical Chemistry — Atomic theory. Avogadro's Hypothesis and its application Determination of equivalents. Specific heats of elements and compounds. Methods of determination of atomic weights. Kinetic theory. Specific heats of constant pressure and constant volume. Determination of atomic weights of monoatomic gases. Behaviour of gases under high pressure. Liquefaction of gases. Van der Waal's equation. Critical point, methods of determining the critical constants. Vapour pressure, vapour density Dissociation and abnormal vapour densities. Application of Kinetic theory to dissociation of gases. Determination of vapour density. Additive properties of mixture of gases, of liquids and of solids. General properties of liquids. Vapour pressure, the boiling point. Vapour pressure and boiling point of mixed liquid (including pairs of nonmiscible and partially miscible liquids Fractional distillation under reduced pressure.

The properties of dilute solution, osmotic pressure, direct and indirect methods of determining osmotic pressure, relation between gases and osmotic pressure. Influence of solute on freezing and boiling points, determination of molecular weights of dissolved substances, molecular association and dissociation. Determination of molecular weights of liquids from their surface tension.

Electro-chemical character of the elements. The laws of electrolysis. Ionic and hydrate theory of solution. Velocity of ions, transport number. Determination

of conductivity. Strength of acids and bases. Action of one electrolyte on another containing a common ion, Solubility product. Theory of indicators. Simple concentration cells.

Laws of mass action and chemical equilibrium. Chemical dynamics. Phase rule. Catalysis. Colloids.

The relation between the physical properties such as boiling point, molecular volume, molecular refraction, molecular rotation of compounds, and their chemical composition and constitution.

Spectrum analysis. Elements of Radioactivity. Thermo-Chemistry. Elements of crystallography. Elementary ideas about isotopes, isobars and structure of atoms.

Practical Physical Chemistry.—Determination of densities of gases, *e. g.*, CO_2 ; determination of vapour density by Victor Meyer's method, determination of equivalents of Zn or Mg by displacement of hydrogen, determination of molecular weights of substances by boiling and freezing point methods

Density of liquids. Determination of solubility viscosity. Spectroscope (identification of unknown elements by plotting wavelength curve with known elements that are volatile in the Bunsen flame).

Determination of partition co-efficient. Heat of neutralization of acids and bases. Electric conductivity. Velocity of chemical reaction of the first order, *i. e.*

hydrolysis of methyl acetate in presence of HCl. Polarimeter
Velocity of inversion of cane sugar.

HISTORY OF CHEMISTRY.

(a) Historical side of chemical development.

(b) Personal side.

From the time of Boyle to the present time, short life and works of the following chemists :—

Boyle, Joseph Black, Scheele, Priestley, Cavendish, Lavoisier, Dalton, Davy, Berzelius, Faraday, Liebig, Pasteur, Hofmann, Berthelot, Thomsen, Cannizzaro, Mendeleef, Bunsen, Dumas, Graham, Victor Meyer, Ramsay, Curie, Moissan, Baeyer, Emil Fischer, van't Hoff, Arrhenius, Nernst, Roscoe and Wilhelm Ostwald.

Inorganic Chemistry.—In addition to the pass course the following is added :—

The occurrence, preparation and properties of the following elements and their chief compounds studied from the standpoint of the periodic classification

Rare gases of the atmosphere, Rb, Cs, Be, Ra, Mo, Ti, Se, Te, In, Tl, Ce, Th, V, Mo, W, U, Pd, Ir, and Nt. Study of the Theory of valency, allotropy, colloids, elementary ideas on intermetallic compounds, isotropism crystalline structure and isomorphism.

Practical Inorganic Chemistry :—

Besides what is prescribed for the pass course :—

(1) Quantitative analysis including volumetric determination involving the use of iodine and thiosulphate

processes, *e.g.*, Cu, H₂ SO₃, MnO₂, bleaching powder and arsenious oxide.

The estimation of chlorides and thiocyanates by titration with silver nitrate.

(3) Gravimetric determination of Mn, PO₄, Ca, Mg, Ni, Cr, CO₃, C₂ O₄, NO₃ by Lunge's Nitrometer, Ammonia (by direct and indirect methods).

Determination of ferrous and ferric iron in an ore. Qualitative and quantitative analysis of simple minerals such as dolomite, magnesite, calcspar, pyrites

Analysis of silver, nickel and brass coins.

Preparation of Carbonato-tetrammine cobalt nitrate Chloropentammine cobalt chloride.

Simple gas analysis. Qualitative analysis of mixtures containing 6 radicals given in pass Course including silicate and thiosulphate.

Organic Chemistry.—

Fuller treatment of the aliphatic hydrocarbons saturated and unsaturated both with their important allied compounds and derivatives such as alcohols, aldehydes, ketones, acids, amides, amines, cyanogen compounds, mercaptans, all these mono and poly with their ordinary and mixed derivatives and organometallic compounds.

Fuller treatment of the aromatic hydrocarbons with their important allied compounds and derivatives such as mono-and poly-hydric phenols, alcohols, aldehydes and

ketones, mono- and poly-carboxylic acids, nitro and amino compounds, sulphonic acids, amides, substituted hydrazines, azo and diazo compounds and also the ordinary and mixed derivatives of all the above compounds. Five and six membered heterocyclic compounds containing one hetero atom only and their derivatives. Monocyclic and olefinic terpenes. Azo, pyronine, triphenylmethane, indigo and alizarin group of dye stuffs. Alkaloids of the pyridine and iso-quinoline group. Aminoacids and proteins. Polymethylenes and derivatives.

Optical activity of carbon and nitrogen compounds. Geometrical isomerism, tautomerism and condensation.

Detection of pure organic compounds containing C, H and O or N. Determination of hydroxy groups and estimation of molecular weight of simple organic acids and bases. Class work should also include the quantitative estimation of C, H, N, S and halogens; determination of methoxy, ethoxy and carboxy groups.

Attention should also be paid to the following processes;—Esterification, acetylation, nitration, sulphonation, hydrolysis, reduction and oxidation.

Purification of organic compounds, distillation under reduced pressure, steam distillation, uses of filter pump and Buchner's funnel.

The following substances should also be prepared—ethyl bromide, nitrobenzene, aniline, ethyloxy, oleic acid, urea, allyl alcohol, acetanilide, tribromaniline, phenol, benzoic acid, benzene sulphonic acid, quinone, hydroquinone from

quinone, diazonium salts. From naphthalene—naphthalene tetrachloride, phthallic acid, phthallic anhydride, fluorescein, eosin. Salicylic acid from phenol. Phenyl glucosazone, benzyl chloride, Orange II, methyl orange.

Applied Chemistry.

A general knowledge of the following topics will be required :—Sugar manufacture, oils, artificial textile fibres, artificial manures, ceramics, paper and leather.

Books recommended :—

1. PARTINGTON : A Text-book of Inorganic Chemistry.
2. HOPKINS : Chemistry of the Rarer elements.
3. STEWART : Some Physico-Chemical Themes.
4. STEWART : Recent advances in Physical and Inorganic Chemistry.
5. CLOWES AND COLEMAN : Quantitative Chemical Analysis
6. MOLLOW PERKIN : Qualitative Chemical Analysis.
7. FINDLAY : Practical Physical Chemistry.
8. LEWIS : A system of Physical Chemistry, Vols. I and II.

Or

9. TAYLOR : A Treatise on Physical Chemistry, Vols. I and II.

10. BERNTHSEN AND SUDBOROUGH : A Text-book of Organic Chemistry. (All latest editions.)

The following books should also be consulted :—

1. FRIEND : Text-book of Inorganic Chemistry, Vols. I—X.

2. MELLOR: Comprehensive Treatise on Inorganic and Theoretical Chemistry.

3 COHEN: Organic Chemistry for Advanced Students, Vols. I, II and III.

4. CHEMICAL Society Annual reports.

5. COHEN: Practical Organic Chemistry.

6- CLARKE: Identification of Organic substances.

7. THORPE AND WHITELEY: Manual of Organic Chemical Analysis.

Analytical Chemistry.

General principles of analytical chemistry.

			MARKS.
Four papers of 125 each	...	...	500
Practical—			
Organic	..	...	65
Inorganic	...	...	85
Physical	...	..	50
Record of Practical	...	...	50
Total			750

ZOOLOGY.

The examination will comprise two papers and a Practical examination. Candidates must obtain the minimum pass marks in the Practical Examination as well as in the total of the theory papers.

The following syllabus is prescribed :

General principles of Biology treated in an elementary manner including the theory of evolution with notions

of variation, heredity and adaptation. Recapitulation hypothesis.

Elementary principles of Geological and Geographical distribution of animals.

Description of animal cell and tissues treated in some detail.

Sexual and asexual modes of reproduction, parthenogenesis ; alternation of generations and metamorphosis.

The structure, habit and development of Non-chordata as illustrated by—

Protozoa	...	...	Amœba, Paramœcium, Vorticella and Malarial parasite.
Porifera	...	...	Sycon.
Cœlenterata	...	...	Hydra and Obelia.
Platyhelminthes		...	Taenia, Liverfluke or any other Distomum.
Nemathelminthes		...	Ascaris.
Annulata	...	...	Pheretima, Nereis and Leech.
Arthropoda	...	...	Prawn, Periplaneta, Anopheles and Scorpion.

Mollusca	...	.. Fresh water Mussel (Anodonta or other type) and Pond-Snail Pila).

Principal characteristics, structure and habits of chordata as illustrated by—

A.—ACRANIA.—

Hemichordata...	...	Balanoglossus.
Urochordata ...	...	Ciona or any other Ascidian.
Cephalochordata	...	Amphioxus.

B.—CRANIATA —

Pisces	...	... Scoliodon or any other Elasmobranch.
Amphibia	...	... Frog.
Reptilia	...	... Lizard.
Aves	...	... Columba.
Mammalia	...	... General characters of Prototheria and Meta- theria as illustrated by Echidna and Kan- garoo respectively, Lepus or rat, Canis (Skull only).

Outlines of the development of Ciona, Amphioxus, Frog, Chick and Rabbit. Amnion and Allantois. Placentation.

Elementary physiology and histology of the various organs of the animal body as illustrated by Frog and Rabbit.

Paper I shall comprise the Non-chordata; cell and tissue, the subjects of Reproduction and Histology, and general principles of Evolution.

Paper II shall comprise the Chordata, elementary facts about Embryology, Physiology, Geological and Geographical distribution.

Practical Course.

Candidates will be required to show a knowledge of simple microscopic technique and to dissect and describe the following animals:

Amœba, Sycon, Paramœcium, Hydra, Obelia, Pheretima, Nereis, Leech, Prawn, Cockroach, Scorpion, Unio, Pila, Balanoglossus (external features only) Ciona, Amphioxus (dissection omitted), Scoliodon or any other Elasmobranch, Frog, Lizard, Pigeon and Rabbit or Squirrel.

Osteology of Dogfish, Frog, Lizard, Fowl, Rabbit, Dog's skull and Echidna (limbs and limb-girdles only).

Note-books containing a complete record of laboratory work must be produced at the practical examination.

Book recommended :—

1. PARKER and HASWEL : Test-book of Zoology
(Macmillan & Co.)
(Vols. I and II.
2. ADAMS : Introduction to Vertebrate, John Willy
and Sons, New York.
3. BOURNE : Comparative Anatomy of Animals
Vols. I and II, G. Bell & Sons, Ltd.,
London.
4. WALTER, H. E. : Biology of the Vertebrates.
(Macmillan & Co.)
5. DENDY : Outlines of Evolutionary Biology,
(Constable & Company,
Ltd., London).
6. MARSHALL and HURST : Practical Zoology,
(Smith Elder).
7. KINGSLEY : Comparative Anatomy of Vetebrates,
(John Murray,
London).
8. PHERETIMA : Indian Zoological Memoris (Metho-
dist (Publishing
House, Lucknow.)
9. SCOLIODON : Indian Zoological Memoirs. Methodist
Publishing House,
Lucknow).

10. GOODRICH : Living Organisms. (The Clarendon Press, Oxford).
11. Pila—Indian Zoological Memoirs. (Methodist Publishing House, Lucknow.)
12. An introduction to comparative Zoology by F. G. S Whitefield and A. W. Wood J. and A. Ghurchill Ltd., London.

ZOOLOGY (Honours)—1940.

The Syllabus is printed in the Prospectus for 1939

ZOOLOGY (Honours)—1941.

The course for Honours will include a detailed knowledge of the structure, development, bionomics and classification of all the representatives of the principal sub-divisions of each phylum of the animal kingdom, and their distribution in time and space.

A detailed knowledge of the animal cell and its phenomena and tissues. Various modes of reproduction.

The general principles of Biology comprising the various theories of Evolution and the subjects of Variation, Adaptation, Inheritance and Sex.

Practical Course :—Candidates will be required to show a detailed knowledge of microscopical technique, section cutting, and to describe and dissect representative types of the principal sub-divisions of each phylum of the animal kingdom.

Candidates must produce at the practical examination their preparations and note-books containing a complete record of laboratory work for which 50 marks are allotted.

There will be five papers :—

	Marks.
PAPER I—Protozoa to Annelida	... 100
PAPER II—Echinodermata, Athropoda and Mollusca	... 100
PAPER III—Protochordata to Amphibia	... 100
PAPER IV—Reptilia, Aves and Mammalia	... 100
PAPER V—Cytology and general principles of Biology including theories of Evo- lution, Heredity and Sex	... 100
Practical (including class record)	... 250
Total	... 750

Candidates must obtain minimum pass marks in the Practical examination, as well as in the total of the Theory papers.

BOTANY.

The examination in Botany will comprise two papers and a Practical examination. Candidates must gain minimum pass marks in the Practical examination as well as pass marks in the total of the papers.

The following syllabus is prescribed :—

1. The anatomy (including Histology) of the vegetative and reproductive organs of the Phanerogams and

Cryptogams treated from the comparative and functional standpoints. The cell contents and their microchemical reactions. An elementary knowledge of plant ecology.

2. The morphology, physiology and life-histories of—
THALLOPHYTA—

(a) Bacteria.

(b) Algae—

Cyanophyceae—Nostoc. Oscillatoria.

Chlorophyceae—Chlamydomonas, Volvox,

Ulothrix Spirogyra. Oedogonium, Vaucheria.

Phaeophyceae—Ectocarpus, Fucus.

Rhodophyceae—Nemalion.

(c) Fungi—

Phycomycetes—Cystopus, Phytophthora.

Mucor.

Ascomycetes—Sphaerotheca, Peziza,

Saccharomyces.

Basidiomycetes—Ustilago, Puccinia,

Agaricus.

BRYOPHYTA—

(a) *Hepaticeae*—Riccia, Marchantia.

(b) *Anthocerotales*—Anthoceros.

(c) *Musci*—Sphagnum, Funaria.

PTERIDOPHYTES—

(a) *Equisetales*—Equisetum.

(b) *Lycopodiales*—Selaginella.

(c) *Filicales*—Marsilea, Pteris.

SPERMATOPHYTES—

(a) Gymnosperms—Cycas, Pinus.

(b) Angiosperms.

A detailed knowledge of the life-history of a typical flowering plant and a knowledge of typical representative of the following families :

Ranunculaceæ, Papaveraceæ, Cruciferæ, Caryophyllaceæ, Malvaceæ, Rutaceæ, Leguminosæ, Rosaceæ, Umbelliferæ, Convolvulaceæ, Solanaceæ, Labiatæ, Acanthaceæ, Compositæ, Moraceæ, Gramineæ, Palmæ, Liliaceæ.

3. Plant Physiology—

(a) Physiology of the cell.

(b) Absorption of materials in general.

(c) Ascent of Sap and transpiration.

(d) Assimilation of Carbon in green and non-green plants.

Assimilation of Nitrogen.

- (e) Translocation of plastic food material.
- (f) Fermentation and Respiration.
- (g) An elementary knowledge of the Physiology of Growth including turgidity.
- (h) Movements in plants :—Growth movements and movements of Variation.

4. An elementary knowledge of the general principles of Evolution, Variation and Heredity.

Paper I shall comprise the Morphology, Physiology and life-histories of the Cryptogams.

Paper II shall comprise the Morphology, and life-histories of the Phanerogams, general Plant-Physiology, Ecology, Evolution, Variation and Heredity.

Practical Course.

The dissection of plants and parts of plants. The preparation, simple staining and study of microscopical section of plants and the principal varieties of plant tissues. Permanent preparations are not required.

A practical study of the typical plants enumerated under section 2 : the referring of plants and parts of plants to their appropriate position in any scheme of classification.

The description of plants and parts of plants in technical language.

Students will be expected to be familiar with simple physiological apparatus and experiments.

Note-books containing a complete record of Laboratory work must be produced at the practical examination.

Marks will be allotted as follows :—

Class record	...	...	...	5
Practical Examination		...	...	45
Total			...	50

Text-books recommended—

LOWSON and SAHNI : Text-book of Botany (Indian Edition).

SCOTT : Structural Botany, Vols. I and II.

STRASBURGER : Text-book of Botany.

COULTER, BARNES and COWLES : Text-book of Botany.

JOHNSON, AMY : Text-book of Botany.

BOTANY (Honours) 1940.

The Syllabus is printed in the Prospectus for 1939.

BOTANY (Honours)—1941.

Candidates for the Honours Examination will be required to pass in the written as well as in the practical examination separately.

1. The structure, life-history and affinities of the chief representatives of the principal groups and sub-groups of the Cryptogams and Gymnosperms.

2. General Histology and microchemical reactions.

3. The external morphology, anatomy, life-histories, taxonomy and affinities of the Angiosperms.

4. Genetics.

5. Plant Physiology ; Metabolism, Growth and movements.

6. Ecology—The Units of Vegetation. Factors of the Habitat. Plant Succession. Different types of Vegetation with special reference to India.

7. Cytology :—The structure of the cell and its contents : the physical and chemical properties and functions of the cell contents ; the chondriome system ; the vacuome system ; an account of the Golgi material in plants ; the principal types of nuclear division.

There will be five papers :—

	Marks.
Paper I—Thallophyta ...	... 100
Paper II—Bryophyta and Pteridophyta ...	... 100
Paper III—Plant Physiology, Genetics ...	... 100
Paper IV—Gymnosperms, Cytology ...	... 100
Paper V—Angiosperms and Ecology ...	... 100

Practical Examination.

The examination will deal with representatives of the chief classes of Cryptogams and Phanerogams, and with the technique connected with their study.

The description and the referring of plants and parts of plants to their families and their identification with the help of necessary books.

The general histology, preparation, staining and study of microscopical sections of plant-tissues. The uses of stains and other reagents. Microtomy.

Students will be required to set up experiments to demonstrate important phenomena in Plant Physiology.

An elementary knowledge of practical biochemistry will also be expected.

Note-books containing a complete record of Laboratory work must be produced at the practical examination.

Marks will be allotted as follows :—

Class record	...	...	...	50
Practical Examination	...	...	...	200
Total			...	250

M. Sc. EXAMINATION**MATHEMATICS.****M. A. & M. Sc. Previous Examinations.**

There will be four papers :—

PAPER I—*Differential Calculus, Integral Calculus and
Differential Equations.*

Differential Calculus :—

Rational and irrational numbers, sequences and limits, concept of a function, continuity, differentiability, the mean value theorem, Taylor's theorem, maxima and minima of functions of two or more variables, change of variables.

Integral Calculus :

Riemann's definite integral, mean value theorems, improper integrals, definite integrals including Beta and Gamma functions Change of variables and of order of integration, multiple integrals with simple applications, Green's theorem, use of Fourier's series. Uniform convergence and term by term differentiation and integration of series.

Differential Equations :

Singular solution, linear equations of 2nd order, variation of parameter, homogeneous and exact equations.

Relevant portions from the following books are recommended :—

1. CARSLAW : Fourier Series and Integrals
2. GROUSAT-HEDRICK : Mathematical Analysis,
Vol. I.
3. HARDY : Pure Mathematics.
4. MURRAY : Differential Equations.

PAPER II—*Theory of Equations and Analytical Geometry of two and three dimensions.*

Theory of Equations.

General properties of equation ; relations between roots and coefficients ; symmetric functions of the roots ; transformations of equations ; algebraic solutions of cubics and biquadratics n^{th} roots of unity ; properties of derived equations ; limits of the roots of equations ; approximate solutions of numerical equations ; determinants.

Analytical Geometry of two dimensions :

Reduction of general equations of 2nd degree to standard forms, and systems of conics

Analytical Geometry of three dimensions :

Plane ; straight line ; properties of conicoids and confocal conicoids referred to principal axes ; plane sections ; generating lines and reduction of general quadrics to standard forms.

PAPER III—*Statics and Dynamics of a Particle and Rigid Dynamics in two dimensions.*

Statics ;

Virtual work : stability : strings in two dimensions ; forces in three dimensions and centres of gravity. Attractions and potentials of rods, discs, spheres and circular cylinders.

Dynamics of a Particle in two dimensions ;

Motion in resisting medium, hodograph, central orbits and constrained motion.

Rigid Dynamics in two dimensions :

Moments of inertia ; D'Alembert's principle and motion in two dimensions.

PAPER IV—*Same as Paper VI in B.Sc. (Honours).*

M A. & M. Sc. Final Examinations.

There will be five papers:

PAPER I—*Analysis.*

Cantors' theory of irrational numbers, limits, general principle of convergence ; linear sets, limiting points and derivatives ; descriptive terminology of sets of points ; enumerable aggregates ; power of an aggregate ; notion of content and measure, continuous and discontinuous functions ; uniform continuity, differentiability and Riemann's integrability of a Function of a real variable.

(The Course is indicated by Hobson's theory of Functions of a real variable Vol. I 1927) Ss. 23—32, 46—55, 57—62, 116—119, 205—214, 217, 220—226, 259—260, 329—333 and 337).

Complex numbers, analytic functions of a complex variable, conformal representation of a plane upon another plane. The general theory of logarithmic, exponential and circular functions. Cauchy's theorem and the theory of residues. Development in power series; Taylor's and Maclaurin's series, and Laurent's series.

Convergence of infinite series including uniform convergence, and convergence of infinite products and infinite integrals.

Books recommended :—

CARSLAW : Fourier Series and Integrals.

HOBSON : Plane Trigonometry.

HARDY : Pure Mathematics.

WHITTAKER and WATSON : Modern Analysis.

The following books may also be consulted :

BROMWICH : Infinite Series.

HOBSON, Theory of Functions of a Real Variable, Vol. I, Chapters I and II.

GOURSAT-HEDRICK : Mathematical Analysis, Vol. I. and Vol. II, Part I.

PAPER II—*Analytical Geometry of two and three dimensions.*

Analytical Geometry of two dimensions :—

Homogeneous and tangential co-ordinates ; systems of conics and their invariants and co-variants.

Analytical Geometry of three dimensions :

Surfaces in general and curves in space. Geodesic lines, lines of curvature and asymptotic lines.

Books recommended :—

SALMON : Conic Sections.

BELL : Co-ordinate Geometry of Three Dimensions.

SMITH : Solid Geometry.

ASKWITH : Analytical Geometry of the Conic Sections.

LONEY : Co-ordinate Geometry, Part II.

GOURSAT-HEDRICK. Mathematical Analysis, Vol. I.

PAPER III.—*Differential Equations and Dynamics of a particle and of rigid bodies in three dimensions.*

Differential Equations :

Integration of linear differential equations of the second order in series ; Legendre's, Bessel's, Ricatti's and hypergeometric equations ; total differential equations ; ordinary simultaneous differential equations ; partial differential equations of first and higher order ; solutions of Laplace's and Poisson's equations.

Dynamics of a particle and of rigid bodies in three dimensions : including equations of motion in three dimensions, Lagrange's co-ordinates, theory of small oscillations and gyroscopes.

Books recommended :—

FORSYTH : Differential Equations.

MURRAY : Introductory course in Differential Equations.

ROUTH : Dynamics of a Particle and Rigid Bodies, Vol. I.

RAMSAY and BESANT : Treatise on Dynamics.

LAMB : Higher Mechanics.

LONEY : Dynamics of a Particle and Rigid Bodies.

PAPER IV—*Hydromechanics*.

Hydrodynamics :

Laws of fluid pressure, equilibrium of floating bodies, general conditions of equilibrium, stability, rotating liquids and equilibrium of gases.

Hydrodynamics :

Kinematics : equations of motion ; sources and sinks ; images ; motion of circular and elliptic cylinders in two dimensions ; motion of a sphere through liquids ; simple waves ; vibration of air in tubes.

Books recommended :—

BESANT and RAM-SAY : Hydromechanics, Parts I and II.

PAPER V—*Any one of the following (special knowledge of the subject selected will be required):*

1. Differential Geometry.

2. Elliptic Functions.

(a) Whittaker and Watson's *Modern Analysis* (ed. 4) : Chaps. XX, XXI, XXII, (pp 429—535).

(b) Greenhill's *Elliptic Functions* (1892) : Chap. III (pp. 66—111) and Chap. VII (pp. 210—253).

3. Theory of Aggregates and Theory of Functions of a Real Variable.

(a) Theory of point sets, as given in Townsend's *Functions of a Real Variable*, Chapter II (pp 44—78).

(b) Pointwise discontinuous functions, functions of bounded variation, and functions of limited total fluctuation, as given in Hobson's *Theory of Functions of a Real Variable*, Vol. I (1927), Chap. V. (pp. 316—338).

(c) Functions of two variables, double and repeated limits, ordinary and higher partial differential co-efficients, as given in Hobson's *Theory of Functions of a real variable*. Vol. I (1927) (pp. 404—429 excluding Ss. 307—308).

(d) The Lebesgue integral and connected topics, as given in Titchmarsh's *Theory of Functions*, Chaps. X, XI, XII, (pp. 323—398.)

(e) Fourier series, as given in Titchmarsh's Theory of Functions, Chap. XIII (pp 399—444).

(f) The Allied series of a Fourier series, as given in Hobson's Theory of Functions of a Real Variable, Vol. 2, 1926 (pp. 692—698).

4. Theory of Functions of a Complex Variable.

The Theory of Functions by Titchmarsh (pp. 187—187 and 198—317), and Dirichlet's series by G. H. Hardy and M. Riesz (pp. 1—26).

5. Theory of Numbers.

6. Theory of Probabilities.

7. Vector Analysis.

8. Projective and Non-Euclidean Geometry.

9. Harmonic Analysis.

10. Differential Equations.

11. Integral Equations.

12. Hydrodynamics.

The use of Conformal Representation ; Discontinuous Motion. Free Stream Lines ; Aerofoils ; Irrotational Motion in three dimensions (omitting motion of a sphere). Motion of a solid through a liquid ; Vortex Motion ; Viscosity ; as given in Ramsey's Hydrodynamics, fourth edition, (pp. 127—158, 164—254, 363—409). Tidal Waves as given in Lamb's Hydrodynamics, Sixth Edition, pp. 250—290.

13. Elasticity.

14. Electricity and Magnetism.

"Induction currents in continuous media ; Displacement currents and Electro-magnetic Waves ; the Electro-magnetic Theory of Light ; the motion of electrons, as given in the Mathematical Theory of Electricity and Magnetism by J. H. Jeans (Chaps. XV, XVII, XVIII, XIX, pp. 470-483 and pp. 510-592).

Relativistic Mechanics ; Electrodynamics of moving bodies ; the Mechanics of simple atomic models ; the New Quantum Mechanics ; Atomic problems first solved by the Wave Mechanics ; Nuclear Physics ; as given in Theoretical Physics by George Joos (Chap. X, XXVI, XXXVIII, XL, XLI, pp. 216-248, 443-455, 603-698).

15 General Astronomy and Combination of Observations.

(a) Expansions in elliptic motion, relations between two or more positions in an orbit and the time, the orbit in space, conditions for the determination of an elliptic orbit, determination of an orbit, the method of Gauss as given in An Introductory Treatise on Dynamical Astronomy by H. C. Plummer, (Chapters, IV, V, VI, VII, VIII, pp. 33-93).

(b) Precession and nutation, and the aberration of light as given in A Treatise on Spherical Astronomy

by R. S. Ball, Chapter VII (pp. 171—200), Chapter XI (pp. 248—276).

- (c) The method of least squares as given in Chauvenet's Spherical and Practical Astronomy, Volume II Appendix (pp. 469—566).

[Whittaker and Robinson's Combination of Observations, Chapters VIII and IX, and Brunt's Combination of Observations, Chapters I to IX, may be consulted.]

16. Celestial Mechanics.
17. Geometrical and Physical Optics.
18. Theory of Relativity
19. Sound and Vibrations.
20. Advanced Dynamics.
21. Figure of Earth.
22. Substitution groups with application to the Theory of Equations.

PHYSICS.

Previous Examination.

Candidates for the M. Sc. Examination will be required to pass in the written as well as in the practical examinations separately.

There will be three papers as follows :—

First Paper—General Physics and Heat.

Second Paper—Sound and Light.

Third Paper—Electricity, Magnetism and
Electron Theory.

Each paper will be of 100 marks and the practical test will carry 150 marks. The courses are to be as follows :—

General Physics.

Surface tension phenomena. Thin films. Viscosity of liquids and gases. Compressibility of liquid, Modern pumps. Elements of Hertz's theory of impact. Mechanics of solids, its applications to bending of bars, helical springs, cylinders and plates. Mechanics of Fluids. Steady and turbulent flow. Waves and ripples.

Heat.

Kinetic theory of gases. Mean free path, Transport phenomena and molecular dimensions. Phenomena in gases at very low pressure. Equations of state. Elementary mathematical theory of conduction. Thermodynamic formulæ and their applications. Thermodynamical functions. Equilibria of systems. Radiation. Deduction of laws of radiation and their verification. Radiation constant. Solar constant. Quantum theory

of specific heat of solids and gases. Nernst's Heat Theorem. Absolute value of entropy and chemical constant.

Sound.

Vibratory systems of one and two degrees of freedom. Vibration of strings, air columns and resonators. Forced vibration and maintenance, Acoustical measurements and Instruments. Sources of sound. Acoustical measurement of Impedance and Sound output. Architectural acoustics.

Light.

Thick lenses and systems of lenses. Defects of images and their removal. Microscopes. Refractometers. Mathematical statement of Huyghen's principle. Measurement of Stellar diameters Brewster's fringes. Interference spectroscopes and refractometers Application of interference.

Theory of Diffraction. Resolving power of optical instruments. Molecular scattering and Raman effect. Propagation of light in uniaxial and biaxial crystals ; interference of polarised light. Pressure of radiation.

Emission and absorption spectra. Determination of the wave-length of light Spectral series, terms and their notion in hydrogen and alkali spectra Spectrophotometers. Spectroscopy of the infrared and ultra-violet. Elements of electromagnetic theory of light.

Anomalous dispersion. Elementary knowledge of effects of electricity and magnetism on light.

Electricity and magnetism.

Measurement and production of high magnetic and electrical fields. Electrometers. Absolute determination of capacity and self and mutual inductances. Determination of Ampere, Ohm and Volt. Generators, Motors, Transformers. A. C. measuring Instruments, Simple Wireless Receiving and Transmitting sets. Elementary theory of electricity and magnetism.

Electron Theory.

The Electron. Determination of e/m Positive ray analysis. Elementary notions of radioactivity. Scattering of alpha particles. The Nuclear hypothesis. Theories of radio-activity. Scattering of X-rays and Compton effect. Photo-electricity. Bohr's theory and its generalisation. Radiation and ionisation potentials. Theories of X-ray spectra. Thermionics. Theories of Magnetism. Structure of the atom.

Practical work.

1. Viscosity of liquids and gases.
 - (a) Flow method.
 - (b) Rotating cylinder.
2. Young's modulus by Cornu's method.
2. Production and measurement of low pressure.

4. Solar constant.
5. Conductivity by Lee's method.
6. Calibration of Pt. Thermometer.
7. Determination of Stefan's constant.
8. Measurement of acoustic impedance.
9. Photographing the spectrum by a prism spectrograph.
10. Abbe's refractometer.
11. Study of elliptically and circularly polarized light.
12. Study of the Microscope.
13. Measurement of Self and Mutual inductance and Capacity.
 - (a) by ballistic galvanometer.
 - (b) by A. C. Currents.
14. B-H curve.
15. Magnetic susceptibility by Quincke's method.
16. Constants of the thermionic valve.
17. Study of the valve as an oscillator.

The following experiments are optional and at least one should be done —

- (1) 'g' by Kater's pendulum.
- (2) Gravitational constant.
- (3) Temperature of the Sun.

- (4) Direct determination of the velocity of light.
- (5) Photographing the spectrum by concave grating.
- (6) Fabry-Perot etalon.
- (7) 'H' by Kew Magnetometer.

Final Examination.

Candidates for the M. Sc. Examination will be required to pass in the written as well as the Practical Examination separately.

1. The candidate will be examined in two papers. The first paper will be on "Modern Physics".

2. The second paper will be of a special nature and the student will have the option of choosing it from any one of the following groups :—

(a) Spectroscopy, including Quantum theory,
Radiation and Electro and Magneto-optics.

(b) X-rays.

(c) Wireless telegraphy and telephony.

3. The course in practical physics will consist of two parts, (1) General (2) Special. The General practical course is divided into three groups of experiments from which a maximum of five are to be done by each student and each group is to go with the corresponding 'Special' course as auxilliary experiments.

4. In lieu of examination in the practical subject, the student may offer a piece of original work under the direction of any one of the university teachers, or may be asked to set up specialised experiments.

SYLLABUS.**FIRST PAPER.****Modern Physics.**

Mathematical theory of Electricity and magnetism.
Dynamics of the electron. Theories of magnetism.
Special theory of Relativity. Elementary ideas
of the General theory of Relativity. Elements
of wave-mechanics. Nuclear Physics Recent
advances.

SECOND PAPER.**X-RAYS.**

Phenomena in vacuum tubes ; generation of X-rays,
high voltage generators ; X ray bulbs ; different methods
of setting up an X-ray establishment.

Study of properties of X-rays, secondary X-rays ;
characteristic X-rays, absorption coefficient of charac-
teristic X-rays, ionisation by X-rays, scattering of
X-rays.

Laue's discovery of the diffraction of X-rays by
crystals. Bragg's method of reflection. Elementary
crystallography. Crystal analysis by Bragg's method.
Debye-Scherrer and Hull methods and the Laue method.
X-ray spectrometers. Moseley's work on the measure-
ment of wave-length of characteristic X-rays, Emission
Spectra ; X-ray absorption spectra.

SPECTROSCOPY.

Various methods of producing spectra ; prism spectro-scope of different types ; concave grating, echelon grating, Lummer plate ; Littrow spectrograph, vacuum grating spectrograph. Infra-red Spectrometer. Photography of the infra-red and ultra-violet spectra. Determination of wave-lengths by interference methods. Band spectra ; Series spectra, series formulæ and notation. Relation of atomic constants and series-spectra ; general principles of the quantum theory of line spectra ; Bohr's theory ; Resonance and Ionisation potentials. Energy diagrams. Correspondence Principles. Kossel and Sommerfeld's displacement law. Emission and absorption spectra of elements ; Stark effect. Zeeman effect. Fine structure of lines ; Thermal excitation : Raies ultimes. Laws of emission and absorption ; continuous spectra from black bodies and other substances. Application of spectroscopy to astrophysics. Theories of dispersion and absorption. Resolving Power.

WIRELESS TELEGRAPHY AND
TELEPHONY.

1. Oscillatory circuit, Coefficient of coupling, Resonance, Decrement, Analysis of circuits, Filters.
2. Inductance and Capacity, Skin Effect, Screening, Eddy Currents.
3. Hertz's experiments on Electromagnetic Waves, Early methods of wireless communication.

4. Arc and Spark transmitters, High Frequency Alternators.

5. Thermionic valves—Richardson's law, Child and Langmuir's law, amplification constant, impedance, mutual conductance.

6. Valve as detector, amplifier, oscillator and its other uses.

7. H. F. oscillation, Transmission of morse, music and speech, Modulation, Frequency and Amplitude.

8. Complete theory of reception, demodulation.

9. Microphones, Telephones and Loudspeakers.

10. Frequency measurement—

Wave-meters, Piezo-electric crystals, Magnetostriction, Multivibrator.

11. Directional wireless.

12. Propagation of Radio waves—

Sommerfeld, Austin-Cohen and other formulæ; Heavyside layer and its height measurements. Theory of skip distance and long distance propagation.

Propagation of electromagnetic waves along wires, Lecher wire system.

13. Antenna and Radiation of Energy—

Maxwell's Equations, Scalar and Vector Potentials, Hertzian Oscillator, Closed Oscillator, Radiation Resistance, Systems of Earthing, Electromagnetic field due

to Hertzian oscillator, graphical representation. Methods of exciting Antenna, Feeder lines.

PRACTICAL WORK.

GENERAL COURSE.

I.—Spectroscopy —

1. Ionisation potential.
2. Setting up of X-ray spectrometer and determination of wave-lengths.
3. Study of vacuum technique.
4. Alpha-ray tracks.
5. Planck's constant.

II.—Wireless—

1. A. C.—Measurement of inductance and capacity.
2. Richardson's equation for thermionic current.
3. Valve bridge and its uses.
4. Electrometer triode.
5. Characteristics of dynamos and motors.

III.—X-rays —

1. Half life of radioactive bodies.
2. Debye camera.
3. Gamma-rays.

4. Gieger counter
5. Electrometer.
6. Electron diffraction.

SPECIAL COURSE.

SPECTROSCOPY.

1. Management and adjustment of arc and spark.
2. Photographing the spectrum with an ordinary prism spectroscope. Constant deviation spectroscope, a quartz spectroscope.
3. Determination of wave-length by the prism spectrograph using the Hartmann formula.
4. Practice with concave grating.
5. Photographing the iron arc and measurement of spectrum-plates with a comparator.
6. Raman effect.
7. Zeeman effect.
8. Infra red spectrometer.
9. Ultra-violet spectroscopy, using Schumann plates.
- 10 Practice with Lummer-Gehrcke plate.
11. The Michelson and Fabry Perot Interferometers.

WIRELESS.

1. Determination of Efficiency of valve oscillators and amplifiers.

2. High frequency measurement of Resistance, Capacity and Inductance.
3. Measurement of frequency—use of Piezoelectric crystals, cathode-ray oscillograph and multivibrator and magnetostriction—wavemeters.
4. Measurement of dielectric constant at different frequencies.
5. Transmission and reception.
6. Measurement of modulation.
7. Measurement of Antenna constants.
8. Measurement of Signal strength.
9. Measurement of height of Ionosphere.

X-RAYS.

1. Practice with X-ray tubes.
2. Bragg's reflection method of X-ray analysis.

Determination of the wave-length, crystal constant and the structure of crystals.

3. Practice with the X-ray spectrometer; wave-length of characteristic lines.
4. Absorption and scattering of X-rays.
5. Ionisation by X-rays.

CHEMISTRY.

Previous Examination.

Candidates for the M. Sc. Previous Examination will be required to pass in the written as well as in the Practical Examination separately.

Marks will be allotted as follows:—

	Paper.	Practical.
Inorganic	100	75
Organic	100	40
Physical	100	35
Record of Practical work		50 Total 500.

In each paper questions will be set in History.

Inorganic.—The elements specified for the B. Sc. Course in more detail including their modes of occurrence and chief metallurgical processes. A general knowledge of the less common inorganic compounds and important rare elements.

Standard analytical methods outside the B. Sc. Courses. Gas analysis. The use of Lunge's nitrometer

Organic.—General knowledge of aliphatic saturated, and unsaturated hydrocarbons with their important derivatives such as mono and polyhydric alcohols, mono and poly aldehydes and ketones with their ordinary and mixed derivatives. Mono and poly carboxylic acids and their derivatives. Mono and poly amides and amines, cyanogen compounds, and organometallic compounds.

A general knowledge of aromatic hydrocarbons with their important derivatives such as mono and poly hydric phenols, alcohols, aldehydes and ketones with their derivatives. Mono and poly-carboxylic acids, nitro and amino compounds, sulphuric acids, amides and substituted hydrazines. Azo and diazo compounds. Mono-cyclic terpenes. Pyronine, triphenyl methane,

indigo and alizarin group of dyestuffs. A fuller treatment of the five membered heterocyclic compounds containing only one hetero atom with their derivatives. A fuller treatment of the alkaloids of pyridine group only. A general knowledge of amino acids and proteins and polymethylenes.

Detection of pure organic compound containing carbon, hydrogen and oxygen. Determination of hydroxy groups and estimation of molecular weight of simple organic acids and bases. Class work should also include the quantitative estimation of C, H, N, S, and halogens; and determination of methoxy, ethoxy and carboxy groups.

Attention should also be paid to the following processes.—Esterification, acetylation, nitration, sulphonation, hydrolysis, reduction and oxidation. Purification of organic compounds, distillation under reduced pressure, steam distillation and uses of filter pump and Buchner's funnel.

The following organic compounds should also be prepared—ethyl bromide, ethyl or methyl oxalate. Methyl salicylate or ethyl benzoate, oxalic acid, allyl alcohol, oleic acid, urea, glucosazone, nitrobenzene, aniline, sulphanilic acid, benzene sulphonic acid, methyl orange, Orange II, aminoazobenzene, benzene azophenol, chloro or iodo benzene, benzyl chloride, acetanilide, tribromaniline, benzoic acid, phthallic acid, fluorescein, eosin and quinoline.

Physical.—In addition to what is given in the B. Sc. Course the following should be studied :—

Specific heat at constant pressure and constant volume, behaviour and equations of gases, dissociation and abnormal vapour densities, general properties of liquids, boiling point, vapour pressure, viscosity and surface tension of liquids, behaviour of mixed liquids, miscible and non-miscible, fractional distillation under reduced pressure, partition co-efficient, general properties of solutions connected with osmotic pressure, ionic velocity, transport number, degree of dissociation, properties of electrolytes containing a common ion, theory of indicators, solubility product, simple concentration cells, mass law, order of a chemical reaction, phase rule, catalysis, colloids, photo chemistry, physical properties and chemical constitution, and elementary ideas about radioactivity, isotopes and structure of atoms.

Practical Physical Chemistry.—Determination of molecular weight by Victor Meyer's method and by boiling and freezing point methods, density and surface tension of liquids, determination of solubility, determination of partition co-efficient, use of spectroscope and polarimeters, electric conductivity.

Historical development of Chemical theories and short account of the contributions of the following chemists.—Boyle, Scheele, Priestley, Cavendish, Lavoisier, Dalton, Davy, Berzelius, Faraday, Liebig, Pasteur, Berthelot,

Cannizzaro, Mendeleef, Bunseen, Dumas, Graham, Ramsay, Currie, Moisson, Baeyer, Emil Fischer, Perkin (Senior and Junior), Hoffmann, Roscoe, Ostwald, van't Hoff and Arrhenius.

Allotropy, valency and intermetallic compounds.

Practical — Mixtures for qualitative analysis may contain silicate, thiosulphate and arsenate in addition to the radicles prescribed for the B. Sc. Pass Course in Chemistry.

Gravimetric estimation of magnesium, calcium, phosphate, carbonate, oxalate, nitrate by Lunge's nitrometer, manganese, nickel, ammonia by indirect method, analysis of silver, nickel, and brass coins, dolomite and calcspar.

Volumetric determination involving iodometry, *e. g.*, copper salt, manganese dioxide and arsenious acid.

Titration involving the use of chlorides and thiocyanates and silver nitrate.

Preparation of—

1. Carbonato-tetramino-cobalt nitrate.
2. Anhydrous magnesium chloride.
3. Sodium cobalti nitrite.
4. Sodium phosphates.
5. Sodium tetrathionate.
6. Cuprous chloride.
7. Potassium perchlorate.

Books recommended :—

1. PARTINGTON : A Text-book of Inorganic Chemistry
2. HOPKINS : Chemistry of the Rarer Elements.
3. STEWART : Recent Advances in Physical and Inorganic Chemistry.
4. STEWART : Same Physico-Chemical Themes.
5. CLOWES and COLEMAN : Quantitative Chemical Analysis.
6. MOLLWO PERKIN : Qualitative Chemical Analysis.
7. FINDLAY : Practical Physical Chemistry.
8. LEWIS : A System of Physical Chemistry, Vols. I and II.
9. TAYLOR : A Treatise on Physical Chemistry, Vols. I and II.
10. BERNTHSEN and SUDBOROUGH : A Text-book of Organic Chemistry.
11. COHEN : Practical Organic Chemistry.
12. CLARKE : Identification of Organic Substances.
13. THORPE and WHITELEY : Manual of Organic Chemical Analysis.

(All latest editions.)

Final Examination.

Candidates for the M. Sc. Examination will be required to pass in the written as well as in the Practical Examination separately.

Students who have passed the Previous may present any one of the following branches of Chemistry:—

(1) Inorganic, (2) Organic, (3) Physical, (4) Applied and (5) Agricultural.

Notice must be sent to the Registrar by the 15th August of the branch which the students intends to present at the ensuing examination and in the case of (4) the industry or manufacture to which he is attached.

A student may present a thesis dealing with original work done by him in his selected branch in place of the second paper; he will be liable to any enquiry or examination in the subject-matter of his thesis which the examiners may see fit to impose.

Marks will be allotted in each branch as follows:—

			Marks.
First Paper	...	...	... 100
Second Paper or Thesis		...	... 100
Record of Practical work	50 }		
Practical Examination	150 }	...	... 200
	Total	...	... 400

1. *Inorganic*.—Candidates are expected to possess a more advanced knowledge of the subjects than in the Previous M. Sc. Course and should be acquainted with the recent work on that subject.

2. *Organic*.—Candidates are expected to possess a more advanced knowledge of the subjects than in the Previous M. Sc. Course and should be acquainted with the recent work on that subject.

3. *Physical*.—Candidates are expected to possess a more advanced knowledge of the subjects than in the Previous M. Sc. Course and should be acquainted with the recent work on that subject.

4. *Applied*.—The principle has been laid down that a candidate will be expected to show that he has *bona fide* devoted himself to some important industry or manufacture and has acquired a reasonable degree of efficiency under all three of the following heads :—

(i) *Technical*.—He should have either (a) performed systematical analytical control or (b) engaged in systematic research or (c) introduced improved methods of mechanical handling, application of distribution of power, etc.

(ii) *Economic*.—He should have acquired some knowledge of sources and markets of casting (including) plant, power, labour, control, distribution, depreciation, etc., and of disposal or utilisation of by-products and waste.

- (iii) *Foreign* —He should have studied the methods in use in other countries as far as ascertainable by him.

The procedure for testing the fitness of a candidate will be decided as occasion arises.

5. *Agricultural*.—Candidates are expected to possess a more advanced knowledge of the subjects than in the Previous M. Sc. Course and should be acquainted with the recent work on that subject.

ZOOLOGY.

Previous Examination.

The course will include a detailed knowledge of the structure, development, bionomics and classification of all the representatives of the principal sub-divisions of each phylum of the animal kingdom, and their distribution in time and space.

Practical Course.—Candidates will be required to show a detailed knowledge of microscopical technique, and to describe and dissect representative types of the principal sub-divisions of each phylum of the animal kingdom.

Candidates must produce at the Practical Examination their preparations and notebooks containing a complete record of laboratory work for which 50 marks are allotted.

There will be four papers and the standard of examination shall be higher than that of the B. Sc. Honours Examination.

	Marks.
Paper I.—‘Invertebrata excluding Annelida, Arthropoda and Mollusca’ ...	100
„ II.—Annelida Arthropoda and Mollusca ...	100
„ III.—Protochorda, Pisces with special reference to food fishes of the United Provinces and Amphibia ...	100
„ IV.—Amniota ...	100
Practical (including 50 marks for class record) ...	250
Total ...	<u>650</u>

Candidates must obtain minimum pass marks in the Practical Examination, as well as in the total of the theory papers.

Final Examination.

The subject for examination shall be any *two* of the following groups :—

Group A.—Cytology (with special reference to oogenesis) or Pisces.

Group B.—Helminthology (with special reference to Trematoda and Cestoda) or Annelida.

Group C.—Economic Zoology (with special reference to Entomology) or Genetics (with special reference to animal breeding).

Group D.—Thesis.

N. B.—Candidates who have passed the M. Sc. Previous Examination will be required to take Paper V also of the B. Sc. Honours examination.

Group A.—Shall consist of two papers and a practical test.

Paper I.....100 Marks.

„ II.....100 „

Practical 100 „

Group B.— Shall consist of two papers and a practical test.

Paper I.....100 Marks.

„ II 100 „

Practical.....100 „

Group C.— Shall consist of two papers and a practical test.

Paper I.....100 Marks.

„ II.....100 „

Practical.....100 „

Group D.— Shall consist of :—

Thesis 200 Marks.

Viva voce.....100 „

Candidates must produce at the Practical examination their preparations and notebooks containing a complete record of the Laboratory work which will be taken into consideration in determining the results of the examination.

Candidates must obtain minimum pass marks in the Practical examination as well as in the total of the theory papers. Out of 200 marks in Practical 25 will be set apart for class record.

BOTANY.

Previous Examination.

Candidates will be required to pass in the written as well as in the practical examination separately.

1. The structure, life-history and affinities of the chief representatives of the principal groups and sub-groups of the Cryptogams.

2. Plant physiology ; metabolism ; growth and movements.

3. Genetics.

There will be three papers—

Paper I —Thallophyta ... 100 Marks.

„ II.—Bryophyta, Pteridophyta ... 100 „

„ III —Plant Physiology, Genetics ... 100 „

Note.—These papers will be in common with Papers I, II and III of B. Sc. Honours Examination of the same year.

Practical Examination.

The examination will deal with representatives of the chief classes of Cryptogams, and with the technique connected with their study.

The general histology, preparation and study of microscopical sections of plant tissues. The uses of stains and other reagents.

The student will also be required to set up experiments to demonstrate important phenomena in plant physiology.

Preparations and note-books containing a complete record of Laboratory work must be produced at the practical examination.

Marks will be allotted as follows :—

Class record	...	...	.	25
Practical Examination	...	...	...	175
Total				... 200

Final Examination.

Candidates will be required to pass in the written as well as in the practical examination separately.

Section I.

For candidates who appear in the M. Sc. (Final) Examination after passing the M. Sc. (Previous Examination) :—

1. The structure, life-history and affinities of the chief representatives of the principal groups of the Gymnosperms.
2. The external morphology, anatomy, life-histories, taxonomy and affinities of the Angiosperms.
3. Ecology :—The Units of Vegetation. Factors of the Habitat. Plant Succession. Different types of Vegetation with special reference to India
4. Cytology :—The structure of the cell and its contents; the physical and chemical properties and functions of the cell contents; the chondriome system; the vacuome system; an

account of the Golgi material in plants ; the principal types of nuclear division.

In addition to the above a candidate shall select, subject to the approval of the Head of the Department, either group A or group B as given below : —

Group A. Special Papers.

- (i) Fungous diseases of crops in the United Provinces and General Principles of bacterial and virus diseases.

The structure and life-histories of fungi causing important diseases of crops ; the nature and effect of the parasitism ; the mode of infection ; the principles and methods of treatment and control ; the economic aspects of the disease ; a knowledge of any important or recent work done in connection with the fungi studied. A knowledge of the more important symptoms and effects of bacterial and virus diseases.

- (ii) Metabolism in Plants :—

Synthesis of Carbon by green and non-green plants, including the mechanism of photosynthesis ; nitrogen assimilation by green and non-green plants ; the general relation of photosynthesis to Agriculture ; a detailed knowledge of aerobic and anaerobic respiration in plants including the study of oxidising enzymes ; the mechanism of respiration.

Group B. Thesis.

The thesis may be on a problem in Mycology, Plant Pathology, Cytology of Fungi or Plant Physiology.

Thesis	...	250	}	...	300	Marks.
<i>Viva Voce</i>	...	50				

There will be four papers :—

Paper I.—Gymnosperms and Cytology ... 100 „

Paper II.—Angiosperms and Ecology } 100 „

*Paper III.—Fungous diseases of crops in the U. P. including general principles of bacterial and virus diseases 100 „

Paper IV.—Metabolism in plants ... 100 „

Total ... 400 Marks.

*Candidate will be allowed to submit a thesis in lieu of Papers III and IV. Papers I and II will be in common with Papers IV and V of B. Sc. (Honours) Examination of same year.

Practical Examination.

The examination will deal with representatives of the chief groups of Phanerogams and with the technique connected with their study ; also with the description and the referring of plants and parts of plants of the Angiosperms to their families and their identification with the help of the necessary books.

Microtomy.

Preparations and note-books containing a complete record of laboratory work must be produced at the Practical Examination.

Marks will be allotted as follows :—

Phanerogams, microtomy	}	... 200 Marks.
and class record ... 100		
Fungous diseases and metabolism in plants ... 100		

Section II.

For candidates who appear in the M. Sc. (Final) Examination after passing the B. Sc. (Hons.) Examination :—

A candidate shall select, subject to the approval of the Head of the Department, either group A or group B as given below :—

Group A (i) Special Paper :—Fungous diseases of crops in the United Provinces and General Principles of bacterial and virus diseases.

The structure and life-histories of fungi causing important diseases of crops ; the nature and effect of the parasitism ; the mode of infection ; the principles and methods of treatment and control ; the economic aspects of the disease ; a knowledge of any important or recent work done in connection with the fungi studied. A knowledge of the more important symptoms and effects of bacterial and virus diseases.

(ii) *Thesis* :—The thesis will be on a problem in Mycology, Plant Pathology or Cytology of Fungi. This thesis will have to be of a higher standard than the thesis under Section I.

Marks will be allotted as follows : --

Special Paper :—	(This will be				
	in common				
	with Paper				
	III under				
	Section I) ...	100			
Practical		50			
Thesis		400			
<i>Viva Voce</i> on the thesis	50		450		
					600 Marks.

Group B.

(i) Special Paper : -- Metabolism in Plants.

Synthesis of Carbon of green and non-green plants, including the mechanism of photosynthesis ; nitrogen assimilation by green and non-green plants ; the general relation of photosynthesis to Agriculture ; a detailed knowledge of ærobie and anærobie respiration in plants, including the study of oxidising enzymes ; the mechanism respiration.

(ii) Thesis :—The thesis will be on a problem in Plant Physiology.

This thesis will have to be of a higher standard than the thesis under Section I.

Marks will be allotted as follows :—

Special Paper .—	(This will be				
	in common with				
	Paper IV under				
	Section I) ...	100			
Practical		50			
Thesis		400			
<i>Viva Voce</i> on the thesis	50		450		
					600 Marks.

DOCTOR OF PHILOSOPHY.

(See Ordinances in Chapter XXXVIII-D, pp. 41—48.

DOCTOR OF SCIENCE.

(See Ordinances in Chapter XXXVIII-E,
vide p. 48—54.)

B. Sc. (A. G.) EXAMINATION.

1. Every candidate shall be required to pass in the following subjects :—
 1. Agricultural Economics, Agricultural Engineering, Farm Crops and Agricultural Chemistry.
 2. Biological Sciences.
- and 3 any one of the following subjects :—
 - (a) Agronomy.
 - (b) Pomology.
 - (c) Animal Husbandry and Dairying.

N. B.—Candidates offering subjects mentioned in 1, 2 and 3(c) will be exempted from Paper II (Entomology) and Practical Examination in Entomology.

2. Candidates must obtain the minimum pass marks in each practical examination as well as in each theory paper. Candidates must also be prepared to submit to the examiners concerned all their note-books of practical and field studies.

AGRICULTURAL AND RURAL ECONOMICS, AGRICULTURAL
ENGINEERING, FARM CROPS AND AGRICULTURAL
CHEMISTRY.

1. *Agricultural and Rural Economics.*

- (a) Definitions ; farming as a business, a biological science, as a method of life ; how it differs from manufacturing and industrial business ; types of farming ; mixed, grain, cattle-breeding, fruit, vegetable, extensive, intensive ; capital requirements ; location ; marketing, local and international ; organisation of different types of farms ; effect of price variation on different types of crops ; cycles.
- (b) Land ; land improvement and development ; economic holdings under different conditions.
- (c) Relation and importance to farmer of public utilities and community enterprises, roads, railroads, canals, irrigation, power lines, rural sanitation, public health, education facilities ; population problems as they affect the farmer ; economic effect of shortness or longness of life of the individual ; economics of and conditions for, the use of power machinery.

- (d) Land laws of the U. P. ; system of tenure ; effect of system of tenure on landlord and tenant ; land records and papers ; estate management in the U. P. ; the part legislation can take in the improvement of rural conditions, *e. g.*, compulsory consolidation of fragmented and scattered holdings ; the Taqavi system and other forms of agricultural credit ; methods and schemes to improve relations between landlord and tenant ; rural taxes.
- (e) Agricultural geography with special reference to the United Provinces ; agricultural statistics with special reference to the United Provinces.
- (f) The state and agriculture ; functions and organisation of the United Provinces Department of Agriculture ; state assistance to the science, craft, and economics of agriculture ; the Agricultural Research Council and its relation to the farmer of the United Provinces ; voluntary organisations for the improvement of rural life and agriculture ; development of village industries subsidiary to farming ; cottage industries.
- (g) Farm book-keeping and accounts : classification of accounts ; principles of the double

entry system and their application ; forms and uses of journal and ledger ; opening, posting and closing ledger accounts ; drawing up a trial balance : profit and loss account and balance sheet ; appreciation and depreciation of live and dead stock ; land and buildings ; plant and machinery ; interest ; bad debts ; reserve and sinking funds ; depreciation and good will.

Preparation of trading and profit and loss accounts ; provision for discounts and doubtful debts ; suspense accounts ; crop accounts ; labour accounts and analysis of wages ; closing up farm and dairy accounts ; drawing up a balance sheet.

BOOKS RECOMMENDED.

O'BRIEN . Agricultural Economics, Longmans, Green & Co.

VANCE : Human Factors in Cotton Culture. Univ. of North Carolina Press, Chapel Hill, N. Car., U. S. A.

Second International Conference of Agricultural Economists held at Cornell University, U. S. A. Collegiate Press, George Banta Pub. Co., Mensaha, Wis., U. S. A.

Year Book of Agriculture, U. S. A. U. S. Dept. of Agriculture, Washington, D. C., U. S. A.

Publications of the Empire Marketing Board. London.

Report of the Royal Commission on Agriculture.
Government Press, Calcutta.

Agricultural Statistics. International Institute of
Agriculture, Rome.

2. *Agricultural Engineering.*

- (a) Farm machinery : implements and machines used in tillage and cultivation, description, uses and adjustments ; comparison of indigenous and imported implements ; effect of different implements on the soil ; simple discussion of design to guide students in selecting of implements and machines ; materials used in construction ; depreciation and working life as determined by wear and obsolescence ; working costs ; machines other than cultivation, such as harvesting and feed preparing, to be treated in the same way ; pumps and water lifting machinery, kinds, selection, testing ; practice in dismantling, repair and erection ; testing rate of working.
- (b) Power for farm work : working principles of internal combustion engines, stationary and tractor ; electric motors and water power applied to farm work ; comparative merits of various forms of power including animal

power ; application of power to cultivation, hauling, cane crushing, threshing, chaff cutting, water lifting and feed grinding ; use, care and upkeep of farm engines.

- (c) Farm buildings : materials and their economic utilisation, properties and adaptability ; simple calculations of strength of building members ; planning, design and construction methods for dwellings, barns, sheds, stores, silos, roads and culverts : drawing of floor plans, sections and elevations as simple sketches ; reading engineer's plans ; domestic water supply and sanitation, including sewage disposal and ventilation.
- (d) Simple surveying with plane table, prismatic compass, ranging poles and chain for mapping and measuring areas ; making maps or plans of fields and determining areas ; recording data in field books and plotting results ; running levels for drains and ditches ; simple contour mapping and laying out irrigation and drainage systems on such maps ; designing and calculating costs of irrigation and drainage systems, terraces and soil saving dams.

PRACTICAL COURSE.

The scope of the practical work is indicated by the syllabus.

BOOKS RECOMMENDED.

SMITH : Farm Machinery. McGraw-Hill Book Co.

DAVIDSON AND CHASE : Farm Machinery and Farm Motors. Orange Judd Publishing Co., New York.

CRAWSHAW AND LEHMANN : Farm Mechanics. Manual Arts Press, Pioria, Illinois, U. S. A.

3. *Farm Crops.*

- (a) Cropping schemes : principles underlying the rotation of crops ; soil, climatic and economic factors determining cropping systems, with special reference to the United Provinces ; cropping schemes for the following classes of farming : mixed arable, intensive, extensive, dairy, and stock ; crops adapted to acid and alkali soils ; cropping schemes for different sections of the United Provinces.
- (b) Major crops of the United Provinces : distribution of crops ; acreage of wheat, barley, rice, bajra, cotton, linseed, mustard, arhar, gram, sugar cane, potatoes and tobacco ; improved varieties.
- (c) Cultural methods : seed rates, average yields, water requirements, and manuring of the major crops ; common and improved thods.

BOOKS RECOMMENDED.

HOWARD AND HOWARD : The Application of Science to Crop-Production. Oxford University Press.

ROBERTS AND FAULKNER : A Text-Book of Punjab Agriculture. Civil and Military Gazette Press, Lahore.

4. *Agricultural Chemistry.*

- (a) Detailed study of carbohydrates, pentoses, sucrose, dextrose, maltose, lactose and cellulose.
- (b) General study of dextrin, oils and fats, gallic acid, quinine, glucosides, terpenes, amino acids and proteins.
- (c) Elementary study of pH ; enzyme action ; colloids ; fermentation ; constituents and available energy values of milk and other foods ; vitamins ; analysis of the chief constituents of foods ; the chief chemical constituents of plants and animals, their distribution and function ; analysis of the main constituents of plants ; chemistry of plant growth.
- (d) Soil constituents ; soil colloids ; water and its effect on the soil ; water analysis ; plant

foods and poisons in the soil ; humification of soils ; the chemical aspects of the nitrogen cycle ; comparison of soil deficiencies in phosphorus and nitrogen.

- (e) Manures ; their composition, analysis, and evaluation ; composting ; commercial fertilizers.
- (f) Principles of qualitative analysis of mixtures containing not more than two positive and two negative ions.

PRACTICAL COURSE.

- (a) Qualitative organic identification ; tests for carbohydrates, glycerine, fats, proteins ethyl alcohol, oxalic acid, citric acid, tartaric acid.
- (b) Quantitative analysis ; general principles of gravimetric and volumetric analysis ; methods of sampling ; estimation of iron, aluminium, calcium, chloride, sulphate, phosphate and carbonate ; preparation and standardization of standard solutions.
- (c) Feeds and plant materials ; estimation of moisture, ash, fat, protein, carbohydrates.

- (d) Fats and oils ; chemical and physical constants ; specific gravity, iodine value, saponification value, Reichert-Missl value.
- (e) Milk analysis : density, fat, total solids, ash.
- (f) Soils and fertilizers ; estimation of total and available phosphate, nitrogen, and potassium ; soil acidity ; qualitative examination of soils.
- (g) Water analysis ; examination of irrigation water.
- (h) Simple experiment to illustrate enzyme action

BOOKS RECOMMENDED.

WILLIAMS : Introduction to Bio-Chemistry. D. Van Nostrand Co, New York.

INGLE : Manual of Agricultural Chemistry. Ernest Benn Lt., London (1933.)

MAHIN AND CARR : Quantitive Agricultural Analysis. McGraw-Hill Book Co., New York.

PLIMMER : Practical Organic and Bio-Chemistry. Longmans, Green & Co., London.

HAAS and HILL : Chemistry of Plant Products. Longmans, Green & Co, London.

RUSSEL : Soil Condition and Plant Growth.

LING : Dairy Chemistry. Chapman and Hall, London.

WILEY : Agricultural Analysis.

The marks will be allotted as follows :—

Paper I—Agricultural and Rural Economics ... 50

Paper II—Agricultural Engineering and Farm
Crops 50

Practical in Agricultural Engineer-
ing 60

Paper III—Agricultural Chemistry ... 50

Practical in Agricultural Chemistry, 40

BIOLOGICAL SCIENCES.

1. *Agricultural Botany.*

(a) General principles of biology, including the theory of evolution.

(b) General classification of plants, relation of natural floras to agriculture and agricultural practice. A knowledge of the following families will be required :—
Rutaceae, Anacardiaceae, Umbelliferæ
Papaverceae, Convolvulaceae.

(c) Plant physiology, with special reference to the influence of environmental factors as requirements for and determinents of crop plant development.

(1) The soil solution in relation to plant growth.

(2) Ascent of sap and transpiration in relation to the intake of materials from the soil.

- (3) Reserve food materials in plants.
- (4) Influence of climatic factors on plant development.
- (5) Toxicity and toxic substances in the soil with special reference to crop plant development.
- (6) Soil factors determining productivity.
- (7) Causes and effects of soil reaction, with particular reference to "acid" and "alkali" soils.
- (8) The nature of the more common fertilizers and manures; their effect on soil and plant.

PRACTICAL COURSE.

- (a) Study of the following families: Rutaceae, Anacardeaceae, Umbelliferae, Papaveraceae, Convolvulaceae.
- (b) Experiments to demonstrate the main facts of plant physiology.
- (c) Microchemical tests for the more important plant constituents.
- (d) Pot and water cultures.
- (e) Weeds: recognition, methods of control.

BOOKS RECOMMENDED.

PALLADIN : Plant Physiology. Translation by Livingstone. Blakeston.

HOLMAN AND ROBBINS : Text-book of Botany for Universities and Colleges. John Wiley and Sons.

ROBBINS : Botany of Crop Plants. Blakeston.

KENOYER : Weeds of Gwalior and Adjacent Parts of India. Gwalior Department of Agriculture.

2. *Entomology.*

(a) A brief account of the phyla of the Animal Kingdom ; a general survey and classification of the phylum Arthropoda, and of Class Hexapoda, with special reference to insects of economic importance.

(b) The surface anatomy of the grasshopper, butterfly, beetle and plant bug ; anatomy of the grasshopper and butterfly.

(c) General physiology of insects.

(d) Survey of insects of economic importance in the U. P. ; those attacking plants, fruits, grains in storage, wood, and animals ; disease carriers ; insectivorous, insects ; productive insects (bees, silkworms, lac insects) ; pollinators.

- (e) General life history of insects ; the following types of life history in more detail : grasshopper (Orthoptera), moth (Lepidoptera), aphid (Hemiptera), lady bird beetle (Coleoptera), mosquito (Diptera).
- (f) General ecology of insects ; influence of environment on distribution, periodicity, abundance and activities.
- (g) Methods of control of harmful insects ; control in nature by other insects, birds and other animals ; control by man : spraying, poisoning, biological control, and other methods.

PRACTICAL COURSE.

- (a) Examination and dissection of grasshopper, butterfly, and a plant bug : external features of a beetle and a fly.
- (b) Rearing and study of an insect of economic importance through its life-history.
- (c) Collecting, pinning and naming of 100 species of insects.
- (d) Field study of habits, life histories and economic importance of major local insect pests.

- (e) Study of control methods in the field ; preparation and use of the following insecticides : lead arsenate, Paris green, nicotine solutions, oil emulsions.

LEFROY : Indian Insect Life Thacker, Spink and Co., Calcutta.

LEFROY : Indian Insect Pests. Government Press, Calcutta.

IMMS : Text-book of Entomology. Methuen & Co., London.

COMSTOCK : Text-book of Entomology. Comstock Publishing Co., Ithaca, N. Y., U. S. A.

3. *Plant Pathology.*

- (a) Principles of plant pathology ; nature of disease in plants ; chief disease-inciting factors, external and internal.
- (b) Nature of fungi ; study of the important members of the following classes of fungi : Phycomycetes, Ascomycetes, fungi imperfecti, Hemibasidiomycetes, Protobasidiomycetes.
- (c) General classification, dissemination, principles and methods of control of major diseases of fruit, farm and vegetable crops of the U. P., to include the following :—White rust of cruciferae, Cystopus ; downy mildew, Peronospora ; blight and damp-

ing off, *Phytophthora*, *Pythium* ; leaf curl, *Exoascus* ; powdery mildews, *Erysiphaceae* ; sooty moulds, *Capnodium*, *Meliola* ; canker, *Nectria* ; smuts and bunts, *Ustilaginaceae* and *Tilletiaceae* ; rusts, *Puccinia* ; leaf spots, *Phyllosticta*, *Phoma*, *Cercospora*, *Alternaria* ; red rot of sugar cane, *Collectotrichum falcatum* ; wilts and rots, *Fusarium*, *Penicillium* ; mosaic disease

- (d) Study of *Orobanche*, *Cuscuta*, *Loranthus* and lichens.

PRACTICAL COURSE.

- (a) Collection and examination of the diseases listed in (c) of the theoretical course.
 (b) Preparation of cultural media : potato-mush agar, Brown's synthetic medium.
 (c) Preparation of cultures and slides.

BOOKS RECOMMENDED

HEALD : Principles of Plant Pathology.

BUTLER : Fungi in Relation to Diseases in Plants.
 Thacker, Spink and Co., Calcutta.

OWENS Principles of Plant Pathology. 1928. John Wiley & Sons, Inc.

4. *Bacteriology.*

- (a) Relation of bacteria to their environment ;
 bacteriology in relation to agriculture ;

bacteria of water, soil, and food (including milk).

- (b) Form, structure and movement of bacteria.
- (c) Physiology of bacteria in relation to production of colour, light, heat, putrefaction, fermentation, sterilization, pasteurization, pathogenic activity.

PRACTICAL COURSE.

- (a) Familiarity with apparatus, instruments and laboratory rules.
- (b) Preparation of culture media : bouillon, nutrient agar, litmus milk.
- (c) Bacterial counts from air, water and milk.
- (d) Examination of cultures, forms of colonies, and isolation.
- (e) Staining of bacteria : methylene blue, Gram's method of staining.
- (f) Microscopic examination and measuring of bacteria.

Candidates must be prepared to submit to the examiner all their permanent slides and practical note-books.

BOOKS RECOMMENDED.

CONN : General Bacteriology. Macmillan.

MARSHALL : Microbiology. Blakeston.

5. *Plant Breeding.*

- (a) Variation, heredity and selection with reference to plant improvement.

- (b) Variation : nature and amount ; fluctuating variation and mutation.
- (c) Heredity ; inheritance of morphological and physiological characters.
- (d) Selection and fixation of new forms.
- (e) Mendelism, hybridisation ; technique and experimental methods.

PRACTICAL COURSE.

Technique of cross-pollination : emasculation, bagging, etc. Records should be kept giving complete descriptions of parents and offspring.

BOOKS RECOMMENDED.

JONES : Genetics in Relation to Plant and Animal Improvement. John Wiley and Sons.

BABCOCK AND CLAUSEN : Genetics in Relation to Agriculture. McGraw—Hill Book Co.

The marks will be allotted as follows :—

Paper I.—Agricultural Botany and Plant Breed-			
ing	...	...	50
Practical examination	...	...	50
Paper II.—Entomology	...	...	50
Practical examination	...	...	50
Paper III.—Plant Pathology and Bacteriology	...	...	50
Practical examination	...	...	50

3. (a) AGRONOMY.

1. *Forage Crops.*

History, classification, adaptation, culture and utilization of the important forage crops.

2. *Cereals*

History, agronomic characteristics of varieties, classification, culture, improvement, and utilization of the following :—Wheat, barley, oats, rice, sorghum, millet, maize.

3. *Miscellaneous Crops.*

History, classification, adaptation, culture and utilization of the following : fibre crops (cotton, sunn), sugar cane, potato, tobacco, pulses, ground nut, oilseeds (castor, linseed, mustard), root crops (carrot, beet, turnip, sweet potato).

4. *Farm Management.*

(a) Systems of farming : specialized and diversified, extensive and intensive ; factors determining selection of farm ; size of farm ; location of farm buildings ; layout of the farm ; choice and management of livestock ; cropping systems ; calendar of operations ; soil management ; irrigation : terminology, revenue, calculations.

(b) Management of labour and work stock ; factors affecting farm profits ; farm income ; capital and requirements ; marketing methods.

(c) Farm book-keeping and records ; cost accounting.

PRACTICAL COURSE.

The scope of the practical work is indicated by the syllabus.

BOOKS RECOMMENDED.

HUTCHESON AND WOLFE : The Production of Field Crops. McGraw—Hill Book Co.

The marks will be allotted as follows : —

Paper I.	Forage crops and Cereals	...	...	60
Paper II.	Miscellaneous crops	...	...	60
	Practical examination on Forage Crops, and Miscellaneous crops		...	70
Paper III.	Farm Management	...	...	60

3 (b) POMOLOGY.

1. *Principles of Fruit Production (1)*

(a) Introduction : opportunities of developing fruit production in the U. P. ; economic advantages ; value of fruit in the diet ; fruit on the general farm, and as a speciality.

- (b) Selection of site : soil and climatic requirements ; water supply ; labour ; markets ; transportation,
- (c) Preliminary operations : laying out farm ; grading ; irrigation system ; fencing and hedging ; windbreaks.
- (d) Propagation : seedlings ; selection of seed ; seedbed management ; nursery practices ; vegetative propagation : (advantages, methods, cuttings, layering, air-layering, grafting, budding) ; stocks : influence on scion, compatibility, desirable characteristics.
- (e) Planting : systems ; spacing of plants ; laying out of orchard ; preparing nursery plants ; transplanting ; securing plants from commercial nurseries.
- (f) Cultivation : objects ; importance ; methods and tools ; inter-cropping young orchards.
- (g) Irrigation : necessity : time ; methods : furrow, basin.
- (h) Manures : value ; kinds ; methods of applying ; green manures ; effect on bearing.

2. *Principles of Fruit Production (2).*

- (a) Pruning : purposes ; time ; systems ; methods and tools ; treatment of wounds ; root pruning.
- (b) Pests : common diseases and insect pests ; programme for orchard hygiene : spraying, dusting, fumigation, clean culture, pruning, biological control, resistant varieties ; bird and animal pests and their control.
- (c) Thinning : purposes , method.
- (d) Problems of alternate bearing : causes ; control.
- (e) Harvesting : time ; methods.
- (f) Marketing : grading ; packing ; types of package ; shipping ; methods of wholesale and retail selling ; co operative marketing.
- (g) Horticultural products : drying ; canning ; jam and jelly ; pickles ; sauce ; Indian pickles and preserves.
- (h) History and literature of horticulture ; history of fruit growing ; origin of cultivated fruits ; standard books ; horticultural journals.

3. *Tropical and Sub-tropical Fruits.*

Each of the following fruits to be studied with reference to the various subjects considered in the sections, "Principles of Fruit Production", with emphasis on departures from ordinary practice. In addition, the botanical classification and important varieties to be studied. Mango; santra; sweet orange; pomelo; lime, lemon; other citrus fruits; guava; other members of the family myrtaceal, custard apple; other Anonas; papaya (including papain production), litchi; pomegranate; jujube; fig; date; sapodilla; loquat; banana; pineapple; phalsa; *aonla* (*Phyllanthus emblica*); carambola; persimmon; grape; mulberry; peach; pear; plum; apple.

PRACTICAL COURSE.

The scope of the practical work is indicated by the syllabus.

BOOKS RECOMMENDED.

POPENOE: Manual of Tropical and Sub-tropical Fruits.
Macmillan.

FIRMINGER: Manual of Gardening for India, 6th ed.
edited by W. Burns. Thacker, Spink and Co.,
Calcutta.

GARDNER, BRADFORD & HOOKER: Orcharding. McGraw—
Hill Book Co.

CHANDLER : Fruit Growing. Houghton Mifflin Co.

HUME : The Cultivation of Citrus Fruits. Macmillan.

CRUESS : Commercial Fruit and Vegetable Products.

McGraw—Hill Book Co.

The marks will be allotted as follows :—

Paper I.—Principles of Fruit Production (1) ... 60

Paper II.—Principles of Fruit Production (2) ... 60

Paper III.—Tropical and Sub-tropical Fruits ... 60

Practical examination : Principles of Fruit
Production (1) and (2) ; Tropical and
Sub-tropical Fruits ... 70

3 (c). ANIMAL HUSBANDRY AND DAIRYING

1. *Dairy Cattle and Milk Production.*

Breeds of dairy cattle ; calf raising ; care and management of the herd ; feeding for milk production ; characteristics of common feeds ; feeding standards ; calculation of rations ; records ; handling, feeding, and milking cows.

PRACTICAL COURSE.

(a) Identification and preparation of feeds and fodders.

(b) Handling animals.

(c) Feeding and milking.

(d) Keeping of records,

(e) Field observations on forage crops, with notes and records.

2. *Dairy Chemistry.*

Detailed study of the physical, colloidal, and chemical properties of milk and dairy products.

PRACTICAL COURSE.

Qualitative and quantitative analysis of milk ; detection of adulterants ; determination of physical and chemical constants of butter fat ; quantitative analysis of condensed milk, milk powders, and ice cream ; preparation of standard solutions ; calibration of glass-ware.

3. *Animal Breeding.*

The application of the principles of heredity to the breeding of farm animals, cattle, horses, sheep, swine, poultry ; the origin of the breeds of farm animals.

2. *Veterinary Hygiene.*

(a) Elementary anatomy and physiology of the cow, ox and horse ; muscles which are used in work ; description and importance.

(b) Construction and hygiene of stables for sick and pregnant animals ; ventilation and drainage ; requirements in food and water.

- (c) Causes and general measures of prevention of infectious and contagious diseases.
- (d) Description, diagnosis, remedies and prevention of the following :—
Anthrax ; foot and mouth disease ; rinderpest ; black quarter ; cow pox ; tick fever ; haemorrhagic septicaemia ; rheumatism ; tympanitis ; impaction of rumen ; indigestion ; gastritis ; diarrhoea ; pneumonia ; tuberculosis ; simple ailments.
- (e) Simple surgery : treatment of simple wounds, tumours, abscesses and sores ; treatment of lameness and injuries ; simple obstetrics, including the more common forms of abnormal parturition ; treatment of diseases accompanying parturition. Symptoms and treatment of diseases of the new born calf.
- (f) Insect pests of cattle : treatment of internal and external parasitic diseases.
- (g) Principles and practice of shoeing animals.
Throwing animals for purposes of surgical operations.

PRACTICAL COURSE.

- (a) Treatment of simple wounds and ailments.
- (b) Diagnosis and treatment of common diseases.
- (c) Throwing of animals, shoeing, etc.
- (d) Post-mortem examinations.

5. *Dairy Manufactures.*

- (a) History and development of the creamery system of butter manufacture ; dairy equipment ; purchase, receiving and grading of raw material ; detailed study of manufacture of butter ; control of quality and composition of butter ; storage and marketing of butter ; butter standards
- (b) Methods of *ghee* manufacture.
- (c) Ice cream : history and extent of ice cream industry ; ice cream as a food and as a confection ; ingredients, composition and source ; standards, classifications, formulae ; calculating of mixes ; mixing ; pasteurising ; cooling and aging ; freezing ; hardening ; over-run and swell ; ice cream cabinets ; judging ice cream ; fancy ice cream, sherbets and ices ; business management.
- (d) *Dahi*, sweets, and cheese ; handling and processing milk for *dahi*, sweets and cheese manufacture ; tests to determine milk quality ; details of commercial manufacture of Cheddar cheese and soft cheeses.

PRACTICAL COURSE.

The range of practical work is indicated by the syllabus

6. *Factory Management.*

Correspondence ; advertising ; accounting ; sales management ; organisation and construction of factories

7. *Market Milk.*

(a) Clean milk production ; care and operation of milking machines ; organisation of milk control ; commercial classes of milk ; milk standards and legislation ; city milk inspection ; milk scoring and educational contests and campaigns ; milk marketing organisations ; transportation of milk ; pasteurisation ; standardisation and classification of market milk ; city milk plant construction, equipment, and operation ; retail distribution of milk and handling of surplus ; practice in judging milk by various tests used in factory control.

(b) Construction of various makes of cream separators ; experiments to determine factors which affect capacity, creaming coefficient, and percentage of fat in the cream.

BOOKS RECOMMENDED.

MORRISON, F. B. : Feeds and Feeding. The Morrison Publishing Co., Ithaca, N. Y.

VANSLYKE : Modern Methods of Testing Milk Products. Orange Judd.

PLUMB : Judging Farm Animals. Orange Judd.

EOKLES : Dairy Cattle and Milk Production. Macmillan.

PALMER : Laboratory Experiments in Dairy Chemistry.

John Willey and Sons, N. Y.

RICHMOND : Dairy Chemistry. C. Griffin and Co., London.

FARRINGTON & WOLL : Testing Milk. Mendola Book Co., Madison, Wis., U. S. A.

HEINMAN : Milk. Oslen Publishing Co., Milwaukee, Wis., U. S. A.

WINTER : Animal Breeding. John Wiley and Sons, N. Y.

MACKOY & LARSEN : Principles and Practices of Buttermaking. Oslen Publishing Co., Milwaukee, Wis., U. S. A.

HUNZIKER : The Butter Industry. Published by the Author, Director, Research Laboratory, Blue Valley Creamery Co., Chicago, Ill., U. S. A.

TURNBOW & RAFFERTS : Ice Cream. Oslen Publishing Co., Milwaukee, Wis., U. S. A.

BOWMAN : Dairy Engineering. Oslen Publishing Co., Milwaukee, Wis., U. S. A.

MORTENSEN : Management of Milk Plants. Oslen Publishing Co., Milwaukee, Wis., U. S. A.

KELLEY & CLEMENTS : Market Milk. Oslen Publishing Co., Milwaukee, Wis., U. S. A.

HAMMER. Dairy Bacteriology. Oslen Publishing Co., Milwaukee Wis., U. S. A.

Associates of ROGERS : Fundamentals of Dairy Science. Chemical Catalog Co., Inc., N. Y.

ECKLES, COMBS & MACY : Milk and Dairy Products: McGraw-Hill Book Co.

PARKER : City Milk Supply

VANSLYKE. Cheese. Orange Judd.

The Marks will be allotted as follows :—

Paper I.—Dairy Cattle and Milk Production, Dairy Chemistry	...	..	50
Practical Examination	..	...	60
Paper II.—Principles of Animal Breeding and Veterinary Hygiene	...	...	45
Paper III.—Dairy Manufacture	...	...	65
Practical examination 1	...	...	45
Practical examination 2	...	...	45
Paper IV.—Factory Management, Market Milk	...	...	40

BACHELOR OF LAWS EXAMINATION.

The following Text-books and Acts are recommended :—

(a) For the Previous Examination.

(i) Roman Law

HADLEY : Roman Law.

(ii) (a) The Law of

Contracts, except the Law of Partnership.

(i) CARTER : Contracts.

(ii) POLLOCK AND MULLA :
Indian Contract Act
(IX of 1872) Students' Edition.

(b) Sale of Goods Act.

(Act III of 1930).

(iii) University Selection
of Leading Cases

(iii) The Law of Easements and Torts.

(i) Either POLLOCK :
Torts, or S. Rama
Swamy Iyer's Law
of Torts.

(ii) Mitra, U. N. : Lectures
on Easements.

(iii) The Indian Easements Act (V of 1882).

(iv) University Selection
of Leading Cases.

(iv) The Law of Evidence

(i) RATAN LAL . Evidence Act.

(ii) Cockle's Cases.

- (iii) University Selection
of Leading Cases.
- (v) Criminal Law and Procedure. (i) RATAN LAL : Indian Penal Code, Students' Edition.*
- (ii) Code of Criminal Procedure (New).
- (iii) SABONADIERE : Trial of Criminal Cases in India.
- (iv) University Selection
of Leading Cases.
- (vi) Constitutional Law and Administrative Law. (i) DICEY : Law of Constitution.
- (ii) Government of India Act, 1935, with all amendments.
- (iii) ILBERT : Parliament (Home Univ. Lib.)

* Candidates will not be required to have a knowledge of the amount of punishment which can be inflicted for any offence.

(iv) 1 Eddy and Louton
on India's Consti-
tutions

or

N. C. Roy—C o n s t i t u t i o n a l
System of
India.

or

Keith's Constitutional
History of India.

(v) C. T. Carr.—on Dele-
gated Legislation.

or

Dr. Robinson on Public
Authorities and
Legal Liabilities for
consultation.

(vii) Hindu Law.

(i) MULLA : Hindu Law

(ii) SIROMNI : Hindu Law,
3rd Ed , Vol. I, Part
II.

(iii) University Selection
of Leading Cases.

(b) For the Final Examination.

- (i) Civil Procedure including Principles of Pleading. The Code of Civil Procedure (omitting Appendices).

MULLA : Commentary on the Civil Procedure Code, (Students' Edition).

WALSH and WEIR :
Pleadings in India.

- Limitation .. The Indian Limitation Act
(omitting the Schedule).

- (ii) The Law relating to Land Tenures, Rent and Revenue. *As to United Provinces—*
Act No. III of 1926
(United Provinces).

Act No. III of 1901 (United Provinces).

Act No. XXII of 1886
(Oudh Rent Act), as amended by Acts IV of 1921 and I of 1923.

BADEN POWELL : Short Account of the Land Revenue and its Administration in British India.

(iii) The Law of Partnership and of Companies.

(i) The Indian Companies Act, 1913.

(ii) Topham's Company Law, with latest amendments.

(iii) The Partnership Act (IX of 1923).

(iv) Muhammedan Law.

(i) **WILSON :** Digest of Anglo-Muhammadan Law. From the beginning or Part II to the end of the book.

(ii) **AMIR ALI :** Student's Hand Book of Muhammadan Law.

(iii) University Selection of Leading Cases.

(v) The Law relating to Transfer of

(i) The Transfer of Property Act (IV of 1882).

Property, etc.

(ii) SIR LAL GOPAL MUKERJI,
Law of Transfer of
Property.

(iii) SNELL: Principles of
Equity—Chapters re-
lating to Mortgages,
i. e., Chapters 20, 21,
22 and 23 of the 20th
edition.

(iv) University Selection of
Leading Cases.

(vi) Equity with special
reference to Trust
and Specific Relief.

(i) The Indian Trusts Act
(No. II of 1882).

(ii) The Specific Relief Act
(No. I of 1877.)

(iii) SNELL: Principles of
Equity—the Chap-
ters on the History
and Maxims of
Equity, on Equit-
able Estates, on
Trusts on Mistake,
on Fraud, Actual
and Constructive,
and on Specific
Performance, *i. e.*,

Chapters 1 to 10
inclusive and
Chapters 29, 30, 31
and 36 of the 20th
edition.

(iv) University Selection
of Leading Cases.

(vii) Jurisprudence in- (i) SALMOND: Jurisprudence.
cluding the new (ii) DUGUIT: Law in the
theories of Prof. Modern State trans-
Leon Duguit. lated with an intro-
duction by Professor
Harold Laski.

(viii) Public Interna- Lawrence's International Law.
tional Law.

Note.—Every Act mentioned in the above list should be under-
stood to mean the Act with all subsequent amendments thereof.

University Selection of Leading Cases.

I.—CONTRACTS.

Henthorn v. Fraser (1892) 2 Ch. 27.

Carlill v. Smoke Ball Co. (1893) I. Q. B., 256.

Mohori Bibee v. Dharmodars Ghose, 30 I. A. 114 ;
I. L. R., 30 Calcutta, 539.

Lalman v. Gauri Dutt, II A. L. J. R. 489.

Derry v. Peek, 14 A. C., 337 (Lord Herschell's
Judgment).

Foster v. Mackinnon, L. R., 4 C. P., 704.

Jamal v. Moolla Dawood and Sons, 43 I. A., 6 ;
I. L. R., 43 Calcutta, 493.

Keighley Maxsted & Co., v. Durant (1901) A. C. 240.

II.—TORTS AND EASEMENTS.

Scott v. Shephard, 2 W. Blackstone, 892 : 96
English Reports, 525.

Lloyd v. Grace Smith & Co. (1912) A. C., 716
(Lord Macnaghten's Judgment).

E. Hulton & Co. v. Jones (1910), A. C., 20.

Abrath v. N. E. Ry. Co., 11 Q. B. D., 440 (Judgment of
Bowen L. J.)

Butterfield v. Forrester, 11 East, 60 ; 103 English
Reports, 926.

Davis v. Mann, 10 M. and W., 546 : 152 English
Reports, 586.

Lumley v. Gye, 2 Ell. and Bl., 216 : 118 English
Reports, 749.

Rylands v. Fletcher, L. R., 1 Exch., 265.

Nichols v. Marsland, L. R., 2 Exch., Division, I.

III.—EVIDENCE.

Legal Remembrancer v. Lalit Mohan Singh, I. L. R., 49
Calcutta, 167.

Bela Rani v. Mahabir Singh, I. L. R., 34 Allahabad, 341.

Balkishen Das v. Legge, I. L. R., 22 Allahabad, 149.

Mohammad Sharif v. Bande Ali, I. L. R., 34 Allahabad, 36.

IV.—CRIMINAL LAW.

R v. Govinda, I. L. R., 1 Bombay, 342

Gauri Lal v. Queen-Empress, I. L. R., 16 Calcutta, 206.

In re Amrita Bazar Patrika Press, I. L. R., 47 Calcutta 190.

Amrita Lal Hazra v. Emperor, I. L. R., 42 Cal., 957.

Q.-E. v. Moss, A. W. N., 1894, p. 23.

Mohd. Husain v. K.-E., 15 Oudh Cases, 321.

Tapti Prasad v. K.-E., 15 A. L. J. R., 590.

V.—HINDU LAW.

Rungama v. Atchama, 4 M. I. A., I: 18 English Reports 600.

Bhoobun Moyee v. Ram Kishore, 10 M. I. A., 279: 19 English Reports, 934.

Pudama Coomari v. Court of Wards, 8 I. A.; 229; I. L. R., 8 Calcutta, 302.

Appoovier v. Rama Subba, 11 M. I. A., 75; 20 English Reports, 6.

Kawal Nain v. Budh Singh, 44 I. A., 159 ; I. L. R., 39 Allahabad, 469 (P. C.)

Brij Narain v. Mangla Prasad, 51 I. A., 139 ; I. L. R., 46 Allahabad, 95.

Hannooman Prasad v. Munraj Koonwaree, 6 M.I.A., 393 ; 19 English Reports, 167.

Buddha v. Laltu, 42 I. A. 208 ; I. L. R., 37 Allahabad, 604.

Ram Chandra v. Vinayak, 41 I. A., 290 ; I. L. R., 42 Calcutta, 384.

Isri Dutt v. Hansbutti, 10 I. A., 150 ; I. L. R., 10 Calcutta, 324.

Ranga Sami v. Nachiappa, 46 I.A., 72 ; I.L.R., 42 Madras, 523.

Sheo Shankar v. Debi Sahai, 30 I.A., 202 ; I. L. R., 25 Allahabad, 468.

VI.—MUHAMMADAN LAW.

Gobind Dayal v. Inayat Ullah, I. L. R., 7 Allahabad, 775.

Ranee Khajooroonnissa v. Musammat Raushan Jehan, 3 I. A., 291 ; I. L. R., 2 Calcutta, 184.

Jafri Begam v. Amir Muhammad Khan, I. L. R., 7 Allahabad, 822.

Hassarat Bibee v. Golam Jafar, (1898) C. W. N., 57.

Habib-ur-Rahman v. Altaf Ali, I. L. R., 48 Calcutta, 866
(P.C.)

Muhammad Junaid v. Aulia Bibi, I. L. R., 42 Allahabad
497.

Fakhr-ud-din v. Kifayat-ul-lah (1910), 7 A. L. J. R.,
1095.

VI.—TRANSFER OF PROPERTY.

Gokal Dass, etc. v. Puranmal, I. L. R., 10 Calcutta, 1035
(P.C.)

Smyth v. Toms (1918) 1 Irish Reports, 338.

Kreglinger v. New Patagonia Meat Company (1914)
A. C. 25 (Lord Haldane's Judgment).

Ramcoomar Kundoo v. McQueen, 11 Bengal L. R. 46
(P.C.)

Webb v. Macpherson, I. L. R., 31 Calcutta, 57 (P.C.)

Krishnabai v. Hari Gobind, I. L. R., 31 Bombay, 15.

VIII.—EQUITY.

Wilmott v. Barber, 15 Ch. Div., 96.

Gopinath v. Kunj Behari Lal, I. L. R., 34 Allahabad
306.

Thorndike v. Hunt, 3 De G. and J., 563, 44 English
Reports, 1386.

Tee v. Ferris, 2 K. and J., 357 : 69 English Reports,
819.

Mussoorie Bank v. Raynor; I.L.R., 4 Allahabad 500,
7 A. C. 321.

Cooper v. Phibbs, L. R., 2 H. L., 149.

MASTER OF LAWS EXAMINATION.

See Ordinances in Chapter XXXIXB, pp. (59-61).

The University does not prescribe any text-books for this Examination. Six subjects must be taken of which four are compulsory and candidates can take any two of the others.

COMPULSORY SUBJECTS.

1. Jurisdiction and Principles of Legislation.
2. Constitutional Law, British and Indian.
3. Equity.
4. Either Hindu Law or Muhammadan Law.

OPTIONAL SUBJECTS.

Any two of the following :—

1. Muhammadan Law, or Hindu Law whichever is not taken as a compulsory subject.
2. The law of contracts.
3. Transfer of immoveable Property and Easements.
4. Roman Law.
5. International Law—Public.
6. International Law—Private.

DOCTOR OF LAWS EXAMINATION.

(See Ordinances in Chapter XXXIX, (pp. 61—62).

There is no examination for this degree.

Candidates must have practised at the bar for at least five years after having either taken the degree of Master of Laws or passed the examination for Honours in law under the regulations in force on or before November 1st, 1905, and must have written an essay approved by the Faculty of Law or by a Committee appointed by it. The essay must be on some subject connected with Law or Jurisprudence.

B. COM. EXAMINATION (PART I.)

**Part I Examination to be taken at the end of
First Year.)**

1.	(a) Commercial and Industrial Organisation	...	...	1 Paper.
	(b) Accountancy	...	...	1 „
	(c) Commercial Law	...	...	1 „
2.	✓(a) Principles of Economics and Public Finance	...	...	1 „
	✓(b) Currency and Banking	...	...	1 „
	(c) Economic and Commercial Geography	...	...	1 „

B. COM. EXAMINATION (PART II).**Part II Examination (to be taken at the end of
Second Year).****1. English—**

General Section	(a) First Paper (same as for B. A.).	1	Paper.
	(b) Second Paper (Do.)	1	„
	(c) <i>Viva Voce</i> on Commercial Subjects...	...	...

2. (a) Statistics 1 Paper.

(b) Economic Development of
U.S.A., Great Britain, Germany
and Japan 1 „

(c) Indian Trade, Industries and
Transport 1 „

3. One of the following Groups:— 2 Papers.

(a) Advanced Accountancy and Auditing.

(b) Advanced Banking and Foreign Exchange,
and Law and Practice of Banking.

(c) Industrial and Commercial Law and Secre-
tariat Work and Practice.

(d) Public Finance and Administration.

- (e) Economics of Transport and Law of Carriage by Railway and Organisation of Transport.
- (f) Life Assurance and Property Assurance.
- (g) Actuarial Science.
- (h) Rural Economics and Co-operation.
- (i) Salesmanship and Advertising.
- (j) Inland and Foreign Trade.

N. B.—To pass, a candidate must obtain 33 per cent. in each subject or group of subjects, and also 40 per cent. in the aggregate. No student will be allowed to take an optional subject in which instruction is not provided.

1. (a) COMMERCIAL AND INDUSTRIAL ORGANISATION.

The nature, constitution and financing of individual entrepreneur organisation, partnership and joint stock company, and the study of each of these forms of organisation from social and economic points of view.

The nature and importance of Memorandum of Association ; Articles of Association ; Prospectus ; Directors' Report. Meeting of Directors and Shareholders. Promotion of Joint Stock Companies and their control, Managing Agents.

Combinations of business organisation.—Trade and Industry combination ; federation, partial and complete consideration.

The organisation of Kartels and Trusts and their effects on labour, producer, consumer, the selling price and the internal organisation of the business units in the Trust organisation.

Organisation of retail houses ; wholesale concerns ; departmental stores and multiple shops.

The Factory system. - The Modern machine system and the effect of its introduction upon labour, production and the organisation of industry. The factory system and the cottage industry. Scientific organisation and management of modern factories. Different forms of wage system.

Books recommended :—

1. HANEY : Business Organisation.
2. DAVAR : Business Organisation.
3. TAYLOR : Shop Management.
4. TAYLOR : Principles of Scientific Management.
5. KIMBAL : Industrial Organisation.
6. HOBSON : Evolution of Modern Capitalism.
7. HIRST : Story of the Trust.
8. DUTTON : Business organisation.

1. (b) ACCOUNTANCY.

Mahajani System of Accounts.

Special Problems in Partnership Accounts.

Company Accounts, including Amalgamation, Absorption and Reconstruction.

Double Account system.

Bank Accounts.

Royalty Accounts, Hire-Purchase Agreement and Instalment System.

Departmental and Branch Accounts.

Depreciation, Reserves, and Sinking Fund (Advanced).

Books recommended :—

CARTER: Advance Accounts.

BATLIBOI: Advance Accounts.

SPICER AND PEGLER: Book-keeping and Accounts.

CROPPER: L. C.: Higher Book-keeping and Accounts.

WILLIAM PICKLES: Accountancy.

1. (c) COMMERCIAL LAW.

(1) The Indian Contract Act (whole).

(2) The Negotiable Instruments (whole).

(3) Outlines of Company Law.

(4) Outlines of the Law of Insurance.

(5) Carriage by land and sea (general principles only).

(6) Sale of Goods Act—Act III of 1930.

(7) The Partnership Act, 1932.

Books recommended :—

TOPHAM : Company Law.

DAVAR : Mercantile Law.

STEVENS : Elements of Mercantile Law.

2. (a) PRINCIPLES OF ECONOMICS AND PUBLIC

FINANCE.

The subject-matter of Economics ; interdependence of its sub-divisions and their logical order. The characteristics of wants and the principles that result from them. The Law of Diminishing Utility. The Law of Demand ; Elasticity of Demand ; the Principles of Equi-marginal Utility and Substitution. The idea of Consumer's surplus, the Conceptions of the Standard of Living and Standard of Life.

Production.—The characteristics of the Factors of Production ; the Agents of Production ; the distinction between the Return of Out-put and Productivity ; the conceptions of Marginal Out-put and Marginal Productivity. The Laws of Production ; Diminishing, Increasing and Constant Costs. The principle of Substitution. The concept of Producer's Surplus. Various forms of Productive Organisations, their relation to the various stages of Economic Development.

The Theory of Exchange ; Price Determination ; (a) general, (b) as applied to commodities produced under monopoly conditions, (c) as applied to commodities

international exchange; and (d) as applied to the Factors of Production.

Public Finance; various kinds. The sources of revenue, various kinds of taxes. Incidence of taxation. Kinds of expenditures. The relativity of the sources of the revenue and the items of expenditure to the unit of government. General principles of public finance. The Indian Tax System: Imperial, Provincial, and Local: Assessment of the above in the light of general principles.

The distribution of Wealth: Share per agent of production; existing inequalities. Remedial Measures through Taxation and public control of industrial undertakings and change in our ideas of life values.

Books recommended :—

MARSHALL: Economics of Industry.

THOMAS: Elements of Economics.

JATHAR AND BERI: Indian Economics, Vols. I and II
(Selected Chapters).

Report of the Indian Taxation Inquiry Committee
(Selected Chapters).

2. (b) CURRENCY AND BANKING.

Money.—The nature of money. Social and economic importance of money. The meaning of the value of money. The theory of the value of money. The kinds of money and the classification of monetary systems.

The quantity of money :—The quantity of bank money ; quantity of common money.

The benefits and dangers of paper money ; over issue ; depreciation ; resumption of specie payments. Banking and currency theories of note issue. Regulation of paper money.

Indian Currency :—The history of Indian Currency from 1835. Principal recommendations of the various committees and commissions. Composition and management of Paper Currency Reserve and Gold Standard Reserve. A gold standard for India

Credit :—The nature and basis of credit. The significance of credit, credit instruments and credit institutions. The various forms of credit and credit instruments and their classifications.

Banking :—The modern financial structure. Functions and economic significance of banking. The nature and functions of savings, commercial and industrial banks. Functions of investment banking institutions :—the function of investigation and analysis of financial institutions ; functions of underwriting and of distribution. Economic significance of investments bankers. Practical operations of the commercial bank :—Incidental services ; analysis of commercial bank loans. Relation between banks in different cities. Loans, deposits and reserves. Commercial banking and the supply of liquid

capital or Currency. Commercial banking and the general economic organisation. Balance-sheet. The organisation of the Bank of England.

*The organisation of banking system in India :—*Mahajans, chettis, shroffs; early joint stock banking, Presidency Banks, the Imperial Bank, the present joint stock banks. Reserve Bank of India. The importance of the foreign exchange banks in India. The financing of domestic trade in India. Clearing and collection of cheques in India.

*The functions of savings institutions :—*Stocks saving banks. Mutual saving banks. Savings department in commercial banks. Indian post office saving banks. The Management of saving institutions. The profit of savings banks.

Books recommended :—

1. KRISHNA KUMAR SHARMA.—Credit and Commerce.
2. MOULTON: Financial Organisation. .
3. WADIA AND JOSHI: Money and Money Market in India.
4. THAKUR: Organised Banking.
5. KRISHNA KUMAR SHARMA.—Indian Money Market.
2. (c) ECONOMIC AND COMMERCIAL GEOGRAPHY.

Each continent to be studied as a whole in broad outline, to be followed by a study of the following countries, in each case considering the main facts of production, industries, nature, extent and possibilities

of trade (internal and external), and communications :—

ASIA : India, Japan, China

EUROPE : United Kingdom, Germany.

NORTH AMERICA : United States, Canada.

SOUTH AMERICA : Argentine, Brazil.

AFRICA : Union of South Africa, East Africa.

AUSTRALASIA : Australia

Books recommended :—

1. B. B. MUKERJEE “An Economic and Commercial Geography of India.”
2. Rutter : Geography of Commerce
3. TAYLOR : World Production and Trade.
4. R. N. DUBEY :—Economic and Commercial Geography.

B. COM. EXAMINATION, PART II

1. *English* :—

Paper I.—An essay on a subject of general interest (same as for B. A.).—Marks 50.

Paper II.—General (same as for B. A.) --Marks 35.

Viva voce. On Commercial Subjects.—Marks 100.

2. (a) *Statistics.*

Statistics.—Its nature and scope, its limitations. Its importance to manufacturers, businessmen, economists, scientists, statesmen and social reformers.

Collection of Data :—Definition of the unit of investigation ; direct and indirect personal investigation, representative data. The Law of Statistical Regularity ; investigations through questionnaires and blank forms ; investigations on the basis of existing documents ; errors in collection of statistics.

A detailed study of the methods of collecting data with special reference to population, foreign trade, inland trade, family budgets, and agricultural statistics.

Classification and Tabulation of Data.—Classification according to attributes and class intervals, single and manifold tabulation, precaution in tabulation.

Averages as types :—Arithmetic average. Weighted average The median. Quartiles, Deciles, the mode, Geometric mean, Harmonic mean. Their relative importance and limitations.

Graphic and diagrammatic methods :—Bar diagrams, surface diagrams. Pictogram, Histogram and Frequency polygons, Curves, Trend and Short period fluctuations, Periodicity.

Construction of simple diagrams representing *data* from Indian industries, trade and commerce, vital statistics, etc.

Index numbers :—Methods of construction, choice of base year, weighted index numbers, index numbers of Saurbeck. Department of Statistics (Calcutta) and of the Department of Labour (Bombay).

Dispersion and Shewness :—Co-efficients of dispersion. Standard Deviation, Measures and Co-efficients of skewness.

Correlation :—Simple method of finding correlation, use of Karl Pearson's co-efficient of correlation. Direct and inverse correlation.

Interpretation of Statistics :—Precautions in interpretation. Errors in interpretation.

Books recommended :—

DODDINGTON, A. L. : Statistics and their Application to Commerce.

SECURIST : Introduction to Statistical methods.

Report of the Indian Economic Inquiry Committee, Vol. I.

D. S. Dubey and S. L. Agarwal—Elementary Statistics.

Bowley and Robertson Committee Report.

2. (b) ECONOMIC DEVELOPMENT (OF U.S.A., GREAT BRITAIN, GERMANY AND JAPAN).

(i) *England (after 1600.*—Agrarian Revolution, Commercial Revolution. Industrial Revolution. Revolution in Transport. Evolution

of Capitalism. Development of banking, Labour movement. State Policy with regard to Commerce, Industry, and Agriculture. Economic effects of the War. Post-war economic problems.

- ii) *Germany (after 1870).*—Re-organisation, Customs Union, Development of modern transport, banking, agriculture, and industry. Commercial expansion. Colonisation. Labour movement. Industrial and Commercial policy. Effects of the War. Post-war economic problems.
- (iii) *United States of America (after 1850).*—Struggle for commercial and economic independence. Advent of the Industrial Revolution. Westward movement. Development of Transport. Economic aspects of the Civil War. Development of industry, agriculture and commerce. Industrial Policy. Recent tendencies of development. Effects of the War.
- (iv) *Japan (after 1850)*—Downfall of Feudalism. Development of agriculture, industry, transport, and commerce. Economic policy of the State Effects of the War. Post-war problems.

Books recommended :—

OGG AND SHARP: Economic Development of
Modern Europe.

FAULKNER: American Economic History.

LEAGUE OF NATIONS: World Economic Survey.

CLIVE DAY: Economic History of Europe.

Do. History of Commerce.

MITSUBISHI: Japanese Trade and Industry.

2. (c) INDIAN TRADE, INDUSTRIES AND TRANSPORT.**(I) Industries.**

- (a) *Agriculture*.—Its development, present position, short-comings and remedies.
- (b) *Large-scale Industries*.—Cotton, jute, iron and steel, paper and pulp, match, sugar, and coal; their growth and present position. State aid to industries and the fiscal policy of the Government.
- (c) *Cottage Industries*.—The principal cottage industries of the country with special reference to U. P. Their present position and future possibilities.

(II) Trade.

- (a) Brief history of the development of India's trade with the world since 1600. The present position. The chief imports, their

countries of origin. The importance of the Indian markets to those countries.

- (b) The chief exports and their destination. Importance of India as a supplier of the various commodities in those markets.
- (c) The importance and nature of the Internal Trade (Inter-Provincial and Coastal).

(III) Transport.

- (a) Railway Transport—Capital and Revenue Expenditure. Combinations. Rates and Fares. Classification Relation with State. Growth of Indian Railways. Indian Railway rates and fares. Classification of Indian Railways. Railway finance.
- (b) History of Modern Road Development in India. Road Finance.
- (c) Water Transport (outlines only). Nature and extent of river and coastal transport in India.
- (d) Possibilities of Commercial Aviation (outlines only).

Books recommended :—

Reports of the Indian Tariff Board on Cotton, Iron and Steel, Paper and Pulp, Match, Sugar and Coal.

Indian Industrial Commission Report.

Fiscal Commission Report.

Review of the Trade of India (latest edition).

R. D. AGARWALA : Sugar Industry and Labour.

VAKIL AND BOSE : Growth of Trade and Industry
in Modern India.

H. R. SONI : Industry and its Problem.

ACWORTH : The Elements of Railway Economics.

D. KNAOP : Outlines of Railway Economics.

SANYAL : Indian Railways.

K. G. FENELON : Economics of Road Transport.

Indian Road Development Committee Report.

Acworth Committee Report.

Jute Enquiry Committee Report.

Industries Reorganisation Committee Report
(U. P.)

3. One of the following Sub-groups :—

(a) ADVANCED ACCOUNTANCY AND AUDITING.

Paper I.—Accountancy.

1. Elements of Cost Accounting :—Elements of
Cost—Stores Control and Record. Labour Control

and Record—Analysis of and Accounting for works and sales expenses—Different methods of allocation of indirect expenses—Different systems of costing.

2. Income-tax Accounts (based on Indian Law).
3. Insurance Accounts.
4. Bankruptcy and Liquidation Accounts.
5. Criticism of Published Accounts.

Books recommended :—

BATLIBOI : Advanced Accounts.

SPIGIER AND PEGLAR : Book-keeping and Accounts

L. R. DICKSEE : Accounting.

CROPPER : Higher Book-keeping and Accounts.

CARTER : Advanced Accounts.

WILLIAM PICKLES.—Accountancy.

Paper II.—Auditing.

The Continuous and the Completed Audit; the Detection of Fraud, Technical Errors and the Errors of Principle. First and subsequent Audit; Verification of Cash, Securities, Stock Sheets and Wages Sheets; Special considerations in different classes of audit; Valuation of fixed and floating assets; Forms of accounts and balance-sheets; Capital and Revenue items; Auditors' certificate; the liabilities of Auditors; the conduct of investigations and the certifying of average profits.

Books recommended :—

1. SPICER AND PEGLAR : Practical Auditing.
2. DICKSEE : Auditing.
3. LANCASTER : Auditing.
4. BATLIBOI : Lectures on Auditing.
5. DE-PAULA : Auditing.
6. CUTFORTH : Audits.
3. (b) ADVANCED BANKING AND FOREIGN EXCHANGE.

*Paper I.—Commercial Banking Operation (Advanced Study:—*Various forms of loans. Difference between loans and discounts : between deposits and notes. Reserve requirements. Nature and composition of reserves and their investments. Centralised and decentralised reserves. Elasticity of bank credit :—Mobility and expansion ; over expansion and contraction A comparative study of the banking systems of India, England, America (U. S. A.), France and Germany, Principles of Government regulations of banking. Clearing systems of India, England and America (U. S. A.).

Commercial banking and ebb and flow of business :—Seasonal and cyclical variations in the demand for funds. Commercial banking and business cycles Financial integration. Causes of the growth of financial integration. Possible dangers of department store

banking. The unification of the banking system. The development of branch banking.

The financial system and the general economic organisation:—Merits and defects of the pecuniary system. The role of finance in modern economic organisation. The dominant position of the financier. The international aspects of financial organisation. The concentration of financial power.

Central Banks.—The Central Bank as currency authority. Relations between the State and the Central Bank, Capital, distribution of profits, reserve fund and liquidation Administration of Central Banks. Note issues and note and banking reserves, Relation between the Central Bank, Commercial Banks and the money market Dealings in gold and foreign exchange, discount, loans and other business. Co-operation between Central Banks. Administration and operation of Reserve Bank of India.

Price:—The price level. Index number. Causes in the changes of price level. Inflation and deflation. Changes of the price level in England and in India from 1860. Probable causes. The economic and social effects of rising prices and of falling prices. Their effects on the trading and agricultural classes in India. Business cycles. Revolution of the pound sterling.—The manipulation of the rate of interest. The rationing of bank loans.

The War and the price level:—The relation between the price-level and the following:—Out-put of gold migration; war debt; treasury bills and treasury notes; Bank money and the price-level.

Books recommended:—

D. R. DEWEY AND M. G. SHUGRUE: Banking and
P. G. WOODRUFF: Banking for Advanced Students,
S. E. THOMAS: The Rise and Growth of Joint Stock
Banking.

WILLIAM AND SHAW: The Theory and Principles of
Central Banking.

J. L. COHEN AND ALICE: The Mortgage Bank,
ESHER Foreign Exchange explained.
SPALDING: Foreign Exchange.

KISCH AND ELKIN.—Central Banks.

MOULTON.—Financial Organisation.

AGGAR —Organised Banking.

SHELDON.—Law and Practice of Banking.

Paper II.—Foreign Exchange:—The basis of foreign exchange. The mechanism and methods of international payments. Functions of foreign exchange banker. Types of bills of exchange. Pars of exchange. The Mint pars and gold specie points in Theory and Practice. Purchasing Power Parity. Analysis of the causes of the fluctuations in the foreign exchanges. The different kinds of bills of exchange. Price relationship of the different kinds of bills of exchange. Foreign exchange

market. Forward exchange. Foreign exchange quotations. The influence of money rates on the exchange market, Banker's long Bills. Import and export credits and the financing of foreign trade with special reference to India, England and U. S. A. Arbitrage. The silver exchange. Dislocation of exchanges. The problem of stabilisation. How to read the foreign exchange articles.

The Law and Practice of Banking.—Functions and duties of the different officers of a bank. Opening of account and the payment of cash against cheques. Banker's advances against produce and securities. Practical operations in connection with endorsements, payment of cheques, crossed cheques and collection of cheques. Laws relating to Bills of Exchange and Promissory Notes.

The Stock Exchange:—Speculative markets. Constitution of the London Stock Exchange. Methods of dealing. The Stock Exchange as an indispensable adjunct of the Banking System. The Indian Stock Exchange Market.

3. (c) INDUSTRIAL AND COMMERCIAL LAW AND

SECRETARIAT WORK AND PRACTICE.

Paper I.—The procedure and administration of companies registered under the Companies' Act from their promotion to their dissolution with special attention to the work of the Secretary and the practice

involved. Business management and office organisation
Division of responsibility General system of control
and internal check. Responsibilities and duties of the
officers of a company. Procedure at meetings and the
law relating thereto. Accounts. Costing. Income-Tax
practice.

Part II.—Industrial and Commercial Law.

- (a) General principles of the law of employers and
workmen. Factory law. Workmen's Com-
pensation and employer's liability. Trade
Unions.
- (b) Law relating to Income-tax Elements of the
Law of Mortgages, Provisions of the Stamp
Act relating to commercial documents.
- (c) Laws relating to Insolvency; Arbitration; Fire
and Marine Insurance; Patents and Trade
Marks.

Books recommended :—

Chartered Institute of Secretaries' Manual.

LEFFINGWELI, W. H. Scientific Office Management.

RUSTAMJI : Company Law.

Indian Acts on Insolvency, Arbitration, Patents and
Designs, Factories, Workmen's Compensation, Trade
Unions, Income-tax, Stamps and Transfer of Property
(Sections on mortgages only).

3. (d) PUBLIC FINANCE ADMINISTRATION.

Paper I.—Administration in India.

The Central Government.

The Provincial Government.

The Indian States.

The Position of India in the Commonwealth.

The Legislatures.

The Judiciary.

The relations of the Provinces to the Central Government.

The Services.

The Army and Defence.

The Police.

Education.

Sanitation, Public Health.

Local Self-Government, District Boards, Municipalities and Panchayatas (With special reference to the administration of local civic services.)

Paper II.—Public Finance with special reference of India.

Scope :—Relation between private and Public Economy.

Expenditure :—Primary and secondary functions. Normal and abnormal, productive and unproductive. Principles of Division of duties between different Governments. Industrial undertakings. Relation to scope of state activities and to distribution of wealth. Canons of Expenditure.

Revenue :—Sources of Revenue—Tax and non-tax
Various kinds of taxes. Canons of taxation and their application to India. Construction of the tax system. Division of resources between different Governments. Shifting and incidence. Reaction on production and distribution of wealth and other effects. The tax burden.

Debt :—Public and Private credit—Funded and unfunded, short and long term. Treasury bills. Relative merits of taxes and loans. Purposes of raising loans and their payment public debt of India. The burden of debt.

Practical problems in connection with the raising of revenue ; assessment, collections and evasion. Income-tax Offices. Land revenue settlement and administration. Customs and excise administration.

Income-tax Accounts. Land Revenue Accounts. Excise Accounts. Customs Accounts.

Municipal tax administration. House taxes, water rates, octrois, and other important taxes.

Books prescribed :—

HOGAN, A. E. : The Government of Great Britain.

KALE : Indian administration.

SHIRRAS : Science of Public Finance.

VAKIL, C. N. : Financial Development in Modern India.

Reforms Enquiry Committee Report.

Report of the Taxation Enquiry Committee

Books Recommended :—

LOWELL, A. L. : Government of England.

MUKERJI, P. : Indian Constitution.

GYAN CHAND : The Financial System of India.

SELIGMAN : Essays of Taxation.

Budget for the current year.

Civil Estimates of the Province.

3. (c) Economics of Transport and Law of Carriage
by Railways and Organisation of Transport.

Paper I.—(a) Economics of Transport.

Organisation. Capital and Expenditure. Gross and Net Receipts. Growth of Passenger Traffic. Passenger Fares. Season Tickets. Excursion Tickets. Goods Rates. Theory of Railway Rates. Rates making in Practice. Maximum and Minimum rates and charges. Special rates. Discrimination. Classification of Goods. Railway Clearing House. State control of Rates. Competition. Traffic Pools. State ownership of Railways. State Guarantees. State control without financial responsibility.

(b) The Law of Carriage by Railway.

The Carriage of goods. The rights and liabilities of the common carrier. The Carriers' Act. Special

contracts of carriage. Owner's Risk Notes. The ordinary conditions of a consignment note. Stoppage in Transit. Through traffic. Rights and liabilities after completion of transit. Rates. Recovery of charges. Animals. Passenger's luggage. Reasonable facilities. Undue preferences.

The carriage of persons. Responsibility for the safety of passengers and others. Negligence and contributory negligence. The contract with the passenger. The ticket and the time table. Through tickets.

Paper II.—Organisation of Transport.

Organisation. Train working—Problems of load and speeds, also timing of trains, arrangement of guards and engine men's turns of duty (rosters and diagrams), train control, supervision of actual running. Signalling. The general principles of signalling. Single and double line working. Station yard and Warehouse operating. Principles of design. Methods of working and tests of efficiency. Rolling stock. Relation of tareweight and capacity. Value of interchangeability, system of distribution. Wagon pooling. Staff—Grading Hours. Wages. Supervision.

Distinction between statistics of the Railway systems and purely local statistics. Tons carried ; ton miles ; wagon-miles ; train-miles ; engine-miles and their derivatives. Similar passenger units. The statistics of the published annual reports. Statistics of the

goods warehouse, the station yard ; the marshalling-yard ; the passenger station, the signal box.

Books recommended :—

ACWORTH : Elements of Railway Economics.

KNOOP, D. : Outlines of Railway Economics.

WILLIAMS, S. C. : The Economics of Railway Transport.

REFLEY : Railroad Problems.

RIPLEY : Railroads, Finance and Organisation.

GHOSE, S. C. : Indian Railway Economics, Parts I—IV.

GHOSE, S. C. : A paper on Railway Economics

T. B. HARE : Practical Railway Operating.

MAJOR F. H. BUDDEN ; Railway Statistics and the Operating Officer (Government of India.).

MOSSOP : Railway Statistics.

ACWORTH : Committee's Report.

Indian Railway Administration Report.

SCHERRINGTON :—Economics of rail transport in Great Britain.

MITCHELL-KIRKNESS : Committee Report (Road-Rail Report.)

SANYAL : Indian Railways.

MEHTA : Indian Railway Rates and Regulation.

SRINIVASAN : Indian Railway Freight Rates.

S. M. LAHIRI : The Law of Carriers (only relevant portions.)

3. (f) LIFE ASSURANCE AND PROPERTY INSURANCE.

PAPER I.—LIFE ASSURANCE.

1. *The Nature and the Use of Life Assurance :—*

Nature of life Assurance and the basic principles underlying it. Family, personal and business use of life assurance. Classification of policies. Term insurance. Ordinary life assurance. Limited payment policies. Endowment and instalment policies. Other leading types of contract.

2. *The Science of Life Assurance :—*

The measurement of risk in life assurance. Fundamental principles underlying rate making. The net single premium. The net level premium. The reserve. The gross premium loading. Surrender value and policy loans. Surplus.

3. *Special forms of life Assurance :—*

Fraternal and Assessment Insurance. Industrial Insurance. Disability Insurance. Group Insurance.

4. *Organisation, Management and Supervision of Legal Reserve Companies :—*

Types of legal reserve companies. Organisation of companies. Life Assurance investments Government supervision of life assurance.

5. *Important Legal Phase of Life Assurance :—*

Legal interpretation of the policy and application.

Insurable interest. The law pertaining to be beneficiary. The law pertaining to assignment of policies. The law pertaining to be agent.

PAPER II. PROPERTY INSURANCE.

1. *Fire Insurance :—*The functions of fire insurance. The policy contract in fire insurance. Parties to the contract. The insured The mortgage clause. Parties to the contract. The company and its organisation. Agency in fire insurances. Description of the property insured. The risk assured under the standard policy. The term of the contract. Renewal and cancellation. Other insurance. Contribution in fire insurance. Provisions of the policy which apply after a loss has occurred. Special agreements endorsed on the policy. The re-insurance reserve. Co-insurance. Fire insurance rating. Re-insurance. The assignment of fire policies. Fire prevention. Government supervision and regulation.

2. *Marine Insurance :—*The development of marine insurance. The organisation and purpose of Lloyd's

Types of policy contracts in marine insurance. The nature of the risk assumed and the perils insured against. The types of losses arising from marine perils. Policy provisions protecting the insurer against fraud, unnecessary loss, and undesirable risks. Special agreements endorsed on marine policies.

Bounding Title and Credit Insurance :—Corporate Suretyships. Title Insurance. Credit Insurance.

Books recommended :—

HUEBNER, S. S. : Life Insurance.

DAWSON, M. M. : The Business of Life Insurance.

DAWSON M. M. : Elements of Life Insurance.

NATHAN WILLEL : Principles and Practice of Life Insurance. Revised by Henry Moir.

HUEBNER, S. S. : Property Insurance.

KITCHEN, F. H. The Principles and Practice of Fire Insurance.

WILLET, A. H. : Economic Theory of Risk and Insurance.

WILSON, A. J. : The Business of Insurance.

YOUNG, T. E. : Insurance

T. DUTT :—Law and Practice of Life Assurance and Provident Insurance in India.

3. (h) RURAL ECONOMICS AND CO-OPERATION.***Paper 1.—Rural Economics.***

Principles of Rural Economics. Economics characteristics of agriculture. Existing conditions of Land, Labour, Capital and Organisation in Indian Agriculture. Land Tenures, Agricultural Improvements. Rural Development—Village Industries. Common life. Encouragement of village Panchayat. District Boards—Functions and Finance. Their place in Rural Development.

Books recommended :—

DARLING : The Punjab Peasant in Prosperity and Debt.

NOURSE : Agricultural Economics.

MUKERJI : Foundations of Indian Economics.

BADEN POWELL : Land Revenue System of British India.

HOWARD ; Crop Production in India.

MUKERJI, R. K. : Rural Economy in India.

CARVER : Principles of Rural Economics.

LEAKE : Bases of Agricultural Practice.

VENN : The Foundations of Agricultural Economics.

JACK : Economic Life of a Bengal District.

SLATER : Some South Indian Villages.

MANN and MANITKAR : Land and Labour in a Deccan Village.

CALVERT : Wealth and Welfare of the Punjab.

AMBEDKAR : The Evolution of Provincial Finance in India (Selected Chapters).

JEVONS, H. S. : Economics of Tenancy Law and Estate Management (Bulletin No. 17, Economics Department, Allahabad University).

DUBEY, D. S. : The Way to Agricultural Progress. U. P. District Board's Act.

Final Report of Agricultural Tribunal of Investigation.

Government Resolution on Land Revenue Policy in India 1902.

The Report of the Taxation Enquiry Committee (Selected Chapters).

The Report of the Agricultural Commission.

Marshall : Economics of Industry.

Thomas : Elements of Economics.

Jather and Beri : Indian Economics, Vols. I and II (Selected Chapters).

Report of the Indian Taxation Inquiry Committee (Selected Chapters).

Paper II.—Co-operation :—The evolution of co-operative movement abroad and in India.

Co-operative Organisation in Europe, U. S. A., Japan and India.

Various forms of co-operative activities in Foreign Countries and India and their degree of success.

Avenues of Further co-operative progress in India.

Books recommended :—

FAY, C. P. : Co-operation at Home and Abroad.

HOLYOAKE, G. J. : History of Co-operation.

HENRY WOLF : People's bank.

K. OGATA : Co-operative Movement in Japan.

Co-operative Movement in U. S. A.

Co-operative Movement in Ireland.

CALVERT : The Law and Principles of Co-operation.

The report of the Meclagan Committee on Indian Co-operation.

DARLING, E. L. : European Co-operation

WOLF, H. : Co-operation in India.

BHATNAGAR, B. G. : Co-operative Organisation in India.

MATHAI, JOHN : Agricultural Co-operation.

3. (i) SALESMANSHIP AND ADVERTISING.

Paper I.—Salesmanship.

1. Preparation of the sales campaign.
2. Contact with the customer.
3. Maintaining relations with the customer.
4. The cultivation of character in the salesman.
5. Organization of the Sales Department of large factory.

Paper II.—Advertising.

1. General Principles and Methods.
2. Science and Art in Advertising.
3. Who pays the cost ?
4. Misleading Advertising.
4. Efficient Advertising.
6. The Advertising man.
7. The Psychology of the buyer.
8. The need of research.
9. Present-day Mediums.
10. Mediums of the Future.
11. Agents.
12. Newspaper Advertising.
13. Supplementary aids to newspaper advertising.
14. Schemes and selling plans.

15. Advertising special sales.
16. Advertising of specific lines.
17. Mail order Advertising.
18. General Advertising.
19. The Technical.
20. Miscellaneous.

Books recommended :—

The Science and Art of Salesmanship by Simon
Rupert Hoover.

Fundamentals of Salesmanship by Morris A. Brisco.

Practical Salesmanships by Nathaniel C. Fowler.

The Social and Economic Problem by George
French.

How to advertise a Retail Store by Albert E.
Edger.

Psychology of Advertising by Dr. Scott.

KLIPPER : Advertising.

3. (j) —INLAND AND FOREIGN TRADE.

Organization of internal and foreign trade. Functions of middlemen. Chambers of Commerce, Consular service, Indent Business. Tariffs, Financing of internal and external trade of the country. Extent of the inter-provincial, coastal, and Foreign Trade.

Paper I.—India and United Kingdom.

Paper II.—Germany, U. S. A. and Japan.

Books recommended :—

LEAGUE OF NATIONS : Review of World Trade.

LEAGUE OF NATIONS : Statistical Year Book.

Review of Trade of India.

EXAMINATION IN FRENCH AND GERMAN

For a Certificate of Proficiency.

FRENCH.

A. Books prescribed for detailed study :—

1. Herbert F. Collins' *French Course for Schools* (Macmillan).

2. *Les Grands Auteurs Français*, by J. R. Chevallier, Pierre Audiât and Ed. Aumeunier, Paris 1933. The following sections :—

Pages 15-23 : Corneille, *Le Cid*.

„ 75-89 : Molière, *Le Bourgeois Gentilhomme*.

„ 100-101 : La Fontaine, *Le Coche et la Mouche*.*

Pages 182 . *La Bruyère, Les Grands et le Peuple*.*

„ 183 : *La Bruyère, Les Paysans*.*

Pages 188-190 : Fénelon, *Lettre à Louis XIV*.

„ 238-246 : Voltaire, *Jeannot et Colin*.*

„ 252-255 : Diderot, *Le Coucou, le Rossignol et l'Âne*.*

„ 281-285 : Beaumarchais, *Le Barbier de Seville*.

Pages	285-289	: Mirabeau, Le Banqueroute.
„	289-290	: Danton, De l'audace.
„	308-310	: Lamartine, L'isolement.
„	325-327	: Victor Hugo, Hymne.
„	328-329	: Victor Hugo, Oceano nox.
„	339	: Théophile Gautier, Dans la Sierra.
„	355-358	: Augustin Thierry, Une villa mérovingienne.*
„	363-371	: Michelet, Jeanne d'Arc
„	421-425	: Lavissee, La Royauté à Versailles.
„	426-427	: Anatole France, Le Courage.*
„	449-451	: André Maurois, Deux chefs d'industrie.
„	452-455	: Jules Romains, Les Rails
„	455-459	: Henri Béraud, Une fête d'athlétisme à Prague

* *Note.*—The selections marked with an asterisk might be taken up in the First Year.

B. Book recommended for general reading :—

La Fontaine—*Fables*. (Longer Fables, Fables, Blackie's edition).

or

Alphonse Daudet—*Lettres de mon moulin*.

GERMAN.

A. Books prescribed for detailed study :—

1. OTTO : *Elementary German Grammar* (Method Gaspey-Otto-Sauer).

- 2 *German Reader*, First Part, by Nathalie Eye,
Published by Julius Groos, Heidelberg,
1932. The following Selections .—

Pages 1-2 : Erde, Sonne, Sternenhimmel. Deutschland, Unser Haus.

Pages 7-10 : Familie, Jahr, Fruehling.

„ 11-13 : Sommer.

„ 15-17 : Herbst.

„ 17-18 : ' In Herbst ' (Eichendorff) .

„ 20-22 : Winter.

„ 42-51 : Frau Holle, Dornroeschen, Rotkaeppchen.

Pages 58-60 : Kyffhaeusersagen.

„ 77-78 : Rheinsage (Gedhicht, E. Geibel).

„ 105 : Der reichste Fuerst.

„ 112-117 : Reineke Fuchs.

„ 119 : Die Lorelei (Heine).

„ 181 : Die Leipziger Schlacht (Arndt).

„ 193-195 . Bei Hindenburg.

„ 242-3 : Deutscher Rat (Reinicke).

B. Book recommended for general reading :—

Goethe : *Wihelm Meister*,

or

Stephan Zweign, *Sternstunden der Menschheit*.

EXAMINATION IN MILITARY SCIENCE

For a Certificate of Proficiency.

MILITARY SCIENCE.

The examination in Military Science will comprise two papers and a Practical examination. Candidates must obtain the minimum pass marks in the Practical examination and in the total of the papers as well as in the aggregate.

The following syllabus is prescribed :—

PAPER I.—Elementary Military Organisation and administration, including the principles of War in History (N. B.) characteristics in fighting troops ; Cavalry, Infantry, Artillery, Aircraft and Tanks and Armoured Cars, Organisation of Fighting troops ; Information, Grounds and Formations. Composition of orders. Field Works.

N. B.—Candidates will be expected to be acquainted with military history of one of the campaigns to be announced beforehand.

PAPER II.—Elementary Military Law, including Indian Army Act, I. T. F. Act, Duties of Company Commander, Platoon Commander. Section Leader ; Courts Martial ; Organisation of U. T. C. Organisation of the Urban Unit of I. T. F., Rules and regulations under I. T. F., Act.

PRACTICAL COURSE.

- (a) Map reading conventional signs, Contours and Co-ordinates.
- (b) Musketry ; Care of Arms ; Firing positions ; Fire orders.
- (c) Ability to instruct a squad in squad drill ; Arms drill and Musketry.
- (d) Ability to command a Platoon in Company drill and in Field Operations, attack, defence, outposts, advance and Rear Guards.

Marks will be allotted as follows :—

MARKS.

1st Paper	...	50	} minimum pass marks 36	
2nd Paper	...	50		
Practical	...	50		15
TOTAL	...	150	„	54

**THE EXAMINATION FOR A DIPLOMA
IN INDIAN MUSIC.**

The following syllabus is recommended in vocal and instrumental music:—

Vocal Music.

Theory—Samgīta, Nāda, Svāra. Śuddha and Vikṛta, Saptaka, Thāta, Rāga, Alamkāra, Aśraya-rāga, Vakra svāra. Pakāḍa, Mātrā, Tāla, Odava, Śāḍava, Sampūrṇa, Pūrvarāga. Vilambita,

Madhya and Druta, Uttarakāga, Sandhi-Prakāśa-rāga, Guṇa-doṣa of the Musician, Śuddha, Chhāyā-laga, and saṅkīrṇa rāgas, Graha, Aṃśa, Nyāsa, Vādī, Samvādī, Anuvādī, Vivādī, Ālāpa, Tāna, Bolatāna, Dhruvapada, Khāyāla, Tappā Thumrī, Tarrānā, Chatu-ranga.

A short history of north Indian Music, reading and writing of Music in simple notation.

Practice—Bilāwala, Yamana, Khamāja, Bhairava, Kāfi. Āsāvārī, Bhairavī, Bhūpālī, Kedārā, Bihāga. Deśā, Tilak Kāmōda, Pūrvī, Māravā, Todī, Vāgīśvarī, Bhīmapālāsī, Vṛndāvēnī Sāranga, Pīlū, Mālakośa, Durgā, Kānarā, Jayajayantī, Bahāra, Multānī, One Saragama, Lakṣaṇagīta or Ālāpa and one classical song in each rāga. The students must have a knowledge of the following Tālas :

Tritala, Ekatāla, Jhaptāla Dādarā, Chautāla, Kaharavā, Dīpachandī, Dhammāra and Tīvrā (Teora).

Instrumental Music.

Theory—Same as for vocal music, and a knowledge of the following :—

Gat, Jhālā, Zamzamā, paran, bōle, tuning of the instruments, etc.

Practice—Students will be required to possess a general knowledge of the rāgas prescribed

for vocal music, but special attention will be paid to the *rāgas* mentioned below. Students will be required to know the system of tuning the instruments and how to effect simple repairs, the name of the important types of musical instruments in India, and easy *saragams* and *gats* in the following *rāgas* :—

1. Bhīmpālasī	7. Deśa
2. Bhūpālī	8. Tilaka-Kāmoda
3. Bhairava	9. Vāgīśvarī
4. Bhairavī	10. Āsāvārī
5. Kāfī	11. Kānarā
6. Bihāga	12. Pīṭh

In Tabala or Pakhawaja, the knowledge of the following *Tālas* with *Thekās* and easy *Parans* will be required :—

1. Tīn Tāla or Tritāla	6. Dādara
2. Kaharavā	7. Dhammāra
3. Ekātāla	8. Dīpachandī
4. Jhapatāla	9. Tivrā (Teorā)
5. Chautāla	10. Sulphāktā

