



**PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)**

(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

## **SYLLABI**

*AND THE*

## **STRUCTURAL OUTLINE**

*FOR*

**B.A. & B.Sc. GENERAL FIRST YEAR EXAMINATION, 2013**

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The admissions to the B.A./B.Sc. (General and Honours) Course (At +3 stage) in the 10+2+3 System of Education for First Year for the session 2012-2013 (2013 examination) shall be as under :

The B.A. (General) programme of study shall consist of **24** credits (each year of 8 credits), each credit having a value of 100 marks. A subject studied for the whole academic year shall carry 2 credits. All the theory papers and practicals, irrespective of their credit value, shall be studied throughout the academic year.

## COMPULSORY

- ## ELECTIVE

- \*\* Environment and Road Safety Education: 70 marks**

### Notes :

1. In subjects having practicals, the theory papers and practicals together will be of 2 credits value. The candidate will have to pass in theory and practical/s separately.
2. Each paper of one credit shall be allocated 3 hours of teaching per week during each academic year. However, for subjects having practicals, three hours of teaching will be allocated to each theory paper and two hours for a practical per week, or as per requirement of the subject concerned.

## ADDITIONAL OPTIONAL

### \*\*\* Introduction to Computer Science

- \* The following categories of the students shall be entitled to take the option of History & Culture of Punjab in lieu of Punjabi as compulsory subject :
- (i) The students who have not studied Punjabi upto class 10<sup>th</sup>.
  - (ii) Wards of/and Defence Personnel and Central Government employee/employees who are transferable on all India basis.
  - (iii) Foreigners.
- \*\* This is a compulsory qualifying paper, which the students have to study in the B.A./B.Sc. 1<sup>st</sup> year. The students are required to qualify this paper either in the 1<sup>st</sup> year/2<sup>nd</sup> year/3<sup>rd</sup> year of the course. The examination will be conducted by the University.
- \*\*\* This is an Additional Optional Subject. The students may clear the examination for this course during their stay of three years in the College. In the case of those who qualify this course, the marks obtained will be mentioned in the Detailed Marks Card, but these marks will not be counted towards the aggregate marks.

(ii) STRUCTURAL OUTLINE : B.A./B.Sc. (GENERAL/HONOURS) DEGREE COURSE FOR FIRST YEAR EXAMINATION, 2013

3. B.A. (General) degree holders shall be eligible for admission to the Master's course in any of the elective subjects studied by them during all the three years of the programme of study, earning six credits in each, provided they fulfil the eligibility conditions.
4. A student would offer any science subject, including Mathematics, only if he has passed that subject in the qualifying examination or qualifies in the subject as a deficient/additional subject from the concerned Board/University/Council in the Supplementary Examination subsequent to the admission.

Provided further that a student can offer –

- (a) Statistics only if he takes up Mathematics.
- (b) Applied Statistics only if he takes up other subject(s), excluding Mathematics.

A student may offer Honours in Second Year in any one of the elective subjects, to be studied by him in all the three years of the course.

*Provided that he has obtained at least 50% marks in the subject of Honours in the First Year of the B.A. (General) Course*

**B.Sc. (GENERAL) :**

The B.Sc. (General) programme of study shall consist of **20** credits (1<sup>st</sup> year and 2<sup>nd</sup> year 7 credits each and 3<sup>rd</sup> year 6 credits), each credit having a value of 100 marks. All the theory papers and practicals, irrespective of their credit value, shall be studied throughout the academic year.

The detail of the subjects to be studied in B. Sc. (General) First Year Examination, 2013 shall be as under :

**COMPULSORY SUBJECTS**

Punjabi/History & Culture of Punjab	1 Credit
+ Three elective subjects of 2 credits each including an Elective Vocational subject (TO BE STUDIED IN SELECTED COLLEGES)	6 Credits
<b>Total :</b>	<b><u>7 Credits</u></b>

**Environment and Road Safety Education : 70 marks**

**Note :**

1. In subjects having practicals the theory papers and practicals together will be of 2 credits value. The candidate will have to pass in theory and practical/s separately.

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- NOTE :
1. A person who has passed B.A./B.Sc. 1<sup>st</sup> year or 2<sup>nd</sup> year examination from other Universities in India may be allowed to migrate to this University subject to the condition that he shall have to clear the deficient subject/s but the total number of credits required to be earned shall remain the same.
  2. Instruction through audio and /or video cassettes may form a part of languages course.

2. Each paper of one credit shall be allocated 3 hours of teaching per week during each academic year. However, for subjects having practicals, three hours of teaching will be allocated to each theory paper and two hours for a practical per week, or as per requirement of the subject concerned.
3. B.A. (General) degree holders shall be eligible for admission to the master's course in any of the elective subjects studied by them during all the three years of the programme of study, earning six credits in each, provided they fulfil the eligibility conditions.
4. A student would offer any Science subject, including Mathematics, only if he has passed the subject in the qualifying examination or qualifies in the subject as a deficient/additional subject from the concerned Board/University/Council in the Supplementary Examination subsequent to the admission.

Provided further that a student can offer :

- (a) Statistics only if he takes up Mathematics.
  - (b) Applied Statistics only if he takes up other subject(s), excluding Mathematics.
5. A student may offer Honours in Second Year in any one of the elective subjects, to be studied by him in all the three years of the course.

Provided that he has obtained at least 50% marks in the subject of Honours in the First Year of the B.Sc. (General) Course.

**SCHEME FOR OPTING SUBJECTS**  
**B.A./B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013**

**SESSION 2012-2013**

**B.A. (General) 1<sup>st</sup> Year study programme consists of three compulsory subjects and three elective subjects :**

**Compulsory subjects :**

- |     |  |            |
|-----|--|------------|
| (a) | Punjabi – Two Papers                   | (1 credit) |
|     | OR                                     |            |
|     | History & Culture of Punjab –One Paper | (1 credit) |
| (b) | English – One Paper                    | (1 credit) |

**Elective Subjects :** A student is required to take up 3 elective subjects in all, selecting *not more than one subject* from any of the following sets of combinations, subject to the conditions given in the Structural Outlines at Page (ii) :

1. English, Hindi, Punjabi, \*\* Bengali, Urdu, Persian, \*\* Tamil, French,\*\* Arabic, Russian, German, \*\* Kannada, \*\* Malayalam, \*\* Telugu.
2. Economics, Defence & Strategic Studies, Fine Arts, Education, Adult Education, History of Art.
3. History, Mathematics.
4. Music (Tabla), Sociology.
5. Public Administration, Home Science, Gandhian Studies, Philosophy.
6. Political Science, \* Statistics, Applied Statistics.
7. Sanskrit, Physical Education, Ancient Indian History, Culture & Archaeology, Psychology, Geography.
8. Computer Science, Agriculture, Environment Conservation.
9. Music (Instrumental), Women's Studies.
10. Music (Vocal)
11. Indian Classical Dance, Human Rights & Duties.
12. Journalism & Mass Communication.
13. Police Administration.

*Note : The students can opt. only two elective subjects from the following :*

**Music (Instrumental), Music (Vocal), Music (Tabla) and Indian Classical Dance.**

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\* Statistics can be opted only with Mathematics

\*\* The Syllabus of Tamil, Telugu, Kannada, Malayalam, Arabic & Bengali Languages are **kept in abeyance**

14.	<b>** Elective Vocational Subject (one of the following) :</b>	<i>Pre-requisite subject at +2 level</i>
1.	Mass Communication –Video Production	Any
2.	Functional English	English
3.	Advertising, Sales Promotion & Sales Management	Any
4.	Foreign Trade, Practices and Procedures	Preferably with Economics or Commerce
5.	Office Management & Secretarial Practice	Any
6.	Computer Applications	Preferably Computer
7.	Functional Hindi	Hindi
8.	Tax Procedures & Practices	Accountancy/Business Studies
9.	Principles and Practice of Insurance	Any
10.	Information Technology	Any
11.	Fashion Designing	Any
12.	Early Childhood Care & Education	Any

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**\*\*A student who opts for Computer Science as an Elective subject shall not take up Computer Applications/Information Technology as Elective Vocational subject and vice-versa.**

**FOR B.SC. (GENERAL) CANDIDATES :**

(Besides the compulsory subject, a student shall offer any three elective subjects)

<b>A</b>	<i>Elective Vocational Subject</i>	<i>Other Two Elective Subjects</i>	<i>Pre-requisite subjects at +2 level</i>
1.	Clinical Nutrition Dietetics	Chemistry, Physics & Botany	PCB*
2.	Bio-Technology	Chemistry, Botany or Zoology	PCB
3.	Seed Technology	Botany, Chemistry	PCB
4.	Industrial Fish & Fishery	Zoology, Chemistry	PCB
5.	Instrumentation	Physics, Mathematics	PCM
6.	Mass Communication Video Production	Any two Science Subjects	Any
7.	Electronic Equipment Maintenance	Physics, Chemistry/Maths.	PCM
8.	Computer Applications	Any two Science Subjects	Preferably Computer
9.	Industrial Chemistry	Chem., Maths./Botany/Zoology	PCM/B
10.	Industrial Microbiology	Chemistry and Botany or Zoology	PCB
11.	Food Science & Quality Control	Chemistry and Botany/Zoology	PCB
12.	Information Technology	Any	Any
<b>B</b>			
13.	Bioinformatics, **Botany/Zoology*** and any one of the following : Mathematics/Physics/Chemistry/Computer Science		PCM/PCB
14.	Biotechnology, **Botany/Zoology*** and any one of the following : Mathematics/Physics/Chemistry/Computer Science		PCM/PCB
15.	Electronics : Physics + Electronics +Mathematics :		PCM
<b>OR</b>			
Chemistry + Electronics + Computer Science			
16.	1. Agriculture, Botany & Zoology :		PCB
	2. Agriculture, Biotechnology, Botany/Zoology :		PCB
	3. Agriculture, Microbiology, Chemistry/Botany/Zoology :		PCB
	4. Agriculture, Chemistry, Physics/Botany/Zoology :		PCB
* P stands for Physics, C stands for Chemistry, B for Biology and M for Mathematics. ** B for Botany. *** Z for Zoology			



**GUIDELINES REGARDING CONTINUOUS ASSESSMENT OF REGULAR STUDENTS  
OF B.A./B.SC./B.COM./B.C.A. COURSES**

**IMPORTANT NOTE**

- (i) In order to incorporate an element of continuous assessment of students, the Colleges will conduct two mandatory House Tests in theory papers – one in the month of September/October and the other in December/January every year.
- (ii) (a) For September Test, there will be only one paper of one hour's duration in each subject, and for December Test, there will be paper/s on the pattern of annual examination conducted by the University.

There will be a Special Test for those students who could not fulfil the conditions of eligibility. It will not be held to provide an opportunity to all students to improve their earlier score. Those students who are exempted by the Principal of the College from appearing in the House Test/s in September and/or December/January will also be allowed to appear in the Special Test; this Test will determine their eligibility for admission to the examination as well as their score for Internal Assessment.

- (b) With a view to meet the grievance of students, if any, on account of scores obtained by them, the answer-books will be shown to them. Difference of opinion on the issue, if any, will be sorted out with the help of respective Heads of departments as well as the Principal of the College.
- (iii) Whereas the September House Test will carry weightage of 40 per cent, the December House Test will have weightage of 60 per cent in each subject/paper. The total weightage for both the Tests taken together shall be 10 per cent of the total marks in each theory subject/paper. The weightage of 10 per cent marks shall be added to each paper of B.A./B.Sc./B.Com./B.C.A. I, II and III Year which will, henceforth, carry weightage of maximum marks allotted to each paper. A candidate will have to pass in theory and practical/s separately.
- (iv) The record of marks secured by the students in the two House Tests will be sent by the respective Colleges so as to reach the office of Controller of Examinations latest by 15<sup>th</sup> March, failing which the result of the students shall be shown as 'RLA' and the entire responsibility for this would lie with the Principal/s of the College/s.
- (v) The Colleges will continue to forward the internal assessment of the students for Practicals. Projects and similar other activities, wherever applicable, to the Controller of Examinations, as usual, so as to reach his office latest by 15<sup>th</sup> March.

**SPECIAL NOTE :**

- (i) Each theory question paper will be set out of the marks allotted to each theory paper and 10% marks of the maximum marks of each paper will be internal assessment.
- (ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
- (iii) It will not be mandatory for the students to separately pass in the internal assessment.

**PANJAB UNIVERSITY, CHANDIGARH**  
**OUTLINES OF TESTS, SYLLABI AND COURSES OF READING IN VARIOUS SUBJECTS**  
**FOR B.A. (GENERAL) AND B.SC. (GENERAL) FIRST YEAR EXAMINATION, 2013**

**ENGLISH (Compulsory)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 Hours

**Objectives :**

The main aim of teaching English (Compulsory) to B.A. I student is to equip them to use the language in an efficient and effective manner. The idea is to empower an average student in such a way that learning English becomes a pleasurable endeavor, and ceases to be a nightmare that it is right now. It is with this aim in mind that the new text books have been chosen for all the three years of B.A English (Compulsory) courses. The focus of the new text books is two-fold: to teach finer nuances of language through an integrated approach; and to teach composition and grammar through activity-based, not rule-based approach. For this reason, we have consciously chosen text books that de-emphasize literature and re-set our focus on the study of language.

- Note :*
- (i) There will be one paper in all the three years of B.A. English (Compulsory).
  - (ii) The paper shall be divided into two sections, i.e. Section A & B. The distribution of marks in each section shall be indicated separately against the questions.
  - (iii) Section A shall deal with the text and Section B, with composition and grammar (again based largely upon the prescribed text).
  - (iv) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.
  - (v) For the successful implementation of this syllabus, it is necessary that we reflect objectives of this course, first in our teaching practices, and then in designing question paper/s and evaluating answer scripts of our students. The examination shall be held at the end of the term and/or year, as is recommended by the university, from time to time.

**Text Prescribed :**

**English at Work** (Selection from Poetry & Prose), Eds., T. Vijay Kumar, B. T. Seetha, A. V. Suresh Kumar, Y. L. Srinivas, New Delhi: Macmillan India Ltd. 2012 revised edition.

**Poetry Section**

1. Song 36 from Geetanjali by Tagore.
2. *From* Homecoming by R. Parthasarathy.
3. Myriad-winged Bird by Aduri Satyavathi Devi.
4. "I know why the Caged Bird Sings: by Maya Angelou  
(This poem replaces **Ode to Autumn** by John Keats)
5. Telephone Conversation by Wole Soyinka.
6. Dover Beach by Matthew Arnold.

7. “Anthem for Doomed Youth” by Wilfred Owen (This poem replaces **Insensibility** by Wilfred Owen)
8. The Unknown Citizen by W.H. Auden.

**Prose Section:**

1. Spoken English & Broken English
2. Is Progress Real? is replaced by **Principles of Good Writing** by L.A. Hill from *The Threshold*, Second Edition, Editors Jagdip Singh & Praveen Kumar (MacMillan, 2008)
3. The Conjuror’s Revenge
4. I Have a Dream
5. Letter to a Teacher
6. The Best Investment I Ever Made
7. Taking the Law into Their Hands
8. Prospects of Democracy in India by B.R. Ambedkar is replaced by the **Elixir of Life** by C. V. Raman (from *the threshold* 2<sup>nd</sup> Edition, MacMillan 2008)

**Section-A (Poetry & Prose)**

- Q.1. The examiner will set fourteen short questions (to be answered each in not more than 50-60 words), 7 each from Poetry and Prose Sections of the prescribed text, out of which a student shall be required to attempt only ten, selecting, at least, 5 from each section. It will be of 20 marks. (10×2=20)
- Q.2. The examiner will set eight questions (to be answered each in not more than 120-150 words), 6 each from Poetry and Prose Sections of the text, out of which a student is required to attempt only five, selecting, at least, 2 from each section. It will be of 20 marks. (5×4=20)

**Section B (Composition & Grammar)**

- Q.3. This question shall have an internal choice between poetry and prose based on the post-reading activities suggested in the prescribed text. In this question, the students shall be asked to write a **factual or descriptive paragraph** (in about 150-200 words) on various subjects given in the exercises, in the prescribed text. For this purpose, they may also be asked to expand proverbs and idioms, as indicated in the text. While setting this particular question, special care has to be taken to ensure that ideas for topics are either borrowed directly from the text or are modified suitably so that viable and feasible topics are given to the students of B.A. I., which they can easily handle. The idea is to test a student’s understanding of the text and/or general life-situations, and also devise an effective method of assessing their ability to express themselves in a simple, lucid and correct language. (10 Marks)

- Q.4.(a) This question shall contain 10 incomplete sentences, in which the student will be required to fill in the blanks with correct (5) preposition and (5) articles. (10 marks)
- (b) This question shall contain 4 pairs of homophones, which the students would be required to use in sentences of their own so as to bring out the difference in meaning. (8 marks)
- (c) In this, the students shall be asked to correct 8 sentences or choose the correct sentences out of the given pairs or use the correct form of the verb in the given sentences (8 marks)
- (d) This question shall be on comprehension of an unseen passage, with four questions given at the end, based on the passage, vocabulary, and other grammatical items. (8 marks)
- (e) The students will be required to use 6 idioms and phrases in sentences of their own. (6 marks)
-

## ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)

ਬੀ.ਏ. ਅਤੇ ਬੀ.ਐਸ.ਸੀ. ਭਾਗ ਪਹਿਲਾ 2013 ਦੇ ਇਮਤਿਹਾਨ ਲਈ  
(ਬੀ.ਏ. ਅਤੇ ਬੀ. ਐਸ. ਸੀ. ਦੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ)

ਪੇਪਰ: ਏ

ਕੁੱਲ ਅੰਕ: 50

ਲਿਖਤੀ: 45

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ: 5

ਸਮਾਂ: 3 ਘੰਟੇ

### ਪਾਠਕ੍ਰਮ

- |    |   |        |
|----|---|--------|
| 1. | ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਕਵਿਤਾ ਦਾ ਅਧਿਐਨ                              | 10 ਅੰਕ |
| 2. | ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ ਦਾ ਅਧਿਐਨ                                   | 10 ਅੰਕ |
| 3. | ਸਵੈ-ਜੀਵਨੀ ਦਾ ਅਧਿਐਨ  | 10 ਅੰਕ |
| 4. | ਉਪਰੋਕਤ ਤਿੰਨਾਂ ਪੁਸਤਕਾਂ ਦੇ ਆਧਾਰ ਉੱਤੇ ਲਘੂ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ | 15 ਅੰਕ |

### ਕੋਰਸ

- |    |  |
|----|--|
| 1. | ਕਾਵਿ-ਸ਼ੁਮੇਲ, (ਸੰਪਾਦਕ) ਡਾ. ਕਰਮਜੀਤ ਸਿੰਘ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੰਡੀਗੜ੍ਹ |
| 2. | ਕਥਾ ਕਹਾਣੀ, (ਸੰਪਾਦਕ) ਡਾ. ਧਨਵੰਤ ਕੌਰ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੰਡੀਗੜ੍ਹ     |
| 3. | ਮੇਰੀ ਜੀਵਨ ਗਾਥਾ, ਦੀਵਾਨ ਸਿੰਘ, ਕਸਤੂਰੀ ਲਾਲ ਐਂਡ ਸੰਨਜ਼, ਅੰਮ੍ਰਿਤਸਰ                        |
| 4. | 1, 2 ਅਤੇ 3 ਪੁਸਤਕਾਂ ਤੇ ਆਧਾਰਤ ਲਘੂ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ                                 |

### ਯੂਨਿਟ ਅਤੇ ਥੀਮ

- |    |   |             |
|----|---|-------------|
| 1. | (ੳ) ਕਾਵਿ ਸੰਗ੍ਰਹਿ ਵਿਚੋਂ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ (ਦੋ ਵਿਚੋਂ ਇਕ)               | 5 ਅੰਕ       |
|    | (ਅ) ਕਵਿਤਾ ਦਾ ਸਾਰ ਜਾਂ ਕੇਂਦਰੀ ਭਾਵ (ਦੋ ਵਿਚੋਂ ਇਕ)                         | 5 ਅੰਕ       |
| 2. | ਕਹਾਣੀ-ਸੰਗ੍ਰਹਿ ਵਿਚੋਂ ਕਿਸੇ ਇਕ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ ਦੱਸ ਕੇ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇਕ) | 4+6=10 ਅੰਕ  |
| 3. | ਸਵੈ-ਜੀਵਨੀ ਪੁਸਤਕ ਵਿਚੋਂ ਕਿਸੇ ਇਕ ਘਟਨਾ/ਕਾਂਡ ਦਾ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇਕ)        | 10 ਅੰਕ      |
| 4. | ਲਘੂ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਸੰਖੇਪ ਉੱਤਰ (ਉੱਤਰ ਇਕ ਤੋਂ ਤਿੰਨ ਸਤਰਾਂ ਵਿਚ)               |             |
|    | (ੳ) ਕਾਵਿ-ਸੰਗ੍ਰਹਿ ਵਿਚੋਂ (ਅੱਠ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚੋਂ ਪੰਜ ਦੇ ਉੱਤਰ ਦਿਓ)           | 5x1 = 5 ਅੰਕ |
|    | (ਅ) ਕਹਾਣੀ-ਸੰਗ੍ਰਹਿ ਵਿਚੋਂ (ਅੱਠ ਵਿਚੋਂ ਪੰਜ ਦੇ ਉੱਤਰ ਦਿਓ)                   | 5x1 = 5 ਅੰਕ |
|    | (ੲ) ਸਵੈ-ਜੀਵਨੀ ਵਿਚੋਂ (ਅੱਠ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚੋਂ ਪੰਜ ਦੇ ਉੱਤਰ ਦਿਓ)              | 5x1 = 5 ਅੰਕ |

ਨੋਟ:- ਪੇਪਰ ਸੈਟਰ ਲਈ: ਰਚਨਾ ਦੇ ਵਿਸ਼ੇ, ਰਚਨਾ ਦੀ ਵਿਚਾਰਧਾਰਾ, ਪਾਤਰ ਅਤੇ ਘਟਨਾਵਾਂ ਜਾਂ ਤੱਥਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਸਵਾਲ ਹੀ ਪੁੱਛੇ ਜਾਣ। ਉੱਤਰ ਇੱਕ ਤੋਂ ਤਿੰਨ ਸਤਰਾਂ ਤੱਕ ਸੀਮਿਤ ਹੋਵੇ

**ਪੇਪਰ: ਬੀ**

ਕੁੱਲ ਅੰਕ: 50

ਲਿਖਤੀ: 45

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ: 5

ਸਮਾਂ: 3 ਘੰਟੇ

**ਪਾਠਕ੍ਰਮ**

- |    |   |           |
|----|---|-----------|
| 1. | ਲੇਖਕਾਂ ਦਾ ਜੀਵਨ, ਰਚਨਾ ਅਤੇ ਯੋਗਦਾਨ               | 5 ਅੰਕ     |
| 2. | ਲੇਖ ਰਚਨਾ                                      | 10 ਅੰਕ    |
| 3. | ਸੰਖੇਪ ਰਚਨਾ                                    | 2+6=8 ਅੰਕ |
| 4. | ਸਾਹਿਤਕ ਪੈਰ੍ਹੇ ਦਾ ਅਨੁਵਾਦ (ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ) | 5 ਅੰਕ     |
| 5. | ਸੂਚਨਾ ਹਿੱਤ ਨੋਟਿਸ                              | 5 ਅੰਕ     |
| 6. | ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹ                                | 4 ਅੰਕ     |
| 7. | ਵਿਆਕਰਣ  | 8 ਅੰਕ     |

**ਯੂਨਿਟ ਅਤੇ ਥੀਮ**

- |    |   |           |
|----|---|-----------|
| 1. | ਨਿਰਧਾਰਤ ਲੇਖਕਾਂ ਵਿਚੋਂ ਕਿਸੇ ਇਕ ਦਾ ਜੀਵਨ, ਰਚਨਾ ਅਤੇ ਸਾਹਿਤਕ ਯੋਗਦਾਨ<br>(ਦੋ ਕਵੀ ਅਤੇ ਦੋ ਕਹਾਣੀਕਾਰ ਭਾਵ ਚਾਰ ਵਿਚੋਂ ਇਕ ਲਿਖਣਾ ਹੈ।<br><b>ਲੇਖਕ:</b> ਪੂਰਨ ਸਿੰਘ, ਮੋਹਨ ਸਿੰਘ, ਭਾਈ ਵੀਰ ਸਿੰਘ, ਸ਼ਿਵ ਕੁਮਾਰ ਬਟਾਲਵੀ, ਸੁਰਜੀਤ ਪਾਤਰ,<br>ਗੁਰਬਖ਼ਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ, ਸੁਜਾਨ ਸਿੰਘ, ਕੁਲਵੰਤ ਸਿੰਘ ਵਿਰਕ, ਸੁਖਵੰਤ ਕੌਰ ਮਾਨ, ਮੋਹਨ<br>ਭੰਡਾਰੀ) | 5 ਅੰਕ     |
| 2. | ਲੇਖ (500 ਸ਼ਬਦਾਂ ਵਿਚ) ਚਲੰਤ ਮਾਮਲਿਆਂ, ਸਮਾਜਕ ਮਸਲਿਆਂ, ਭਾਸ਼ਾ ਅਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ<br>ਨਾਲ ਸੰਬੰਧਤ (ਚਾਰ ਵਿਚੋਂ ਇਕ ਕਰਨਾ ਹੈ)  | 10 ਅੰਕ    |
| 3. | ਸੰਖੇਪ ਰਚਨਾ (ਪ੍ਰੈਸੀ)   | 2+6=8 ਅੰਕ |
| 4. | ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ (ਸਾਹਿਤਕ ਪੈਰ੍ਹੇ ਦੇ ਲਗਭਗ 100 ਸ਼ਬਦ)   | 5 ਅੰਕ     |
| 5. | ਸੂਚਨਾ ਹਿੱਤ ਨੋਟਿਸ ਲਿਖਣਾ (ਸਾਹਿਤਕ, ਸਭਿਆਚਾਰਕ ਅਤੇ ਖੇਡ ਖੇਤਰ ਨਾਲ ਸੰਬੰਧਤ ਕਾਲਜ<br>ਦੀਆਂ ਹੋਰ ਗਤੀਵਿਧੀਆਂ ਬਾਰੇ)   | 5 ਅੰਕ     |
| 6. | ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹ  | 4 ਅੰਕ     |
| 7. | ਸ਼ੁੱਧ-ਅਸ਼ੁੱਧ, ਅਗੇਤਰ ਪਿਛੇਤਰ  | 2+2=4 ਅੰਕ |
| 8. | ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ: (ਛੇ ਵਿਚੋਂ ਚਾਰ: ਵਾਕ ਇਸ ਪ੍ਰਕਾਰ ਬਣਾਓ ਕਿ ਅਰਥ ਸਪਸ਼ਟ ਹੋ ਜਾਣ)  | 4 ਅੰਕ     |

**ਸਹਾਇਕ ਪੁਸਤਕਾਂ :**

1. ਪੰਜਾਬੀ ਸੰਚਾਰ ਯੋਗਤਾ ਅਭਿਆਸ, ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀਵਰਸਿਟੀ ਟੈਕਸਟ ਬੁੱਕ, ਬੋਰਡ, ਚੰਡੀਗੜ੍ਹ।
  2. ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ, ਡਾ. ਹਰਕੀਰਤ ਸਿੰਘ ਅਤੇ ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ, ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀਵਰਸਿਟੀ ਟੈਕਸਟ  
ਬੁੱਕ ਬੋਰਡ, ਚੰਡੀਗੜ੍ਹ।
- ਨੋਟ: 1. ਟੈਕਸਟ ਲਈ ਹਫ਼ਤੇ ਦੇ ਛੇ ਪੀਰੀਅਡ
2. ਕੰਪੋਜ਼ੀਸ਼ਨ ਲਈ 25-30 ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਗਰੁੱਪ ਅਤੇ ਹਫ਼ਤੇ ਦੇ ਤਿੰਨ ਹੋਰ ਪੀਰੀਅਡ
3. ਹਫ਼ਤੇ ਦੇ 6+3 = 9 ਪੀਰੀਅਡ

## HISTORY AND CULTURE OF PUNJAB

B.A. (GENERAL) AND B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

(For B.Sc. Candidates also)

### One Paper

#### General Instructions :

1. In all, nine questions will be set. Each question will carry 18 marks.
2. First question shall be short answer type containing 15 short questions spread over the whole syllabus. Candidates will attempt 9 out of fifteen questions in about 25 to 30 words each. It shall carry 18 marks and shall be **compulsory**.
3. Rest of the paper shall contain 4 Units. Each Unit shall have two essay type questions and the candidate shall attempt one question from each Unit – 4 in all.
4. Each essay type question will be set on half of the topic and not on a single sub-topic.
5. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper setter must put note (5) in the question paper.**

### HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES TO 1200 A.D.

**Objectives :** To introduce the students to the early history of Punjab and its culture.

**Pedagogy :** Lectures, library work and discussion.

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 Hours

#### Unit-I

1. Physical features of the Punjab and their impact on history.
2. *Harappan Culture* : Principal places, town planning; features of social, economic and religious life; causes of disappearance.
3. *The Indo-Aryans* : Original home and settlement in Punjab; Social, Economic and Religious life during the Rigvedic Age.

**Unit-II**

4. Origin and evolution of the caste system, its merits and demerits.
5. The Ramayana and Mahabharata and their historical importance.
6. The teachings of Buddhism and Jainism and their impact on the Punjab.

**Unit-III**

7. Impact of Alexander's invasion on Punjab.
8. Social, economic and religious life in Punjab under the Mauryas.
9. Social and cultural life in Punjab under the Guptas.

**Unit-IV**

10. Punjab under the Vardhans.
11. Society and culture in Punjab on the eve of Turkish invasion.
12. Salient developments in art, literature and education in Punjab (with special reference to Taxila).

**Suggested Readings :**

1. Joshi, L.M. (ed.) : *History and Culture of the Punjab, Part I*, Publication Bureau, Punjabi University, Patiala, 1989 (3<sup>rd</sup> edn.)  
 N.B. : The required detail and depth would conform to the treatment of the subject in the above survey. (This book will also form the basis of the short answer questions).
2. Joshi, L.M. and Singh, Fauja (ed.) : *History and Culture of the Punjab, Vol. I*, Punjabi University, Patiala, 1977.
3. Prakash, Buddha : *Glimpses of Ancient Punjab*, P.U., Patiala, 1983.
4. Thapar, Romila : *A History of India, Vol. I*, Penguin Books, 1966.
5. Basham, A.L. : *The Wonder That was India*, Rupa Books, Calcutta (18<sup>th</sup> rep.), 1992.
6. Sharma, B.N. : *Life in Northern India*, Munshiram Manohar Lal, Delhi, 1966.

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**Note :** The following categories of the students shall be entitled to take the option of History & Culture of Punjab in lieu of Punjabi as compulsory subject :

- (a) That the students who have not studied Punjabi upto class 10<sup>th</sup>.
- (b) Ward of/and Defence Personnel and Central Government employee/employees who are transferable on all India basis.
- (c) Foreigners.

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## ENVIRONMENT AND ROAD SAFETY EDUCATION

B.A. (GENERAL) AND B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

### UNIT I (ENVIRONMENT)

(25 hr. course)

1. **Environment Concept :**  
Introduction, concept of biosphere—lithosphere, hydrosphere, atmosphere; Natural resources—their need and types; principles and scope of Ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.
2. **Atmosphere :**  
Parts of atmosphere, components of air; pollution, pollutants, their sources, permissible limits, risks and possible control measures.
3. **Hydrosphere :**  
Types of aquatic systems. Major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water shortage; pollution and pollutants of water, permissible limits, risks and possible control measures.
4. **Lithosphere :**  
Earth crust, Soil—a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures.
5. **Forests :**  
Concept of forests and plantations, types of vegetation and forests, factors governing vegetation, role of trees and forests in environment, various forestry programmes of the Govt. of India, Urban forests, Chipko Andolan.
6. **Conservation of Environment :**  
The concepts of conservation and sustainable development, why to conserve, aims and objectives of conservation, policies of conservation; conservation of life support systems—soil, water, air, wildlife, forests.
7. **Management of Solid Waste :**  
Merits and demerits of different ways of solid waste management—open, dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.
8. **Indoor Environment :**  
Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.

9. **Global Environmental Issues :**  
Global concern, creation of UNEP; Conventions on climate change, Convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.
10. **Indian Laws on Environment :**  
Indian laws pertaining to Environmental protection : Environment (Protection) Act, 1986; General information about Laws relating to control of air, water and noise pollution. What to do to seek redressal.
11. **Biodiversity :**  
What is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; Hotspot zones of the world and India, Biodiversity Act, 2002.
12. **Noise and Microbial Pollution :**  
Pollution due to noise and microbes and their effects.
13. **Human Population and Environment :**  
Population growth and family welfare programme, Human Health, HIV/AIDS, Human rights.
14. **Social Issues :**  
Environmental Ethics : Issues and possible solutions, problems related to lifestyle, sustainable development; Consumerisms and waste generation.
15. **Local Environmental Issues :**  
Environmental problems in rural and urban areas, Problem of Congress grass & other weeds, problems arising from the use of pesticides and weedicides, smoking etc.

**Practicals :**

Depending on the available facility in the college, a visit to Vermicomposting units or any other such non-polluting eco-friendly site or planting/caring of vegetation/trees could be taken.

*Note : Above 15 topics to be covered in 25 hour lectures in total, with 2 lectures in each topics from 2 to 11 and one each for the topics 1 and 12 to 15.*

**UNIT II (ROAD SAFETY)**

1. Concept and Significance of Road Safety.
2. Role of Traffic Police in Road Safety.
3. Traffic Rules.
4. Traffic Signs.
5. How to obtain Driving License.

6. Traffic Offences, Penalties and Procedures.
7. Common Driving mistakes.
8. Significance of First-aid in Road Safety.
9. Role of Civil Society in Road Safety.
10. Traffic Police-Public Relationship.

**Examination Pattern :**

- Seventy multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong or un-attempted question).
- The paper shall have two units: **Unit I (Environment) and Unit II (Road Safety).**
- Unit I shall comprise of 50 questions with minimum of 2 questions from each topics 1, and 12 to 15 and minimum of 4 questions from topics 2 to 11.
- Unit II shall comprise of 20 questions with minimum of 1 question from each topics 1 to 10.
- The entire syllabus of Unit I is to be covered in 25 hours and that of Unit II is to be covered in 10 hours.
- All questions are to be attempted.
- Qualifying Marks 33 per cent i.e. 23 marks out of 70.
- Duration of examination : 90 minutes.
- The paper setters are requested to set the questions strictly according to the syllabus.

**Suggested Readings**

1. The Motor Vehicle Act, 1988 (2010), Universal Law Publishing Co. Pvt. Ltd., New Delhi.

2. Road Safety Signage and Signs (2011), Ministry of Road Transport and Highways, Government of India.

**Websites:**

(a) **[www.chandigarhpolice.nic.in](http://www.chandigarhpolice.nic.in)**

(b) **[www.punjabpolice.gov.in](http://www.punjabpolice.gov.in)**

(c) **[www.haryanapolice.gov.in](http://www.haryanapolice.gov.in)**

(d) **[www.hppolice.nic.in](http://www.hppolice.nic.in)**

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## ENGLISH ELECTIVE

### B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

Max. Marks	:	100
Theory	:	90 Marks
Internal Assessment	:	10 Marks
Time	:	Three Hours

#### Objective:

The main aim of teaching English (Elective) to B.A. I students is to enable them to approach a wide variety of literary texts and genres with critically sensitive and analytical understanding. The idea is to introduce the students to the basic concepts of literature and also empower them to read, analyze and write about a poem, prose, essay or drama in an independent manner. It is with this modest aim in mind that the new text books have been selected for all the three years of B.A. English (Elective) courses. The focus of the new text books is two-fold: to teach finer nuances of literature and language through an integrated approach; and to help and motivate the students to develop basic tools of analyzing a variety of literary texts/genres.

#### Note :

- (i) There will be two papers in all the three years of B.A. English (Elective) courses. Rather than divide the papers vertically, there will be horizontal division in terms of texts, composition and grammar. As two books are prescribed for each course, these two books shall be distributed across two papers and shall not be included in the same paper. So, **Fluency in English** shall figure in **Paper A** and **Essays, Short Stories & One-Act Plays** shall be included in **Paper B**. Questions on composition and grammar shall, however, be distributed evenly in both the papers.
- (ii) Each paper shall be of 90 marks, and 10 marks in each paper shall be reserved for Internal Assessment. Each paper shall be further sub-divided into Sections, I & II. The mode of distribution of marks shall, however, vary from paper to paper. There shall be six questions in each paper. All the questions will be compulsory. Though internal choice may be offered in some of the questions, there will be no external choice.
- (iii) Each paper shall include minimum 15 literary terms/concepts appropriate to the particular literary genre included in that paper.
- (iv) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.
- (v) For the successful implementation of this syllabus, it is necessary that we reflect objectives of this course, first in our teaching practices, and then in designing question paper/s and evaluating answer scripts of our students. The examination shall be held at the end of the term and/or year, as is recommended by the university, from time to time.

**Text Prescribed :**

1. **Fluency in English** Ed., Promodini Verma, Mukti Sanyal, Tulika Prasad, New Delhi: Macmillan India, 2009 (**Included in Paper A**)
2. **Essays, Short Stories & One Act Plays**, Ed., R.K Kaushik & S.C. Bhatia, New Delhi, OUP, 2006. (**Included in Paper B**)

**Paper A****Section I**

{**Literary Terms:** Ballad, Sonnet, Ode, Lyric, Elegy, Dramatic Monologue, Interior Monologue, Blank Verse, Free Verse, Mock-Epic, Metaphysical Conceit, Negative Capability, Egotistical Sublime, Fancy/Imagination, Irony, Paradox, Ambiguity, Alliteration, Assonance, Imagery}

- Q.1. It shall be on literary terms/concepts. Eight terms shall be given in all, and the students will be required to do five. (15 marks)
- Q.2. The examiner will set twelve short questions (to be answered each in not more than 30-40 words) from **Fluency in English (the prescribed text)**, out of which a student shall be expected to attempt any *ten*. (15 marks)
- Q.3. The examiner shall give two passages from the anthology **Fluency in English** along with five questions, and the students shall be required to attempt only one of the two. In other words, this question shall have internal choice. This question shall test the comprehension, critical acumen and the presentation skills of a student. (15 marks)

**Section II**

- Q.4. Letter Writing (Personal Social) (10 marks)
- Q.5. Applied grammar
  - (a) Voice, Direct/Indirect, Transformation of Sentences (all types) (15 marks)
  - (b) Articles, Prepositions, Conjunctions (10 marks)
- Q.6. Vocabulary:
 

Antonyms/Synonyms, Use of words/phrases in sentences (10 marks)

**Paper B****Section I**

(**Literary terms/concepts:** Prose, Essay. Expository Essay, Analytical /Argumentative Essay, Lyrical Essay, Descriptive Essay. Imaginative Essay, Philosophical Essay, Short Story, Long Story, Drama, Dramatic, Plot, Character, Incident, Setting, Structure, Tragedy, Comedy, Tragi-comedy)

- Q.1. Literary terms/concepts (Five out of Eight) (15 marks)
- Q.2. Ten short questions to be attempted out of fourteen, based on **Essays, Stories and One Act Plays** and each to be answered in not more than 30-40 words. (15 marks)
- Q.3. Long questions *five out of seven*, again based on **Essays, Short Stories, One Act Plays** (each to be answered in not more than 100-120 words) . (15 marks)

### Section II

- Q.4. Paragraph Writing (based on outline, a situation, a string of questions etc.) (15 marks)
- Q.5. Applied Grammar-
- (a) Corrections (10 marks)
  - (b) Use of the same words as different parts of speech (10 marks)
- Q.6. Translation from Vernacular into English (10 sentences only)
- Or**
- (For foreign students, a paragraph on any one of the two given topics, preferably, proverbs or idioms) (10 marks)

**Note: Allotment of periods:**

**Texts 6 per week in a class of 60 students**

**Composition & Grammar: 3 per week in a class of 30 students**

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**हिन्दी (ऐच्छिक)**

बी. ए. (सामान्य) प्रथम वर्ष परीक्षा, 2013

**पत्र-एक****पूर्णांक : 90+10 = 100****समय : 3 घण्टे****1. कवितालोक :**

अंक : 21

सं० डॉ. शिवकुमार शर्मा, पब्लिकेशन ब्यूरो, पंजाब विश्वविद्यालय, चण्डीगढ़ द्वारा प्रकाशित।

इन सात कवियों की रचनाएँ पाठ्यक्रम में निर्धारित की गई हैं—

कबीर, रैदास, गुरुनानक देव, सूरदास, मीराबाई, तुलसीदास और गिरिधर कविराय।

(क) छह-छह अंकों की दो संदर्भ सहित व्याख्याएँ करनी होंगी। कुल 4 संदर्भ पूछे जायेंगे।

(ख) 9 अंकों का एक समीक्षात्मक प्रश्न करना होगा। कुल 2 प्रश्न पूछे जायेंगे।

इस खंड में से कवि-परिचय, कविता-सार तथा उद्देश्य संबंधी प्रश्न पूछे जायेंगे। उत्तरों की शब्द-सीमा 200 होगी।

**2. सजीव कहानियाँ :**

अंक : 21

सं० डॉ. लक्ष्मीचन्द्र खुराना, पब्लिकेशन ब्यूरो, पंजाब विश्वविद्यालय, चण्डीगढ़ द्वारा प्रकाशित। निम्नलिखित सात कहानियाँ पाठ्यक्रम में हैं :-

शतरंज के खिलाड़ी, ममता, अशिक्षित का हृदय, मौत के मुँह में, न्याय मंत्री, गुलाब, सभ्य-असभ्य।

(क) छह-छह अंकों की दो संदर्भ सहित व्याख्याएँ करनी होंगी। कुल 4 व्याख्याएँ पूछी जायेंगी।

(ख) 9 अंकों का एक समीक्षात्मक प्रश्न करना होगा। इस खंड में कथावस्तु, चरित्र-चित्रण एवं उद्देश्य से संबंधित कुल दो प्रश्न पूछे जायेंगे। प्रत्येक उत्तर की शब्द-सीमा 200 तक होगी।

**3. तीन-तीन अंकों के चार लघु-उत्तरापेक्षी प्रश्न करने होंगे।**

अंक : 12

कुल 8 प्रश्न पूछे जायेंगे। प्रत्येक उत्तर की सीमा 50 शब्दों तक होगी। ये प्रश्न इस पत्र के पूर्वोक्त दो खंडों (कवितालोक एवं सजीव कहानियाँ) पर आधारित होंगे।



4 **हिन्दी—साहित्य का इतिहास :**

अंक : 16

आदिकाल (अपभ्रंश साहित्य को छोड़कर) तथा भक्तिकाल से निम्नलिखित शीर्षकों पर आधारित प्रश्न पूछे जायेंगे।

(क) आदिकाल का नामकरण, काल—सीमा, परिस्थितियाँ, प्रवृत्तियाँ और पृथ्वीराज रासो तथा बीसलदेव रासो का परिचय।

(ख) भक्तिकाल की परिस्थितियाँ, संतकाव्य, प्रेमाख्यानकाव्य, रामकाव्य और कृष्णकाव्य की विशेषताएँ, कबीर, जायसी, तुलसी और सूरदास।

दोनों कालों से संबंधित कुल 4 प्रश्न पूछे जायेंगे, जिनमें से 8—8 अंकों के दो प्रश्न करने होंगे।

5. **वस्तुनिष्ठ प्रश्न**

अंक : 20

इस पत्र के पूर्वोक्त तीनों खंडों के संबंध में 2 अंक के दस वस्तुनिष्ठ प्रश्नों के उत्तर देने होंगे।

6. **आंतरिक मूल्यांकन :**

अंक : 10

**सहायक पुस्तकें :**

हिन्दी साहित्य का इतिहास : कुसुम वर्मा

**पत्र-दो****पूर्णांक : 90+10 = 100****समय : 3 घण्टे**

1. **समीक्षा सिद्धान्त :** अंक : 16  
 (केवल उपन्यास और कहानी)  
 (क) उपन्यास की परिभाषा, तत्त्व और वर्गीकरण संबंधी दो प्रश्न पूछे जाएँगे। 8 अंकों का केवल एक प्रश्न करना होगा।  
 (ख) कहानी की परिभाषा, तत्त्व और वर्गीकरण संबंधी दो प्रश्न पूछे जायेंगे। 8 अंकों का केवल एक प्रश्न करना होगा।
2. **झाँसी की रानी-** वृन्दावन लाल वर्मा-मयूर प्रकाशन, झाँसी अंक : 16  
 नामकरण, कथावस्तु, चरित्र, उद्देश्य के आधार पर चार समीक्षात्मक प्रश्न पूछे जायेंगे, जिनमें से 8-8 अंकों के कोई दो प्रश्न करने होंगे। इस खंड में से संदर्भ-सहित व्याख्या नहीं पूछी जाएगी।
3. **व्यावहारिक व्याकरण :** अंक : 20

(क) विपरीतार्थक शब्द	4 अंक
(ख) समानार्थक शब्द	4 अंक
(ग) शब्द-शोधन और वाक्य-शोधन	8 अंक
(घ) वाक्यांश के लिए शब्द	4 अंक
4. **मुहावरे और लोकोक्तियाँ** अंक : 10
5. **निर्धारित विषय पर अनुच्छेद-लेखन** अंक : 10
6. **निजी पत्र-लेखन** अंक : 8
7. **परिभाषिक शब्दावली (सूची सलग्न है)** अंक : 10
8. **आंतरिक मूल्यांकन** अंक : 10

**नोट :** पत्र दो में भाषा-शिक्षण के व्यावहारिक प्रयोग और छात्रों पर व्यक्तिगत ध्यान देने की अनिवार्यता के कारण कक्षा-अनुभाग की छात्र-संख्या 30-40 के बीच सीमित होगी।

**पारिभाषिक शब्दावली****A**

1.	Abbreviation	संक्षेप संकेताक्षार
2.	Absence	अनुपस्थिति, गैरहाजिरी
3.	Accommodation	आवास
4.	Advice	परामर्श, सलाह, सूचना, संज्ञापन
5.	Allegiance	निष्ठा
6.	Alteration	परिवर्तन, हेर-फेर
7.	Amendment	संशोधन
8.	Appendix	परिशिष्ट
9.	Assistant	सहायक
10.	Attendance	उपस्थिति, हाजिरी

**B**

11.	Basic pay	मूल वेतन
12.	Birth Date	जन्म तिथि, जन्म की तारीख
13.	Block	खंड, ब्लॉक
14.	Board	बोर्ड, मंडल
15.	Break in Service	सेवा में व्यवधान
16.	By Hand	दस्ती

**C**

17.	Cancel	रद्द करना
18.	Clarification	स्पष्टीकरण
19.	Closing Balance	अंत-शेष, रोकड़ बाकी
20.	Committee	समिति
21.	Competence	सक्षमता
22.	Conference	सम्मेलन
23.	Confirmation	पुष्टि
24.	Consolidated fund	समेकित निधि
25.	Conveyance allowance	वाहन भत्ता
26.	Corruption	भ्रष्टाचार
27.	Covering letter	सहपत्र

**D**

28.	Dealing Assistant	संबंधित सहायक
29.	Dearness Allowance	मंहगाई भत्ता
30.	Department	विभाग
31.	Deputy Secretary	उपसचिव
32.	Dissent	वसम्मति, विमति, अहसमति
33.	Duplicate	अनुलिपि, दूसरी प्रति
34.	Duration	अवधि
35.	Duty	ड्यूटी, काम, कार्य, कर्तव्य, भार, शुल्क

**E**

36.	Encashment	भुनाना, तुड़ाना
37.	Entry	प्रविष्टि, इंदराज, प्रवेश
38.	Evidence	साक्ष्य, गवाही, प्रमाण
39.	Expert	विशेषज्ञ
40.	Export	निर्यात
41.	Extract	उद्धरण

**F**

42.	Fitness Certificate	स्वस्थता प्रमाणपत्र, योग्यता प्रमाणपत्र
43.	Fresh Receipt	नई आवती
44.	Further Action	आगे की कार्रवाई, अगली कार्यवाही

**G**

45.	General Manager	प्रधान प्रबंधक, महाप्रबंधक
46.	General Meeting	साधारण सभा, साधारण बैठक
47.	Grant-in-aid	सहायता—अनुदान
48.	Guidance	मार्गदर्शन, निर्देशन

**H**

49.	Head Clerk	प्रधान लिपिक, हेड क्लर्क
50.	Head of Account	लेखा—शीर्ष
51.	Head office	प्रधान कार्यालय
52.	Head Quarter	मुख्यालय
53.	Holiday	अवकाश, छुट्टी

**I**

54.	Immediate officer	आसन्न अधिकारी
55.	Import	आयात
56.	Increment	वेतन-वृद्धि
57.	Inquiry	पूछताछ, जाँच
58.	Inspector	निरीक्षक
59.	Instruction	अनुदेश, हिदायत
60.	Instructor	अनुदेशक
61.	Interpretation	निर्वचन, व्याख्या
62.	Intimation	प्रज्ञापन, सूचना, इत्तिहा
63.	Investigation	अन्वेषण, तफतीश, जाँच-पड़ताल
64.	Irrelevant	असंबद्ध, विसंगत
65.	Issue	(संज्ञा) निर्गम, प्रश्न, मसला, (क्रिया) जारी करना, भेजना, देना

**J**

66.	Job	नौकरी, जाँच, कार्य
67.	Joining Date	कार्यग्रहण-तारीख, कार्यारम्भ-तारीख
68.	Joint Secretary	संयुक्त सचिव

**L**

69.	Labour Welfare	श्रम-कल्याण
70.	Leave Salary	छुट्टी का वेतन
71.	Leave Vacancy	अवकाश-रिक्ति, छुट्टी-रिक्ति
72.	Length of Service	सेवाकाल

**M**

73.	Management	प्रबंध
74.	Medical	चिकित्सा
75.	Medical Leave	चिकित्सा-छुट्टी
76.	Medical Officer	चिकित्सा-अधिकारी
77.	Messenger	संदेशवाहक
78.	Ministry	मंत्रालय, मंत्रिमंडल
79.	Modification	संशोधन, रूपांतर
80.	Most Immediate	अति-तात्कालिक

**N**

81.	Nationality	राष्ट्रीयता
82.	Necessary Action	आवश्यक कार्रवाई
83.	Negligence	उपेक्षा, प्रमाद, गफलत
84.	Non-Objection	अनापत्ति
85.	Non-Official	गैर-सरकारी, अशासकीय

**O**

86.	Obedience	आज्ञापालन, आज्ञानुवर्तन
87.	Objection	आपत्ति
88.	Offence	अपराध
89.	Offer	नियुक्ति-प्रस्ताव
90.	Office	कार्यालय, दफतर, पद
91.	Office Copy	कार्यालय-प्रति, दफतर की प्रति
92.	Office Hours	कार्यालय-समय
93.	Office Order	कार्यालय-आदेश
94.	Officer	अधिकारी, अफसर
95.	Officer-in-charge	प्रभारी अधिकारी
96.	Officiating	स्थानापन्न
97.	Option	विकल्प
98.	Original Copy	मूल प्रति
99.	Outstanding	बकाया, उत्कृष्ट
100.	Overtime	अतिरिक्त समय

**P**

101.	Part Time	अंशकालिक
102.	Pay	वेतन
103.	Payment	अदायगी
104.	Penalty	दंड, अर्थ-दंड, जुर्माना
105.	Pending	अनिर्णीत पड़ा हुआ, रुका हुआ, लंबित
106.	Pension	पेंशन
107.	Planning	योजना, योजना बनाना
108.	Proceedings	कार्यवाही
109.	Proposal	प्रस्ताव

110.	Publicity	प्रचार
111.	Postpone	मुलतवी करना
	<b>Q</b>	
112	Qualification	अर्हता, योग्यता
113	Quarterly	त्रैमासिक
	<b>R</b>	
114	Rectification	परिशोधन
115	Reference	संदर्भ, निर्देश, हवाला
116	Remark	विचार, अभ्युक्ति
117	Remuneration	पारिश्रमिक, मेहनताना
118	Renewal	नवीनीकरण
119	Revenue	राजस्व
	<b>S</b>	
120	Satisfactory	संतोषजनक
121	Scrutiny	संवीक्षा, छानबीन
122	Seal	मुद्रा, मोहर
123	Secret	गुप्त, गुप्त बात
124	Security	प्रतिभूति, सुरक्षा
125	Seniority	वरिष्ठता
126	State Government	राज्य सरकार
127	Stores	सामान, सामग्री, भंडार
128	Summary	सारांश, संक्षेप
129	Superintendent	अधीक्षक
130	Supervisor	पर्ववेक्षक, सुपरवाइजर
	<b>T</b>	
131	Target	लक्ष्य
132	Technical	तकनीकी
133	Testimonial	शंसापत्र
134	Tour	दौरा
135	Training	प्रशिक्षण, ट्रेनिंग
136	Translation	अनुवाद

137	Travelling Allowance	यात्रा-भत्ता
	<b>U</b>	
138	Under Secretary	अवर-सचिव
139	Unemployment	बेकारी, बेरोजगारी
140	Unofficial Letter	अशासकीय पत्र
141	Up-to-date	अद्यतन
	<b>V</b>	
142	Verification	सत्यापन
143	Violation	अतिक्रमण
	<b>W</b>	
144	Waiting list	प्रतीक्षा सूची
145	Warning	चेतावनी
146	Working days	कार्य-दिवस, काम के दिन
147	Working Hours	कार्य-समय, काम के घंटे
148	Working Knowledge	कार्य-साधक-ज्ञान
149	Write off	बट्टे-खाते डालना
	<b>Z</b>	
150	Zone	जोन, अंचल

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## ਪੰਜਾਬੀ (ਇਲੈਕਟਿਵ)

ਬੀ.ਏ. ਜਨਰਲ ਭਾਗ ਪਹਿਲਾ 2013 ਦੇ ਇਮਤਿਹਾਨ ਲਈ

ਪੇਪਰ: ਏ

ਕੁੱਲ ਅੰਕ: 100

ਲਿਖਤੀ: 90

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ: 10

ਸਮਾਂ: 3 ਘੰਟੇ

### ਪਾਠਕ੍ਰਮ

- |                       |    |
|-----------------------|----|
| 1. ਪੁਰਾਤਨ ਪੰਜਾਬੀ ਕਾਵਿ | 40 |
| 2. ਪੰਜਾਬੀ ਨਾਵਲ        | 25 |
| 3. ਪੰਜਾਬੀ ਇਕਾਗਰੀ      | 25 |

### ਕੋਰਸ

1. **ਅੱਖਰ ਨਾਦ**, (ਸੰਪਾ.) ਪ੍ਰੋ. ਜਗਜੀਤ ਸਿੰਘ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੰਡੀਗੜ੍ਹ।
2. **ਤੂਤਾਂ ਵਾਲਾ ਖੂਹ**, ਸੋਹਣ ਸਿੰਘ ਸੀਤਲ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ।
3. **ਛੇ ਦਰਸ਼ਨ**, ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ, (ਇਕਾਗਰੀ 'ਨਿਸ਼ਾਂਤ ਬਾਗ ਵਿਚ' ਨੂੰ ਛੱਡ ਕੇ), ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੰਡੀਗੜ੍ਹ।

### ਯੂਨਿਟ ਅਤੇ ਥੀਮ

- |  |              |
|--|--------------|
| 1. <b>ਅੱਖਰ ਨਾਦ</b> ਪੁਸਤਕ ਵਿਚੋਂ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ (ਚਾਰ ਵਿਚੋਂ ਦੋ) | 10+10=20 ਅੰਕ |
| 2. (ੳ) ਤਿੰਨ ਕਵਿਤਾਵਾਂ ਵਿਚੋਂ ਕਿਸੇ ਇਕ ਦਾ ਕੇਂਦਰੀ ਭਾਵ                 | 10 ਅੰਕ       |
| (ਅ) ਤਿੰਨ ਕਵਿਤਾਵਾਂ ਵਿਚੋਂ ਕਿਸੇ ਇਕ ਦਾ ਸਾਰ                           | 10 ਅੰਕ       |
| 3. ਨਾਵਲ ਵਿਚੋਂ ਲਘੂ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ (ਅੱਠ ਵਿਚੋਂ ਪੰਜ)             | 5x3 =15 ਅੰਕ  |
| 4. ਨਾਵਲ: ਵਿਸ਼ਾ, ਪਲਾਟ, ਪਾਤਰ ਚਿਤਰਨ ਅਤੇ ਸਾਹਿਤਕ ਆਲੋਚਨਾ (ਦੋ ਵਿਚੋਂ ਇਕ) | 10 ਅੰਕ       |
| 5. ਇਕਾਗਰੀਆਂ ਵਿਚੋਂ ਲਘੂ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ (ਅੱਠ ਵਿਚੋਂ ਪੰਜ)         | 5x3=15 ਅੰਕ   |
| 6. ਇਕਾਗਰੀ: ਵਿਸ਼ਾ, ਪਾਤਰ, ਸਾਹਿਤਕ ਪਰਖ (ਦੋ ਵਿਚੋਂ ਇਕ)                 | 10 ਅੰਕ       |

ਪੇਪਰ: ਬੀ

ਕੁੱਲ ਅੰਕ: 100

ਲਿਖਤੀ: 90

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ: 10

ਸਮਾਂ: 3 ਘੰਟੇ

**ਪਾਠਕ੍ਰਮ**

1. **ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (1700 ਈ. ਤੱਕ) :** 15 ਅੰਕ
 

(ੳ) ਸੂਫੀ, ਕਿੱਸਾ, ਗੁਰਮਤ, ਵਾਰ ਕਾਵਿ-ਧਾਰਾ ਅਤੇ ਵਾਰਤਕ ਸਾਹਿਤ ਵਿਚੋਂ ਇਤਿਹਾਸਮੂਲਕ ਅਤੇ ਪ੍ਰਵਿਰਤੀਮੂਲਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇਕ)

ਨੋਟ: ਪੇਪਰ-ਸੈਟਰ ਵਲੋਂ ਇਕ ਸਵਾਲ ਇਤਿਹਾਸਮੂਲਕ ਤੇ ਇਕ ਪ੍ਰਵਿਰਤੀਮੂਲਕ ਪੁੱਛਿਆ ਜਾਵੇ।

(ਅ) 1700 ਈ. ਤੱਕ ਦੇ ਪੰਜਾਬੀ ਸਾਹਿਤ ਦੇ ਇਤਿਹਾਸ ਵਿਚੋਂ ਦੋ ਤਿੰਨ ਸਤਰਾਂ ਵਿਚ ਲਘੂ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ (ਵੀਹ ਵਿਚੋਂ ਪੰਦਰਾਂ) 15x1= 15 ਅੰਕ
2. **ਭਾਸ਼ਾ ਤੇ ਸਾਹਿਤ :** (10+10=20 ਅੰਕ)
 

(ੳ) ਭਾਸ਼ਾ ਦੀ ਪਰਿਭਾਸ਼ਾ, ਪ੍ਰਕਿਰਤੀ, ਪ੍ਰਯੋਜਨ ਅਤੇ ਭਾਸ਼ਾ ਪਰਿਵਰਤਨ ਦੇ ਕਾਰਣ

(ਅ) ਸਾਹਿਤ ਦੀ ਪਰਿਭਾਸ਼ਾ, ਪ੍ਰਕਿਰਤੀ, ਤੱਤ, ਪ੍ਰਯੋਜਨ

(ੳ) ਅਤੇ (ਅ) ਭਾਗਾਂ ਦੇ ਚਾਰ ਸਵਾਲਾਂ ਵਿਚੋਂ ਕੋਈ ਦੋ ਸਵਾਲ ਕਰੋ
3. **ਸਾਹਿਤ-ਸਰੋਕਾਰ ਤੇ ਅਲੰਕਾਰ :**

(ੳ) ਸਾਹਿਤ ਅਤੇ ਸਮਾਜ, ਸਾਹਿਤ ਅਤੇ ਸ਼ਖਸੀਅਤ, ਸਾਹਿਤ ਅਤੇ ਸਦੀਵਤਾ (ਦੋ ਵਿਚੋਂ ਇਕ) 10 ਅੰਕ

(ਅ) ਅਲੰਕਾਰ: ਉਪਮਾ, ਰੂਪਕ, ਦ੍ਰਿਸ਼ਟਾਂਤ, ਅਨੁਪ੍ਰਾਸ, ਅਤਿਕਥਨੀ ਤੇ ਯਮਕ ਅਲੰਕਾਰ (ਦੋ ਵਿਚੋਂ ਇਕ) 10 ਅੰਕ
4. **ਸਾਹਿਤ ਦੇ ਰੂਪ:** 10+10=20 ਅੰਕ
 

ਪੱਟੀ, ਬਾਰਹਮਾਹ, ਗੋਸ਼ਟਿ, ਜਨਮਸਾਖੀ, ਸ਼ਲੋਕ, ਅਸ਼ਟਪਦੀ, ਅਲਾਹੁਣੀਆਂ, ਸਤਵਾਰਾ, ਸੋਹਿਲਾ, ਬਿਤੀ ਆਦਿ (ਚਾਰ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚੋਂ ਕੋਈ ਦੋ)

**ਸਹਾਇਕ ਪੁਸਤਕਾਂ**

1. ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ 1700 ਈ. ਤਕ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੰਡੀਗੜ੍ਹ।
2. ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ 1700 ਈ. ਤਕ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ
3. ਪੰਜਾਬੀ ਸਾਹਿਤ ਦੀ ਉਤਪਤੀ ਤੇ ਵਿਕਾਸ, ਪਰਮਿੰਦਰ ਸਿੰਘ ਤੇ ਕਿਰਪਾਲ ਸਿੰਘ ਕਸੇਲ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ

**ਵਿਸ਼ੇਸ਼ ਨੋਟ :** ਸਮੁੱਚੇ ਪਾਠਕ੍ਰਮ ਲਈ ਹਫ਼ਤੇ ਵਿਚ 6 + 6 =12 ਪੀਰੀਅਡ।

**संस्कृत (इलेक्टिव)**  
**बी.ए.(जनरल) प्रथम वर्ष 2013**

**PAPER-A : कथा, नीति एवं शब्दावली**

**पूर्णांक : 90 + 10 = 100**

**समय - 3 घण्टे**

**टिप्पणी** - प्रश्नपत्र का माध्यम हिन्दी होगा। उत्तरों का माध्यम संस्कृत, हिन्दी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।

**उद्देश्य -**

- विद्यार्थियों को रोचक कथाओं के माध्यम से काम-क्रोध-लोभ-मोह-अहंकार तथा मात्सर्य, ईर्ष्या इत्यादि दुर्गुणों के वशीभूत न होकर जीवन-पथ पर अग्रसर होने, विद्या का वास्तविक अर्थ एवं बुद्धि की महिमा की शिक्षा देना।
- इसी प्रकार मानव-जीवन को उन्नत एवं सर्वोपयोगी बनाने के लिए सत्संगति, सज्जन-महिमा, मूर्ख तथा दुष्टों का परिहार, राजनीति, स्वभाव, कर्म, भाग्य, विद्या के गुण, आलस्य-रहित जीवन-यापन इत्यादि विषयों द्वारा पुरुषार्थ की शिक्षा देना।
- इसके अतिरिक्त व्यावहारिक शब्दावली द्वारा विद्यार्थियों की संस्कृत के प्रति रुचि जागृत करना।

**(क) अपरीक्षितकारकम् (1-5 कहानी)**

**अंक - 40**

- (i) गद्य-भाग (सप्रसंग अनुवाद - तीन में से एक)  
(ii) सूक्ति/श्लोक (सप्रसंग - व्याख्या)  
(iii) कथासार

1 × 10 = 10 अंक  
2 × 10 = 20 अंक  
1 × 10 = 10 अंक

**(ख) नीतिशतकम् (1-50 श्लोक)**

**अंक - 30**

- (i) श्लोक-सप्रसंग व्याख्या  
(ii) सूक्ति-सप्रसंग अनुवाद/व्याख्या (तीन में से एक)

2 × 10 = 20 अंक  
1 × 10 = 10 अंक

**(ग) व्यावहारिक संस्कृत शब्दावली**

**अंक - 20**

**(i) शरीरांग, फल, सज्जियों**

**5 × 2 = 10 अंक**

1. अंगूठा	- अङ्गुष्ठः	2. आँख	- चक्षुः, लोचनम्, नेत्रम्, नयनम्
3. अंगुली	- अङ्गुलिः	4. ओठ	- ओष्ठः
5. कमर	- श्रोणिः, कटिः	6. कलाई	- मणिबन्धः
7. कान	- कर्णः, श्रोत्रम्	8. गर्दन	- ग्रीवा
9. घुटना	- जानुः	10. जीभ	- जिह्वा, रसना
11. दाँत	- दन्तः, दशनः	12. नाक	- घ्राणम्, नासिका
13. पेट	- कुक्षिः, उदरम्	14. बांह	- बाहुः, भुजः
15. भौं	- भ्रूः	16. माथा	- ललाटम्
17. शरीर	- गात्रम्, शरीरम्	18. अंगूर	- द्राक्षा
19. अमरूद	- आम्रलम्	20. आम	- आम्रम्
21. काजू	- काजवम्	22. किशमिश	- शुष्कद्राक्षा
23. खजूर	- खर्जूरम्	24. जामुन	- जम्बूफलम्
25. तरबूज	- तारबूजम्	26. खरबूजा	- खर्वुजम्
27. नारियल	- नारिकेलम्	28. लीची	- लीचिका
29. सेव	- सेवम्	30. अंजीर	- अंजीरम्

31. नारंगी	- नारंगम्	32. बेल	- बिल्वम्, श्रीफलम्
33. बेर	- बदरीफलम्	34. मेवा	- शुष्कफलम्
35. आलू	- आलुः	36. ककड़ी	- कर्कटी
37. करेला	- कारवेल्लम्	38. गोभी	- गोजिहवा
39. टमाटर	- रक्ताङ्गम्	40. टिंडा	- टिडिशः
41. धनिया	- धान्यकम्	42. पालक	- पालकी
43. प्याज	- पलाण्डुः	44. वैंगन	- वंगनः
45. भिंडी	- भिंडकः	46. मिर्च	- मरीचम्
47. मूली	- मूलकम्	48. लहसून	- लशुनम्
49. शलगम	- श्वेतकन्दः	50. साग	- शाकः

## (ii) पशु, पक्षी, वनस्पति

5 × 2=10 अंक

1. ऊँट	- उष्ट्रः	2. खरगोश	- शशकः
3. गधा	- गर्दभः, खरः	4. गाय	- गौः
5. गीदड़	- शृगालः	6. गैंडा	- गण्डकः
7. घोड़ा	- अश्वः, घोटकः	8. चूहा	- मूषकः
9. छिपकली	- ललन्तिका	10. नेवला	- नकुलः
11. बन्दर	- वानरः, कपिः	12. बकरा	- अजः
13. बिल्ली	- मार्जारी	14. बैल	- बलदः, बलीवर्दः, वृषभः
15. भैंस	- महिषी	16. शेर	- सिंहः
17. हाथी	- गजः, दन्ती, करी	18. हिरन	- मृगः, हरिणः, कुरंगः
19. उल्लू	- उलूकः, कौशिकः	20. कबूतर	- कपोतः, पारावतः
21. कोयल	- कोकिलः	22. कौवा	- काकः
23. गीध	- गृध्रः	24. चकवा	- चक्रवाकः
25. चिड़िया	- चटका	26. तोता	- शुक्रः
27. पपीहा	- चातकः	28. बगला	- बकः
29. बतख	- वर्तकः, वर्तिका	30. बाज	- श्येनः
31. मोर	- मयूरः	32. मुर्गा	- कुक्कुटः
33. हंस	- हंसः	34. सारस	- सारसः
35. आंवला	- आमलकी	36. आम (वृक्ष)	- आम्रः
37. जामुन (वृक्ष)	- जम्बू	38. नारियल (वृक्ष)	- नारिकेलः
39. नीम	- निम्बः	40. पीपल	- अश्वत्थः
41. बेल (वृक्ष)	- बिल्वः	42. गुलाब	- स्थलपद्मम्
43. कमल	- कुवलयम्, पुण्डरीकम्, पद्मम्	44. गेंदा	- गन्धपुष्पम्
45. चमेली	- मालती	46. चम्पा	- चम्पकः
47. पराग	- मकरन्दः	48. रात की रानी	- रजनीगन्धा
49. पत्ता	- पत्रम्, पर्णम्	50. लता	- व्रततिः, वीरुत्

नोट - 1. पत्र का अध्ययन समय छह पीरियड प्रतिसप्ताह होगा ।

2. सभी प्रश्नों में शतप्रतिशत विकल्प आवश्यक हैं ।

**PAPER-B : व्याकरण एवं सामान्य ज्ञान****पूर्णांक: 90 + 10 = 100****समय: 3 घण्टे**

**टिप्पणी** - प्रश्नपत्र का माध्यम हिन्दी होगा। उत्तरों का माध्यम संस्कृत, हिन्दी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।

**उद्देश्य -**

संस्कृत पूर्ण वैज्ञानिक एवं व्याकरणनिष्ठ भाषा है। अतः विद्यार्थियों को संस्कृत व्याकरण के अध्ययनार्थ, अव्ययों का प्रयोग, संख्यावाची शब्द, शब्दरूप, धातुरूप एवं अन्य सामान्य ज्ञान से परिचित करवाना।

- |  |                 |
|--|-----------------|
| (क) (i) वर्णों के उच्चारण स्थान  | 3 × 2 = 6 अंक   |
| (ii) अव्ययों का वाक्यों में प्रयोग   | 5 × 2 = 10 अंक  |
| (अत्र, तत्र, कुत्र, यत्र, अन्यत्र, सर्वत्र एकत्र, इतः, ततः, कुतः, कदा, तदा, यदा, सदा, तथा, यथा, कथम्, अद्यः, श्वः, ह्यः, परश्वः, सद्यः, पुरतः, पृष्ठतः, वामतः, दक्षिणतः, नीचैः, उच्चैः, बहिः, अन्तः) |                 |
| (iii) संख्या (गणना) वाची शब्द 1 से 100 तक  | 5 × 2 = 10 अंक  |
| (ख) सामान्य - ज्ञान (तिथि, नक्षत्र, योग, करण, वार, राशि, मास, ग्रह एवं दश दिशाओं के नाम)   | 1 × 10 = 10 अंक |
| (ग) स्वर सन्धि   | 5 × 2 = 10 अंक  |
| (घ) शब्दरूप (राम, लता, फल, मुनि, मति, नदी, गुरु, पितृ, मातृ, भवत्, अस्मद्, युष्मद्)  | 2 × 8 = 16 अंक  |
| (ङ.) धातुरूप (पठ्, गम्, पठ्, क्रीड्, वद्, पा, लिख्, नी, दृश्, भू, त्यज्, स्मृ धातु)  | 2 × 9 = 18 अंक  |
| (केवल लट्, लृट्, लोट्, लङ् व विधिलिङ् लकार में)  |                 |
| (ड.) हिन्दी से संस्कृत में अनुवाद (5 वाक्य)  | 5 × 2 = 10 अंक  |

सहायक पुस्तक: - शीघ्रबोध, चौखम्बा, वाराणसी

- नोट - 1. पत्र का अध्ययन समय छह पीरियड प्रतिसप्ताह होगा।  
2. सभी प्रश्नों में शतप्रतिशत विकल्प आवश्यक हैं।

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**URDU (Elective)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Outlines of tests, syllabi and courses of reading**

Two papers each carrying 100 marks

**Paper-A**

100 marks

Time : 3 Hours

**Prose and Poetry :**

- |       |                               |          |
|-------|-------------------------------|----------|
| (i)   | Explanation of Prose Passages | 40 marks |
| (ii)  | Explanation of Verses         | 40 marks |
| (iii) | Summary of a Poem or a Lesson | 20 marks |

**Book Prescribed**

Urdu Nisab Part II published by M/s. Educational Book House, A.M.U. Market, Aligarh.

**Paper-B**

100 marks

Time : 3 Hours

**Essay and Composition :**

- |       |                                  |          |
|-------|----------------------------------|----------|
| (i)   | Essay                            | 40 marks |
| (ii)  | Letter/application               | 20 marks |
| (iii) | 1. Mutazadi Alfaz                |          |
|       | 2. Mutaradif Alfaz               |          |
|       | 3. Wahid Aur Jama                |          |
|       | 4. Tazkeen-o-Taness              |          |
|       | 5. Muhaware                      |          |
|       | 6. Correction of words/sentences | 40 marks |

**Book Recommended**

Guldasta-e-Mazamin-e-Insha Pardazi Part-II by Dr. Arif Mohd. Khan, Published by M/s. Educational Book House, Aligarh Muslim University Market, Aligarh.

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**PERSIAN (Elective)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Outlines of tests, syllabi and courses of reading**

There will be one paper of 200 marks.

Time : 3 Hours

This paper is divided in three parts as follows :

**PART-A** (Objective type questions)

75 marks

1. Only introductory questions based on the name of the poets, writers and their important literary books/contributions to Persian Languages and Literature.  
(Only more important famous poets, writers/historians of Ghazanavid and Moghals of Indo Persian Literature).
2. 25 objective-type one line questions to be answered and marked ✓ or × with the choice out of 30 to 35 questions.

**PART-B**

75 marks

For short answer questions say 6 to 8 out of 12

Question shall be framed as follows :

- (a) Explanation of short paragraph of two to three lines of prose or quotation from the prescribed text.
- (b) Explanation of one or two Ashaar of the poetry from the text prescribed.

*Note :* The students will be given choice to answer their questions in any one of the languages i.e. Urdu, Hindi, English, Punjabi or Persian.

**PART-C**

50 marks

- (a) Comprehensive questions say two out of four/five to be answered. Students will be given choice to answer the questions in any one of the languages i.e. Urdu, Hindi, English, Punjabi or Persian.
- (b) Short biographical and simple life sketch of the poets/writers as prescribed in the text.

**Text Book Prescribed**

GULDASTA-YE-FARSI by Hafiz Maulavi Mohd. Ayub Khan, Published by Ram Narain Lal, Beni Madho. Available at Ram Narain Lal Arun Kumar, Publishers and Book-Sellers 2, Katra Road, Allahabad-2.

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**ARABIC (Elective)**  
**(Kept in Abeyance)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

(There will be two papers of 100 marks each)

**Paper-A**

100 Marks

Time : 3 hours

- |    |   |          |
|----|---|----------|
| 1. | Grammar   | 50 marks |
|    | <ul style="list-style-type: none"> <li>(i) Sulasi Mujarrad and its six babs</li> <li>(ii) Mafail Khamsah</li> <li>(iii) Jumla Khabariyya and Inshaiyyah</li> <li>(iv) Atf. Takid, Badal, Hal-Zul-Hal Tamiz</li> <li>(v) Mustasna, Mustansa Minhu, Huruf Istihna</li> <li>(vi) Abwab Sulasi Mazid Fih and its 8 Abwabs Tafil<br/>Mafailah Ifal, Istifal Tafa, ul Iftial, Infial</li> <li>(vii) Mansubat</li> <li>(viii) Afal Madah and Zamm</li> <li>(ix) Afal Ta'ajjub</li> <li>(x) Ismul Fa'l</li> <li>(xi) La-Le-Nafi-Lil-Jins</li> </ul> |          |
| 2. | Translation of simple sentences of Arabic into English/Hindi/Urdu   | 30 marks |
| 3. | Use of words into simple Arabic sentences   | 20 marks |

**Paper-B**

Time 3 : hours

Text	100 Marks
Prose and Poetry	60+40 marks

**Book Prescribed**

Al-Qiraat-ur-Rasheedah Part IV by Abdul Fattah and Ali Omar (Egyptian Edition) (Can be had from Kutub Khana, Rashidia Urdu Bazar, Zama Masjid, Delhi-6).

Only Lessons 1 to 30 are to be studied.

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**FRENCH (Elective)****B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013**

**Paper-A** : Introduction to French Civilization 100 marks

**Paper-B** : Applied Grammar, Creative Writing 100 marks

**SYLLABUS****Paper-A : INTRODUCTION TO FRENCH CIVILIZATION**

	Max. Marks	: 100
	Theory	: 90 marks
	Internal Assessment	: 10 marks
	Time	: 3 Hours
1.	(a) Fifteen questions (General) pertaining to the prescribed textbook.	30 marks
	(b) Comprehension of an unseen text (easier than the prescribed textbook). Ten questions to be put in French and to be answered in French.	20 marks
	(c) Making ten sentences with idioms and expressions pertaining to the prescribed textbook.	20 marks
2.	Write a short dialogue and a message (10 marks each).	20 marks

**CHOICE TO BE GIVEN IN ALL QUESTIONS****Paper-B : APPLIED GRAMMAR, CREATIVE WRITING**

	Max. Marks	: 100
	Theory	: 90 marks
	Internal Assessment	: 10 marks
	Time	: 3 Hours
1.	Translation from English into French and from French into English of a passage or short sentences based on the vocabulary of the prescribed textbook.	30 marks
2.	Questions on applied grammar including conjugations of verbs in applied form, pertaining to the prescribed textbook.	40 marks

3. Write a composition or dialogue or a simple letter of 150 words. 20 marks

**CHOICE TO BE GIVEN IN ALL QUESTIONS**

**Course of Reading**

Textbook-Campus-I, Jacky Giradet, et Jacques Pécheur, CLE International, Paris, 2000.

- (a) Livre de l' élève
- (b) Cahier d exercices
- (c) 2 Cassettes

- Note :*
- 1. Questions on composition and unseen passages to be based on the vocabulary and grammar of the textbook covered by the students in B.A. First Year.
  - 2. All questions are to be asked and answered in French (except questions on translation).
  - 3. Eight periods of one hour weekly –Six hours for Text and Two hours for composition.

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**GERMAN (Elective)****B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013****Paper-A : WRITTEN**

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment (For regular students)	:	10 marks
Time	:	3 Hours

10 multiple choice questions of 3 marks each to be asked. This question is compulsory. : 30 marks

Questions in applied grammar (Fill in the blanks) conforming to the prescribed book "Deutsche Sprachlehre Für Ausländer" in einem Band. : 20 marks  
4 out of 6 questions to be attempted.

Questions from the prescribed book "Texte zum Lesen und Nacherzählen" (from page 1 to 29 excluding Mi Bverständnis) (short-answer type not to exceed 20 words). : 20 marks  
4 out of 6 questions to be attempted.

Questions on "Culture & Civilization" from the prescribed Book "Blick auf Deutschland" (Page No. 1 to 29) (Fill in the blanks). : 20 marks  
4 out of 6 questions to be attempted.

**Paper-B : (I) WRITTEN**

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment (For regular students)	:	10 marks
Time	:	3 Hours

Paraphrasing of a poem or stanzas out of the following poems from "German Verse" by B.B. Kulkarni & R.N. Chapekar : 20 marks

1. Gefunden (Johann Wolfgang von Goethe).
2. Da ich ein Knabe war (Friedrich/Hölderlin).
3. Sehnsucht (Joseph Freiherr von Eichendorff).

4. Die Lorelei (Heinrich Heine).
5. Somm-erbild (Friedrich Hebbel).
6. Abendlied (Gottfried Keller).
7. Im Nebel (Hermann Hesse).

Translation of 4 simple unseen sentences out of 6 from German into English/ Hindi/Punjabi (Meanings of unknown words to be given). : 20 marks

Translation of 4 simple unseen sentences out of 6 from English into German (Meanings of unknown words to be given). : 20 marks

## II ORAL :

**30 marks**

Reading of text and conversation in Simple German.

*Note :* The mode of evaluation for Internal Assessment is to be followed as per University Guidelines.

### **Prescribed Text-books :**

1. Deutsche Sprachlehre Für Ausländer in einem Band by Dora Schulz/Griesbach (Chapters 1 to 14)
2. Texte zum Lesen und Nacherzählen (pages 1 to 29) by Hans-Joachim Arndt (Max Huber Verlag) (Pages 1 to 29 excluding "MiBervstandnis")
3. Blick auf Deutschland by Anne und Klaus (pages 1 to 29)  
German Verse by B.B. Kulkarni & R. N. Chapekar.

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**RUSSIAN (Elective)****B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013**

<b>Paper-A :</b>	Max. Marks	: 100
	Theory	: 90 marks
	Internal Assessment	: 10 marks
	Time	: 3 Hours

**WRITTEN**

- |    |   |   |          |
|----|---|---|----------|
| I  | Translation from simple Russian into English/Hindi/Punjabi (about 120 words). | : | 45 marks |
| II | Translation from English/Hindi/Punjabi into Russian (about 100 words)         | : | 45 marks |

*NOTE : USE OF DICTIONARIES IS ALLOWED*

<b>Paper-B :</b>	Max. Marks	: 100
	Theory	: 60 marks
	Internal Assessment	: 10 marks
	Time	: 3 Hours

**(I) WRITTEN**

- |    |  |                |
|----|--|----------------|
| 1. | Simple Applied Grammar<br>4 questions (out of 8) of 5 marks each.                  | 20 marks       |
| 2. | Questions on Prescribed texts in Russian : 5 questions (out of 8) of 3 marks each. | 15 marks       |
| 3. | Composition ( <b>one</b> out of <b>three</b> ) on the following topics :           | 25 marks       |
| 1. | My Family  | 2. Working Day |
| 3. | Our Flat/House   | 4. Birthday    |
| 5. | Sport  | 6. Function    |
| 7. | Our City (Interesting places).   |                |

- |  |          |
|--|----------|
| <b>(II) ORAL</b>                                       | 30 marks |
| Reading of text(s) and Conversation in simple Russian. |          |

**Book Prescribed :**

Wagner, V.N. : RUSSIAN – P.P.H., New Delhi (Lessons : 1-31).

**OR**

Maurya, A.K. : Essential Russian, University of Delhi, 2004 (Lessons : 1-14)

**Books Recommended for Additional Reading :**

- |    |                |   |
|----|----------------|---|
| 1. | Timberlake     | : Reference Grammar of Russian, Cambridge.  |
| 2. | Khavronina, S. | : Russian in Exercises, 1978.   |
| 3. | Pulkina, I.    | : RUSSIAN – A Practical Grammar with Exercises,<br>Izdatelstvo 'Russky Yazik' Moscow, 1980. |
| 4. | Dictionaries   |   |

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**BENGALI (Elective)**  
**(Kept in Abeyance)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Paper-A**

Total : 100  
Time : 3 Hours

Novels 60 marks

Essays 40 marks

Novels : Bankim Chandra : Kapalkundals, Satinath Bhadury : Jagari

Essays : Rabindra Nath : Prachin Sahitya – Ramayana, Meghdut,  
Sakuntals, Kavye Upekshita

**Paper-B**

Total : 100  
Time : 3 Hours

(i) Novels 40 marks

(ii) Essays 40 marks

(iii) Composition 20 marks

Novels : Sarat Chandra : Sri Kanta Pt. I

Essays : Rabindra Nath : Bichitra Prabandha

The following pieces are to be studied :

1. Ruddha Griha
2. Pagal
3. Mandir
4. Baje Katha
5. Ponero Ana
6. Sonar Kathi

Composition : A prose passage will be given to the students and they are expected :

- (i) to write the central idea of the same
- (ii) to suggest a title
- (iii) to annotate a few words
- (iv) to comment on the style

**Suggested Readings**

1. Sanchayita : Rabindranath Tagore
2. Bichitra ed. : Asit Kumar Bandopadhyay and Janjavi Chakarbarti (Calcutta Publications)
3. Bidhuti Chaudhri : Rachana Bichitra

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**TAMIL (Elective)**  
**(Kept in Abeyance)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Paper-A**

Marks : 100  
Time : 3 hours

1. *Poetry* : 50 marks  
Selections in Tamil Poetry for the 1<sup>st</sup> year B.A./B.Sc. degree examination 1994-95 of the Madras University, Madras-5.
2. *Prose Book* : 50 marks  
“Vazhvum Vazhiyum” by P. Sowrirajan, published by Par & Nilaiyam, 184, Broadway, Madras-108.

Total : 100 Marks

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**Paper-B**

Marks : 100  
Time : 3 hours

1. *Novel* : 50 marks  
Esuvini Thozhargal by Dr. Indira Parthasarathy, published by Tamil Puthagalayam, Triplicane, Madras-5
2. *History of Tamil Literature* : 50 marks  
(from 10<sup>th</sup> century upto present time)

Total : 100 Marks

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**TELUGU (Elective)****(Kept in Abeyance)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Outlines of Tests, Syllabi and Courses of reading****Paper-A**

Total Marks : 100

Time : 3 hours

1. Poetry 50 marks
2. Prose 50 Marks
1. *Poetry* : 50 marks  
Telugu Kavva Mela (first six pieces)  
published by Sahitya Academy, Rabindra Bhavan, New Delhi-I.
2. *Prose* : 50 marks  
Sahitya Marmoralu (Essays) 1 to 6 and 8 only by Tapi Dharma Rao,  
published by Visalandhra Publishing House, Vijayawada-4.

**Paper-B**

Total Marks : 100

Time : 3 hours

1. *Novel* : 50 marks  
Agnigundam by Mahindhara Rammohan Rao, Published by Visalandhra  
Publishing House, Vijayawada-4.
2. *History of Telugu Literature* : 50 marks  
(Modern period only)

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**KANNADA (Elective)****(Kept in Abeyance)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Outlines of Tests, Syllabi and Courses of reading****Paper-A**

Total Marks : 100  
Time : 3 hours

1. *Poetry* : 50 marks  
Samakalina Kannada Kavite, Bhaga I, pages 3 to 49,  
published by Bangalore University, Bangalore.
2. *Prose* : 50 marks  
Kavi Saila, published by Kannada Sangha, Maharaja College,  
Mysore (University Publication).

**Paper-B**

Total Marks : 100  
Time : 3 hours

1. *Short Stories* : 50 marks  
Kannada short stories, published by N.B.T., New Delhi.
2. *History of Kannada Literature* : 50 marks  
(Modern period only)

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**MALAYALAM (Elective)**  
**(Kept in Abeyance)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Outlines of Tests, Syllabi and Courses of reading**

**Paper-A**

Total Marks : 100  
Time : 3 hours

1. *Poetry* : 50 marks  
Malayalam Kavya Samgraham (Poems Nos. 19, 21, 22, 23, 24, 25, 26, 29, 31 and 33 only), published by National Book Trust, New Delhi.
2. *Prose* : 50 marks  
Prasanna Pooja (Essays) by Prof. E. K. Narayanan Poti, published by National Book Stall, Kottayam, Kerala.

**Paper-B**

Total Marks : 100  
Time : 3 hours

1. *Short Stories* : 50 marks  
Delhi Kathakal, published by Current Books, Kottayam, Kerala.
2. *History of Malayalam Literature* (Modern Period). 50 marks

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## PHYSICAL EDUCATION

B. A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**PAPER-A :**

Max. Marks	:	65
Theory	:	60 marks
Internal Assessment	:	05 marks
Time	:	3 Hrs.

**INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS :**

- (a) There shall be nine questions in all, spread over Five Units.
- (b) First question/Unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks.
- (c) Rest of the paper shall contain four Units for descriptive questions. Each Unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each Unit.
- (d) All questions/Units will carry equal marks.
- (e) Private candidates and the students of the University School of Open Learning will not be allowed to take this subject.

**UNIT-I**

12 Marks

Entire syllabus given in the Units II to V will be covered to set six short answer type questions in first Question/Unit of the question paper which is compulsory.

**UNIT-II**

12 Marks

**Education and Physical Education :**

Meaning and concept of Education

Meaning and definition of Physical Education, its aim and objectives.

Modern concepts/trends of Physical Education and its scope.

Physical Education is an art or science.

Need and importance of Physical Education in the Modern Society and its relationship with other subjects.

**History of Physical Education :**

Pre and Post Independence Development of Physical Education in India.

Place of Physical Education in the Present System of Education in India and the new Education Policy.

**UNIT-III**

12 Marks

**Biological Basis of Physical Education :**

Growth and Development. Differences between growth and development.

Factors affecting growth and development.

Various stages of growth and development.

Age and sex differences in relation to Physical Activities and Sports.

Heredity and Environment and its effects on Growth and Development.

Chronological Age, Anatomical Age and Physiological Age.

Body types.

**Drugs and Tobacco :**

Effects of Drugs and Tobacco on an individual and its effects on sports performance.

Doping in sports.

Treatment of drug addicts.

**UNIT-IV**

12 Marks

**Olympic Games, Asian Games and Common Wealth Games :**

Ancient Olympic Games.

Modern Olympic Games.

Asian Games.

Afro-Asian Games.

South Asian Federation Games.

Common Wealth Games.

**UNIT-V**

12 Marks

**Functions and Objectives of the followings :**

Raj Kumari Amrit Kaur Coaching Scheme.  
Netaji Subash National Institute of Sports, Patiala.  
Sports Authority of India.  
International Olympic Committee.  
Indian Olympic Association.  
Punjab and Chandigarh Sports Departments.

**References :**

1. Barrow, Harold M. : *"Man and Movements : Principles of Physical Education"*, Philadelphia, Lea and Febiger, 1983, 3<sup>rd</sup> edition.
2. Bucher, Charles A. : *"Foundations of Physical Education,"* 8<sup>th</sup> edition, 1979; St. Louis C.V. Mosby Company.
3. Chauhan, S.S. : *"Advanced Educational Psychology"*, 1985 edition : New Print-India Pvt. Ltd., Sahibabad, U.P.
4. Indian Olympic Association, Jan., 1976.
5. Khan, Eraj Ahmed : *"History of Physical Education,"* Scientific Book Company, 1964.
6. Krishna Murti & Parameshwara Ram, N. : *"Educational Dimensions of Physical Education"*, 2<sup>nd</sup> Revised Edition, 1990, Print India, New Delhi.
7. Moslon : *"The Olympian"*, Olympic House, Canada, 1976.
8. Puni, A.T. : *"Sports Psychology"*, An Abridged Translated by G.S. Sandhu, NIS, Patiala, 1980.

9. Sharma, P.D. : *"Olympics : Athens to Atlanta, 1896-1996"*, Friends Publications (India) Delhi, 1998.
10. Sheldon, W.H. : *"The Varieties of Human Physique"*, New York, 1940, Harper and Row Publishers.
11. Singh, Ajmer et al : *"Modern Text Book of Physical Education, Health and Sports"*, Kalyani Publishers, Ludhiana, 2000.
12. Skinner Charles, E. : *"Educational Psychology"*, 4<sup>th</sup> edition 1984, Prentice Hall of India Pvt. Ltd.
13. Tiru Narayanan C. and Hariharan S. : *"An Analytical History of Physical Education"*, South India Press, Karaikudi, April, 1975.

**PAPER-B :**

Max. Marks	:	65
Theory	:	60 marks
Internal Assessment	:	05 marks
Time	:	3 Hrs.

**INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS :**

- (a) There shall be nine questions in all, spread over Five Units.
- (b) First question/Unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks.
- (c) Rest of the paper shall contain four Units for descriptive questions. Each Unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each Unit.
- (d) All questions/Units will carry equal marks.
- (e) Private candidates and the students of the University School of Open Learning will not be allowed to take this subject.

**UNIT-I**

12 Marks

Entire syllabus given in the Units II to V will be covered to set six short answer type questions in first question/Unit of the question paper which is compulsory.

**UNIT-II**

12 Marks

**Cell :**

Meaning and definition of Anatomy & Physiology, Structure and Functions of a cell.

**Skeletal System :**

Meaning and functions of skeletal system.

Types of Bones and names of various bones of the body.

Meaning of joints, Various types of joints and major movements around them.

**Muscular System :**

Structural classification of skeletal muscle, structure and functions of skeletal muscles.

Effect of Exercise on the muscles system.

**UNIT-III**

12 Marks

**Warming up and Cooling down :**

Warming up and cooling down in sports and its significance.

General guidelines for warming up and cooling down.

**Physical Fitness :**

Meaning, definition and components of Physical Fitness.

General tips for fitness programme.

Influence of age, sex, body composition, diet, climate, exercise and training on Physical Fitness.

**UNIT-IV**

12 Marks

**Health & Health Education :**

Meaning, definition and dimensions of health.

Meaning, definition, objectives, scope, principles and importance of Health Education.

Personal hygiene, its meaning and importance.

**Nutrition :**

Balanced diet, its elements and sources. Water loading.

Nutritional requirement for an Athlete

Diet intake before and after competitions.

**UNIT-V**

12 Marks

**Environment Pollution :**

Air, water and noise pollution, their causes and remedial measures. Composition of Atmosphere, Ozone Depletion & Acid Rain.

**First Aid :**

Meaning and importance of First Aid in Physical Education and Sports with special reference to drowning, dislocation of a joint, fracture of bone, Sprain and Strain.

**References :**

1. Chaurasia, B.D. : *"Handbook of General Anatomy"*, CBS Publishers and Distributors, First Edition, 1981.
2. Dandiya, P.C., Jafer, Z., Y.K. and Jafer Afifa : *"Health Education and Community Pharmacy"*, Second Edition, 1996, Reprinted in 1998, Vallabh Prakashan, Pitampura, New Delhi.
3. Marley, William P. : *"Health and Physical Fitness"*, 1982, CBS College Publishing.
4. Mathews, D.K. and E.L., Fox : *"The Physiological Basis of Physical Education & Athletics"*, Second Edition, W.B. Saunders Co., Philadelphia, 1976.
5. Park, J.E. & Park, K. : *"Text Book of Preventive and Social Medicine"*, 10<sup>th</sup> Edition, 1985, Banarasi Dass Bhanot, Jabalpur, India.
6. Parrot, J.W. : *"Anatomy and Physiology for Physical Education Teachers"*, Lend Edward Arnold Ltd., 1983.
7. Rose & Wilson : *"Foundations of Anatomy and Physiology"*, 5<sup>th</sup> Edition, 1981, Reprinted in 1985.
8. Sampath, K. & Uma Maheshwar, B. : *"Human Anatomy & Physiology"*, First Edition, 1999-2000, Birla Publications, Delhi.
9. Shaphard, R.J. : *"The Fit Athlete"*, Oxford University Press, 1978.
10. Shaver, Larry G. : *"Essential of Exercise Physiology"*, Surjeet Publications, Delhi, First Indian Print, 1982.



11. Sensie Farokh Dinshaw : *"Fighting Fit for Ever", 1997, The Marine Sports Publishing Division, Bombay.*
12. Singh, Ajmer et. al. : *"Modern Text Book of Physical Education, Health and Sports", Kalyani Publishers, Ludhiana, 2000.*
13. Wilmore, Jack H. : *"Athletic Training and Physical Fitness", 1977, Allyn and Bacon, Inc., 470, Atlantic Avenue, Boston, Massachusetts.*

<b>PRACTICAL</b>	<b>Athletics</b>	<b>Max. Marks</b>	<b>: 70</b>
		<b>Practical</b>	<b>: 60</b>
		<b>Internal Assessment</b>	<b>: 10</b>

#### **Sprints (Types of Start and Finish) :**

- (a) Crouch start-fixing of starting blocks, getting in and off the block, emphasizing on body position, need of starting blocks in a sprint race.
- (b) Practice of starts with starting blocks using proper commands.
- (c) Bringing in correct running style.
- (d) Practice of Finishing the sprint with different techniques.
- (e) Rules and Regulations of Sprint races.

#### **Middle Distance, Long Distance and Walking Events :**

- (a) Marking of standard tracks, width of lanes and starting points for various races.
- (b) Practice of Standing Start.
- (c) Correct running and walking style, emphasis on proper body position and foot placement.
- (d) Running tactics.
- (e) Rules of competition.

#### **Games :**

(Volley-Ball or Kabaddi (NS) and any other one game of the choice of the student).

- Volley-ball (a) Measurements (volleyball court, net, poles, antenna and ball).
- (b) Number and position of players and officials.
  - (c) Types of service (under arm service, side arm service and tennis service).

- (d) Types of passes (under hand and over head pass).
- (e) Rules of the game.

**OR**

- Kabaddi**
- (a) Measurements (Kabaddi court for men and women).
  - (b) Number of players and officials.
  - (c) Fundamental offensive skills, touching with hand, leg thrust, front kick, side kick, Mule kick, jump and dive counter.
  - (d) Defensive Skill (wrist catch, normal grip, ankle catch, knee catch and chain formation).
  - (e) Tactics : (a) getting bonus point (b) counter to bonus line crossing (c) Delaying tactics for getting lona.

**Physical Fitness Tests :** More emphasis shall be given on general physical fitness and principles of physical exercises (Speed and agility).

**Test 1 SPEED : 50 mts dash test.**

**Test 2 AGILITY : Shuttle run test.**

*Division of Practical Marks :* Marks for each activity shall be divided as under :  
 Athletics 15 marks, game 15 marks, participation and achievement in sports/games 10 marks, Physical fitness 10 marks, viva voce 10 marks and internal assessment 10 marks based on overall performance of a student during the current academic session which will be assessed by the teacher concerned.

- Note :*
1. Polevault, Hammer Throw Hurdles, Relay Races and steeple chase men are not included in the practical syllabus/course due to the fact that these events are highly technical. Moreover, in the absence of proper facilities required for the events mentioned above may prove to be injurious/fatal to the students.
  2. 12 periods per week (6 periods each for theory and practicals) shall be allotted to a class.
  3. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.
  4. The theory (Paper A and Paper B) shall consist of 65 marks each and practical paper shall consist of 70 marks.
  5. As per the Panjab University Calendar, Chapter XIX (Page 324) Volume III, 1990, the maximum teaching work load for a Lecturer in Physical Education for B.A. Pass Course is 24 periods per week, which includes theory as well as practicals.

6. The choice of games by the students shall be confined to the games approved by the Association of Indian Universities.
7. A student is required to prepare a practical note book of athletic events and games given in the syllabus.

### **Mandatory Instructions for the Colleges :**

#### 1. *Admission Criteria :*

- (i) Any student opting to have Physical Education as an Elective Subject irrespective of the background of the students (sports or non-sports students) must appear in the physical fitness test. Ranking should be prepared and the top 60-80 students should be offered this subject.
- (ii) This subject should be offered to the normal students (not to disabled one).
- (iii) To measure Physical Fitness through Cardiovascular Fitness Test, Cooper's 9 Minutes or 12 Minutes Run-Walk Test should be conducted.

#### 2. *Periodical Physical Inspections :*

The University/Authorities with the collaboration of the Department of Physical Education, Panjab University, shall make Periodical Physical inspections of the various colleges to ensure that the teacher-student ratio is maintained by all the affiliated colleges for this subject **as per the University Guidelines**, and for them to ensure that infrastructure (facilities), equipment, books/professional journals and groundman, a game boy are provided as per the requirements of the subject and directions of the Panjab University, Chandigarh.

#### 3. *Strength of Students :*

For imparting effective teaching, the strength of students in a theory class shall be between 60-80 while it shall be 30-40 students in practical class.

#### 4. *Infrastructure/facilities and Physical Education Personnel :*

For the introduction/to continue with this subject, a college must fulfil the following mandatory requirements such as :

- (i) A track atleast of 200 meters. It should, however, preferable be raised to 400 meters track.
- (ii) Bare minimum two Malies-cum-Groundmen for maintenance of the grounds and other infrastructure facilities etc.

- (iii) A game boy to supply the sports equipments and water to the students/teachers on the ground/playfield/arena.
- (iv) A store-keeper for the proper maintenance/accountability of sports equipments in the stores.

5. *Number of Periods :*

The number of periods for theory and practical shall be 12 periods per week (6 periods each for theory and practical) for classes i.e. B.A. First Year, B.A. Second Year and B.A. Third Year. Practical period shall be projected in the college time table itself.

6. *Teaching Work Load :*

- (i) As per the Panjab University Calendar Chapter XX (Page 298) Volume-III, 1996, the maximum teaching work load for a lecturer in Physical Education for B.A. Pass course is 24 periods per week which includes theory as well as practicals.
- (ii) Teachers who are preparing 6 teams for the Panjab University Inter College Competition, their work load shall be counted by including six periods per week in the teaching load of concerned lecturer in Physical Education.

7. *Division of Marks ( Theory and Practical) :*

65% and 35% weightage shall be given to each theory and practical papers.

*Note :* STRICT ACTION SHALL BE TAKEN BY THE UNIVERSITY AGAINST THE COLLEGE(S) WHICH VIOLATES THE ABOVE INSTRUCTIONS.

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## EDUCATION

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper-A : EDUCATION AND SOCIETY

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

#### GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :

The question paper will consist of five Units : I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective Units of the syllabus and will carry 18 marks each. Unit V will consist of **eight** short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks in all. Each short question will carry 3 marks.

#### GENERAL INSTRUCTIONS FOR THE CANDIDATE :

The students will be required to attempt one question each from Units I, II, III and IV. The students are required to attempt **6** short questions out of **8** in Unit V which will be **compulsory**. The question paper should preferably carry internal division of marks for all the sub-questions of one main question. Preferably set the words limit (300-350 words for Units I, II, III, IV and; 75 words for each short answer type question in Unit V) for answer.

#### Objectives :

To enable the students to understand :

1. The Meaning, Nature and Scope of Education along with its types.
2. Functions of Education in light of its aims.
3. Role of Education viz-a-viz present day needs.

#### Course Contents :

- UNIT-I** : (a) Meaning and Nature of Education : Education as a Socio-Political Process and Developmental Process. (b) Informal, Formal and Non-Formal Education.
- UNIT-II** : (a) Aims of Education – Individual, Social, Vocational and Democratic.  
(b) Functions of Education – Individual Development, Transmission of Cultural Heritage and Education for Social Change.
- UNIT-III** : (a) Education for Democratic Citizenship. (b) National Integration and International Understanding.
- UNIT-IV** : (a) Value Education –Meaning of Values, their Development (b) Transactional Strategies.

**Books Recommended :**

1. Bhatia, K.K. and Narang, C.L. : *Teacher and Education in Emerging Indian Society*, Tandon Publishers, Ludhiana, 2002.
2. Bhatia, K.K. and Sharma, S. : *Bhartiya Shiksha Ki Adhunik Samasyaein*, Parkash et al Bros., Ludhiana, 1986.
3. Bhatnagar, Suresh : *Kothari Commission Recommendations and Evaluation with a Text on National Policy on Education*, Loyal Book Depot, Meerut, 1982.
4. Govt. of India : *National Policy on Education*, Ministry of Human Resource Development, New Delhi, 1986.
5. Govt. of India, Ministry of Education : *Report of Education Commission (1964-66)—Education and National Development*.
6. Govt. of India, Ministry of Education : *Report of Secondary Education Commission (1952-53)*, New Delhi.
7. Gupta, S.P. : *Sikhya de Sidhant ate Takneekan*, Hans Book Depot, Faridkot, 1989.
8. Kansal, M.R. : *Sikhya de Sidhant*, Punjab State University Text Book Board, Chandigarh.
9. Mathur, S. S. : *Shiksha Sidhant*, Vinod Pustak Mandir, Agra, 1981.
10. Sharma, T.R. : *Sikhya de Sidhant*, Punjabi University, Patiala.
11. Safaya, R.N. : *Principles and Techniques of Education*, Dhanpat Rai & Sons, Jalandhar.
12. Yadav, H. S. et al : *Adhunik Bhartiya Smaj Mein Shiksha*, Tandon Publishers, Ludhiana, 1995.
13. Yadav & Yadav : *Education in the Emerging Indian Society*, Tandon Publications, Ludhiana.

**Paper-B : EDUCATION AND HUMAN DEVELOPMENT**

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

**GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :**

The question paper will consist of five Units : I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective Units of the syllabus and will carry 18 marks each. Unit V will consist of **eight** short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks in all. Each short question will carry 3 marks.

**INSTRUCTIONS FOR THE CANDIDATE :**

The students will be required to attempt one question each from Units I, II, III and IV. The students are required to attempt **6** short questions out of **8** in Unit V which will be **compulsory**. The question paper should preferably carry internal division of marks for all the sub-questions of one main question. Preferably set the words limit (300-350 words for Units I, II, III, IV; and 75 words for each short answer type question in Unit V) for answer.

**Objectives :**

To make the students understand :

1. The meaning, scope and uses of psychology in education.
2. Human growth and development upto the stage of childhood.
3. Meaning, purpose of learning and factors influencing learning.
4. The concept of intelligence - its meaning and measurements.
5. Causes and significance of individual differences.

**Course Contents :**

- UNIT-I** : (a) *Educational Psychology* : Meaning, Nature and Scope.  
(b) Individual Differences – Causes, Significance and Educational Implications.
- UNIT-II** : (a) Nature of Human Growth and Development – Physical, Mental, Emotional and Social. (b) *Stages of Human Development* : Infancy and Childhood, their Needs, Significance and Problems.
- UNIT-III** : (a) *Learning* : Meaning and Definition.  
(b) Theories of Learning - Trial and Error Thorndike and Classical Conditioning by Pavlov.
- UNIT-IV** : (a) *Intelligence* : Meaning, Types (b) Measurement of Intelligence.

**Books Recommended :**

1. Aggarwal, J.C. : *Essentials of Educational Psychology*, Vikas Publishing House, Private Ltd., New Delhi, 1995.
2. Bhatia, H.R. : *A Textbook of Educational Psychology*, Asia Publishing House, New Delhi, 1977.
3. Bhatnagar, S. : *Shiksha Manovigyan*, International Publishing House, Meerut, 1977.
4. Dhingra, R. : *Educational Psychology and Guidance*, Punjab Katab Ghar, Jalandhar.
5. Kagan, J. and Lang, C. : *Psychology and Education*, Harcourt Brace Jovanovich, Inc., New York, 1978.

6. Kundu, D. : *Modern Educational Psychology*, Sterling Publishers (P.) Ltd., New Delhi, 1974.
7. Kuppuswamy, B. : *Advanced Educational Psychology*, Sterling Publishers (P.) Ltd., New Delhi, 1994.
8. Mangal, S.K. : *Advanced Educational Psychology*, Prentice Hall of India Ltd., New Delhi, 2002.
9. Mathur, S.S. : *Educational Psychology*, Vinod Pustak Mandir, Agra, 1998.
10. Sandhu, I.K. and Kaur, A. : *Shikhya Manovigyan*, Punjabi University, Patiala, 1976.
11. Walia, J. S. : *Foundations of Educational Psychology*, Paul Publishers, Jalandhar, 2001.

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## ADULT EDUCATION

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

Max. Marks	:	200
Theory	:	90 marks
Internal Assessment	:	10 marks
Practical	:	100
Time	:	3 Hours

### GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :

The question paper will consist of five Units : I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective Units of the syllabus and will carry 18 marks each. Unit V will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks in all. Each short question will carry 3 marks.

### GENERAL INSTRUCTIONS FOR THE CANDIDATE :

The students will be required to attempt one question each from Units I, II, III and IV. The students are required to attempt 6 short questions out of 8 in Unit V which will be **compulsory**. The question paper should preferably carry internal division of marks for all the sub-questions of one main question.

### OBJECTIVES OF THE COURSE :

The main objectives of the paper are :

1. To introduce students with meaning, scope and components of adult education.
2. To provide an overview of history of adult education.
3. To equip students with objectives, strategies and implementation of National Literacy Mission's Programs.
4. To acquaint students with structuring of teaching – learning environment for an adult learner.
5. To explain to students the various forms of Adult Education.

### THEORY :

**UNIT-I** : *Adult Education* : Concept, Meaning, Brief History during Post-Independence Period, Scope and Components of Adult Education i.e. Literacy, Numeracy, Awareness and Functionality.

**UNIT-II** : *National Literacy Mission* : Objectives, Strategies and Implementation.

**UNIT-III** : *Structuring Teaching Learning Environment for Adult Learners* : Identification of Areas. Survey of the Community, Identification of Learners, Campaign for enrolment, enrolment of the learners and day-to-day functioning of Adult Education Centre, Involvement of Community & Developmental Agencies.

**UNIT-IV** : Various forms of Adult Education i.e. Social Education, Community Education, Basic Education and Life Long Education.

### **PRACTICAL/FIELD WORK :**

Participation of the students in the following and preparation of Project Report :

1. Survey of the Village/Area : General information regarding the village; its Economic, Social and Cultural Activities : Needs and Problems.
2. Preparation of profile of the area.
3. Organization of Adult Education Centres for Basic Literacy Development.

*The break up of 100 marks allotted to practical is as under :*

	<u>External</u>	<u>Internal</u>
(i) Viva-Voce	30 marks	3
(ii) Written questions based on the Project	20 marks	2
(iii) Project Report	40 marks	5

The Project Report must be submitted 15 days in advance from the date/s of practical examination, to the Principal of the concerned College/Institution.

### **Books Recommended :**

1. Datta, S.C. : *Adult Education in India*, Indian Adult Education Association, New Delhi, 1986.
2. Directorate of Adult Education : *The National Adult Education Programme, 1978*.
3. Directorate of Adult Education, Ministry of Education, Govt. of India : *Training of Adult Education Functionaries 1-4*, D.A.E., 1980
4. Directorate of Adult Education : *Fifty Years of Adult Education in India*.

5. Dept. of Education, Ministry of Human Resource Development, Govt. of India : *National Literacy Mission, 1988.*
6. Kundu, C.L. : *Adult Education : Principles, Practices and Prospectus*, Sterling Publishers, Delhi, 1984.
7. Mali, M.G. : *Adult Education in India*, Deep and Deep Publication, New Delhi, 1984.
8. Mathur, B.M. : *Adult Education & Social Change*, The Associated Publishers, Ambala Cantt., 1989.
9. Pangotra, N.N. : *Adult Education, Project through Universities and Colleges*, CACEE, Panjab University, 1987.
10. Sharma, I.P. : *Adult Education in India*, National Book Organization, 1985.
11. Singh, Sohan : *History of Adult Education*, The Indian Adult Education Association, New Delhi, 1957.
12. Styler, W.E. : *Adult Education in India*, Oxford University Press, 1986.
13. Yadav, R.S. : *Adult Education Training & Productivity*, The Indian Publications, Ambala Cantt., 1991.

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**MUSIC (Vocal)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**GENERAL INSTRUCTIONS :**

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. In all, *nine* questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The Unit fifth based on notation will contain only one **compulsory** question.
3. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.
4. The candidate can take vocal music along with instrumental music.
5. The candidate can also take instrumental music with tabla.
6. Practical paper shall be set from the syllabus.
7. There would be upto 10 students in one section.

<b>Paper-A : THEORY</b> (3 Hours duration)	90 Marks
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<b>Paper-B : PRACTICAL</b> (20 minutes duration)	90 Marks
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- |                   |            |
|-------------------|------------|
| (i) Choice & Viva | : 70 Marks |
| (ii) Harmonium    | : 10 Marks |
| (iii) Tabla       | : 10 Marks |

Internal Assessment (Theory + Practical)	(10 + 10)	: 20 Marks
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<b>Total</b>	<b>:</b>	<u><b>200 Marks</b></u>
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**Paper-A : THEORY****Unit-I**

1. Various developments (in brief) in the History of *North Indian Music* during the modern period from 18<sup>th</sup> to 20<sup>th</sup> century A.D.
2. Knowledge of Bhatkhande Thaat Padhati.
3. Different Jaties of Ragas of *the Present Raga System* of North Indian Music.

**Unit-II**

1. Elementary knowledge of the following Musical terms :  
Dhwani, Sangeet, Nada, Shruti, Matra, Avartan, Sam, Tali, Khali, Bol, Vibhag, Swara (Shudh & Vikrit), Saptak, Laya, Tala and Alankar.
2. Brief life sketches and contributions of Great Musicians :
  - (i) Pt. Vishnu Digambar Paluskar.
  - (ii) Pt. Vishnu Narayan Bhatkhande.
  - (iii) Sardar Sohan Singh of Agra Gharana.

**Unit-III**

1. Knowledge of Dhrupad.
2. Brief description of Tanpura.
3. Definitions and types of Khayal.

**Unit-IV**

1. Description of Ragas and Talas prescribed in the course.
2.
  - (i) Ragas prescribed in the course :  
Yaman, Kafi, Bageshri, Bhopali
  - (ii) Talas prescribed in the course alongwith notations :  
Ektal, Chautal, Teental, Dadra and Kahrva
3. Knowledge of the following Non-detailed Ragas :  
Bhairav, Deshkar, Bilawal (only Arohas-Avrohas & Pakads)

**Unit-V**

To write the notation of the prescribed ragas :  
Yaman, Kafi, Bageshri, Bhopali.

**Paper-B : PRACTICAL**

1. One Drut Khayal in each of the following Ragas with Alaps and Tanas :  
Yaman, Kafi, Bageshri and Bhopali.
2. One Vilambit Khayal in any of the prescribed Ragas.

3. One Dhrupad in any of the Ragas prescribed in the course (in Thah).
4. Ability to play Teental and Dadra Talas on Tabla.
5. Ability to recite bols of the talas prescribed in the course in Thah and Dugun by hand : Ektal, Chautal, Teental, Dadra and Kahrva.
6. One Sargam Geet in any of the prescribed ragas.
7. Ability to play on Harmonium at least five alankaras based on Shudh and Vikrit swars and sing alongwith it.
8. Ability to recognize Ragas of the course sung by the examiner.
9. Knowledge of the following Non-detailed Ragas : And ability to sing Aroh, Avroh and Pakad with Tanpura—Bhairav, Deshkar, Bilawal.

#### Books Recommended :

1. *Sangeet Bodh* : Paranjpe, Shartchandra Shridhar.
2. *Sangeet Shastra Vigyan* : Panna Lal Madan.
3. *Sangeet Sar Part (I)* : Mrs. Veena Mankaran.
4. *Raga Vigyan, Part I to IV* : Pt. V.N. Patwardhan.
5. *Hamare Sangeet Ratan* : Sangeet Karayalaya, Hathras.
6. *Sangeetanjali Part I to IV* : Pt. Onkar Nath Thakur.
7. *Kramik Pustak Mallika Part I to III* : Pt. V.N. Bhatkhande.
8. *Sangeet Granth Te Bharti* : Chander Kanta Khosla.  
*Sangeet Da Itihas*
9. *Sangeet Kaumudi Part II* : V.S. Nigam.
10. *Sangeet Shastra Darpan Part II* : Shanti Goverdhan.

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**MUSIC (Instrumental)**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**GENERAL INSTRUCTIONS**

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. In all, *nine* questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The Unit fifth based on notation will contain only one **compulsory** question.
3. Harmonium can be used while singing.
4. In Instrumental Music, the candidates have the option to take any one of the following instruments : Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai.
5. The candidate can take vocal music along with instrumental music.
6. The candidate can also take instrumental music with Tabla.
7. Practical paper shall be set from the syllabus.
8. There would be up to ten students in one section.

**Paper-A : THEORY** (3 Hours duration) 90 Marks

**Paper-B : PRACTICAL** (20 minutes duration) 90 Marks

- |             |   |          |
|-------------|---|----------|
| (i) Viva    | : | 70 Marks |
| (ii) Gayan  | : | 10 Marks |
| (iii) Tabla | : | 10 Marks |

Internal Assessment (Theory + Practical) (10 + 10) : 20 Marks

**Total : 200 Marks**

**Paper-A : THEORY****Unit-I**

1. Various developments (in brief) in the history of Music in India during the modern period from 18<sup>th</sup> to 20<sup>th</sup> century A.D.
2. Introduction and history of your own instrument.
3. Definitions and explanations of the following :  
Maseetkhani Gat, Razakhani Gat, Tora, Jhala.

**Unit-II**

1. Elementary knowledge of the following terms :  
Dhwani-Sangeet, Nada, Shruti, Swara, Saptak, Alankar.
2. Elementary knowledge of Bhatkhande Notation System.
3. Knowledge of Bhatkhande's Thaata Paddhati.

**Unit-III**

1. Definition and explanation of Jatis of Ragas.
2. Knowledge of Laya and Tala.
3. Brief life sketches and their contributions to Indian Music of the following :
  - (i) Ustad Allahuddin Khan Sahib.
  - (ii) Pt. Ravi Shanker.
  - (iii) Ustad Hafiz Ali Khan.

**Unit-IV**

1. Description of the prescribed ragas and talas :  
Ragas : Yaman, Kafi, Khamaj, Bhopali.  
Talas : Dadra, Roopak, Jhaptal, Teental.
2. Description of the following non-detailed ragas :  
Deshkar, Shudh-Kalyan, Bhairav.



**Unit-V**

To write the notation of the prescribed ragas :

Yaman, Kafi, Khamaj, Bhopali.

**Paper-B : PRACTICAL**

1. Demonstration of five different Alankars on the instrument.
2. One Razakhani Drut Gat with Toras and Jhalas in each of the prescribed ragas :  
Yaman, Kafi, Khamaj, Bhopali.
3. One Maseetkhani Vilambit Gat in any prescribed ragas.
4. Knowledge of the following non-detailed ragas :  
Deshkar, Shudh-Kalyan, Bhairav (only Aroh-Avroh and Pakad).
5. Ability to demonstrate the following talas by hand in Ekgun and Dugun layakaries :  
Talas : Dadra, Roopak, Jhaptal, Teental.
6. Ability to play Teental on Tabla.
7. Ability to sing Shudh-Swaras with the help of Harmonium.

**Books Recommended :**

1. *Rag Parichaya Part II and III* : H.C. Srivastava.
2. *Sangeet Kaumudi Part-II (Punjabi)* : Prof. S.S. Kareer, published by Punjabi University, Patiala.
3. *Sitar Marg, Part-II* : S. Bandopadhyaya.
4. *Sangeet Sar, Part-I* : Mrs. Veena Mankaran.
5. *Sangeetanjali, Part I & IV* : Pt. Onkar Nath Thakur.
6. *Sangeet Manjusha* : Dr. Indrani Chakravarti.

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**TABLA (Instrumental)****B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013****GENERAL INSTRUCTIONS :**

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. In all, *nine* questions will be set from the whole syllabus. The question paper will be divided into five Units. First four Units will contain two questions each, out of which the candidates are to attempt one question from each Unit. Unit fifth based on notation will be compulsory. Thus in all, the candidates are required to attempt five questions.
3. Harmonium will be allowed to play Nagma/Lahra.
4. Practical Paper shall be set from the syllabus for Paper-B (Practical).

**Paper-A : THEORY** (3 Hours duration) 90 Marks

**Paper-B : PRACTICAL** (20 minutes duration) 90 Marks

(i)	Viva	:	60 Marks
(ii)	Harmonium	:	10 Marks
(iii)	Tabla (Tuning)	:	10 Marks
(iv)	Padhant on Hand	:	10 Marks

Internal Assessment (Theory + Practical) (10 + 10) : 20 Marks

**Total : 200 marks**

**Paper-A : THEORY****UNIT-I**

- (a) Dahina, Bayan, Palli, Kinar, Syahi, Lav (Maidan), Baddi, Gatta, Gudri, Juduri, Hatodi.
- (b) Explain the following :  
Laya, Matra, Vibhag, Tali, Khali, Sam Avartan, Theka.
- (c) Brief Introduction of Bhatkhande Tala Notation System and writing of Talas in Bhatkhande Notation System.

**Unit-II**

- (a) Description of playing techniques of Varnas : Sayunkta & Asayunkta Varna.
- (b) Definition with examples of the following :  
Tihai, Mukhda, Tukda, Quaida, Rela, Peshkar and Paran.
- (c) Definition of Thah, Dugun, Tigun and Chaugun.

**Unit-III**

- (a) Importance of Tala in Music and Dance.
- (b) Definition of Avanaddha Vadyas and their importance in Music.
- (c) A structural study of the following instruments :  
Dholak, Naal, Pakhawaj and Khol.

**Unit-IV**

- (a) Definition of Gharana and brief history of Delhi and Ajrada Gharana of Tabla Vadan.
- (b) Detailed playing techniques of Delhi and Ajrada Gharana.
- (c) Life sketches and contribution of the following artists :
  - Ustad Sidhar Khan.
  - Ustad Nathoo Khan.
  - Ustad Habibuddin Khan.

**Unit-V**

Ability to write in notation the composition prescribed in Teental and Ektaal (Quaida, Rela, Tukdas and Parans).

**Paper-B : PRACTICAL**

- (a) Talas prescribed : Dadra, Kaharva, Trital, Chautal and Ektaal.
- (b) Laggis in Dadra and Kaharva.

- (c) Trital (Peshkara, four Paltas, two Quaida, two Mukhdas, two Mohras, two Parans).
- (d) Ektaal – (one Quaida, two Tukra, two Tihai, one Paran).
- (e) Chautal – Theka in Ekgun, Dugun and Chaugun Layakaries.
- (f) Practice of playing the above Talas with vocal and instrumental performances.
- (g) Practice of Dholak playing in Kaharva Taal.
- (h) Ability to play Nagma on Harmonium in Taal Dadra, Teen Taal and Ektaal.
- (i) Tunning of Tabla.

**Books Recommended :**

- |    |                                    |   |  |
|----|------------------------------------|---|--|
| 1. | <i>Taal Prabhakar Prashnotari</i>  | : | G.C. Srivastava.   |
| 2. | <i>Tabla Tarang</i>                | : | B.S. Nigam.  |
| 3. | <i>Taal Prakash</i>                | : | Sangit Karyalaya, Hathras.                                 |
| 4. | <i>Hamare Sangeet Ratan</i>        | : | Sangit Karyalaya, Hathras.                                 |
| 5. | <i>Tabla Ki Utpatti Evam Vikas</i> | : | Yogmaya Shukla   |
| 6. | <i>Tabla Vadan Part-I</i>          | : | Jagmohan Sharma, published by Punjabi University, Patiala. |
| 7. | <i>Taal Parichay Part-I</i>        | : | Girishchander Shrivastava.                                 |

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## INDIAN CLASSICAL DANCE

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### GENERAL INSTRUCTIONS :

1. In the case of private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. In all, *nine* questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The Unit fifth based on notation will contain only one **compulsory** question.
3. Harmonium will be allowed to play Nagma.
4. The Practical Paper shall be set from the syllabus prescribed for Paper-B (Practical).

<b>Paper-A : THEORY</b> (3 Hours duration)	90 marks
<b>Paper-B : PRACTICAL</b> (20 minutes duration)	90 marks
(i) Viva	: 70 marks
(ii) Harmonium	: 05 marks
(iii) Tabla	: 05 marks
(iv) Padhant on Hand	: 10 marks
Internal Assessment (Theory + Practical) (10 +10)	: 20 marks
<b>Total</b>	<b>: 200 marks</b>

### Paper-A : THEORY

#### Unit-I

- (a) Origin of Tandav.
- (b) Origin of Lasya.
- (c) Brief study of the following :
  - (i) Four neck movements.
  - (ii) Eight eye galances.
  - (iii) Six eye-brow movements.
  - (iv) Nine head Movements.

**Unit-II**

- (a) Fifteen Asamyukta, Mudras based on Abhinaya Darpan.
- (b) Six eye-brow movements.
- (c) Brief study of Kathak dance.

**Unit-III**

- (a) Brief study of Abhinaya and its various parts.
- (b) Advantages of dance.
- (c) Life sketches of Uday Shankar and Pandit Naryan Prasad.

**Unit-IV**

- (a) Two folk dances of Punjab, their costumes and background music.
- (b) Two folk dances of Jammu & Kashmir, their origin and background music.
- (c) Two folk dances of Rajasthan, their origin and background music.

**Unit-V**

- (a) Notation of prescribed Talas alongwith dugun and chaugun layakaries.
- (b) Notation of Nagma.
- (c) Notation of all tukra, toras and parans etc. of the prescribed talas.

**Paper-B : PRACTICAL**

- (a) Teentaal

Two types of Tatkar in Single, Dugun and Chaugun Layakaries.

Thaat	—	2
Salami or Namaskar	—	1
Amad	—	1
Tora	—	5
Kavit	—	1
Tehai	—	1

- (b) Jhaptal :
- |       |                         |   |   |
|-------|-------------------------|---|---|
| (i)   | Tatkar in Single, Dugun |   |   |
| (ii)  | Tora                    | — | 5 |
| (iii) | Amad                    | — | 1 |
- (c) Practical knowledge of Asmyukta Hastas.
- (d) Practical demonstration of the neck movements with their functions.
- (e) Ability to demonstrate following Talas on Tabla :
- (i) Teentala.
- (ii) Jhaptal.
- (f) Ability to play Nagma on Harmonium in Teental.

#### Books Recommended :

- |    |                               |   |                |
|----|-------------------------------|---|----------------|
| 1. | <i>Kathak Naritya</i>         | : | L.N. Garg.     |
| 2. | <i>Kathak Naritya Shiksha</i> | : | Puru Dadhichi. |
| 3. | <i>Kathak Shingar</i>         | : | T.R. Azad.     |
| 4. | <i>Nritya Prashan Paujika</i> | : | J.N. Pathak.   |
| 5. | <i>Kathak Darpan</i>          | : | T.R. Azad.     |

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## FINE ARTS

### B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

*Note :* Minimum of nine hours teaching per week be assigned and out of nine hours, six hours be earmarked for practical classes and three hours for theory classes (per week).

#### INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES

1. Each paper carries 60 marks.
2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.
3. The first question shall be of short answer type containing 10 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 20 marks and shall be a **compulsory** question.
4. 8 questions are to be set from the entire syllabus consisting of 4 Units. Two questions will be set from each Unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each Unit. So in all, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 10 marks.

#### Paper-A : THEORY (History of Art)

Max. Marks : 60

Time : 3 Hours

#### Objectives :

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India and the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

#### Unit-I : History of Indian Painting

- Pre-historic paintings from Bhim-Betka.
- Ajanta-Shaddanta Jataka, Padmapani, Avilokitesvara, Dying Princess, Mahajanaka Jataka, Decorative ceiling panels from Cave No. 2.
- Sittanavasal - Lotus Pond.
- Eastern Indian Paintings with special reference to Ashtasahasrika Prajanaparamita.
- Western Indian Paintings with special reference to Nativity of Mahavira from Palm-leaf manuscripts.



**Unit-II : History of Indian Sculpture**

- Indus Valley Civilization - Seals, Metal Dancing Girl, Red Sandstone Torso, Priest.
- Maurayan Art with special reference to Rampurva Bull Capital, Lion Capital from Sarnath, Didarganj Yakshi.
- Bharhut - Dream of Queen Maya, Yakshas and Yakshini figures.
- Amaravati - The Great Departure, Subjugation of Nalagiri.

**Unit-III : History of Western Art**

- Pre-historic Art - Wounded Bison (Altamira), Venus of Willendorf.
- Egyptian Art - Palette of King Narmer, Seated Scribe.
- Greek Art - Standing Youth, Discobolus, Laocoon group.
- Roman Art - Augustus of Prima Porta, Arch of Titus.
- Byzantine Art - Mosaic, Emperor Justinian and his Attendants in S. Vitale.
- Gothic Art - Madonna Enthroned by Duccio, The Lamentation by Giotto.

**Unit-IV : Definition of Key Terms and General Concepts**

- Colour, Line, Perspective, Foreshortening, Mural - Fresco and Tempera techniques, Miniature, Chiaroscuro (light-shade), Sculpture in round and in relief.

**Pedagogy :**

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

**Suggested Readings :**

1. Kramrisch, Stella : *Survey of Painting in the Deccan*, Oriental Books Reprint Corporation, New Delhi, 1983.
2. Majumdar, R.C. (editor) : *The History and Culture of Indian People*, Vols. I, II and III (Sculpture and Painting Sections only) Bhartiya Vidya Bhawan, Bombay, 1996, 1990, 1988.
3. Gupta and Mahajan : *Ajanta, Ellora and Aurangabad Caves*, D.B. Taraporevala Sons & Co. Pvt. Ltd., Bombay, 1962.
4. Rowland, Benjamin : *The Art and Architecture of India*, Penguin Books, Great Britain, 1959.

5. Saraswati, S.K. : *A Survey of Indian Sculpture*, Munshiram Manoharlal Publishers Pvt. Ltd., New Delhi, 1975.
6. Ray, N.R. : *An Approach to Indian Art*, Publication Bureau, Panjab University, Chandigarh, 1974.
7. Barrett, D. and Gray, B. : *Painting of India*, The World Publishing Co., Ohio, 1963.
8. Archer, W.G. : *India and Modern Art*, George Allen & Unwin Limited, London, 1959.
9. Brown, Percy : *Indian Painting under the Mughals*, Cosmo Publications, New Delhi, 1981.
10. Aggarwala, V.S. : *Heritage of Indian Art*, Publications Division, Ministry of Information & Broadcasting, Govt. of India, New Delhi, 1976.
11. Aggarwala, V.S. : *Indian Art* (English), Varanasi, 1965.
12. Aggarwala, V.S. : *Bhartiya Kala* (Hindi), Prithvi Prakashan, 1977.
13. Read, Herbert : *Meaning of Art*, Faber & Faber, London, 1972.
14. Janson, H.W. : *History of Art*, Thames & Hudson, London, 2001.
15. Gardener, Helen : *Art Through the Ages*, Harcourt Brace & Co., U.S.A., 1991.
16. Gombrich, E.H. : *The Story of Art*, Phaidon Press Limited, New York, 1995.

### Paper-B : PRACTICAL

This paper consists of three sections :

	<i>Max. Marks</i>	<i>Max. Time</i>
1. Still Life Study	30	5 hours
2. Drawing from Life	30	5 hours
3. Landscape Painting (on the spot)	30	5 hours
<b>Total :</b>	<b>90</b>	

*Note :* Section 3 will be taken up last at the time of examination.

### SECTION-I

#### Still Life Study

Drawing & Painting of a number of objects to study proportion, volume and rhythmic relationship of masses, study and rendering of texture of different objects.

Number of objects	:	Three objects with display at the back.
Medium	:	Oil, Water or Pastel colours.
Size	:	½ Imperial

## SECTION-II

### Drawing from Life

Portrait Monochrome	:	From Live Model or Cast—in any medium -1/4 Imperial Sheet.
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Emphasis should be on structure, proportion, foreshortening, Textural Values, Posture & Individuality of the model.

## SECTION-III

### Landscape Painting (on the spot)

Landscape painting : Study relationship of objects, their arrangements in the foreground, middle and distance, texture, relative size of masses, tones and colours, use of linear and aerial perspective.

Medium	:	Oil, Water or Pastel colours.
Size	:	½ Imperial.
<b>SESSIONAL MARKS</b>	:	<b>50</b> (based on work related equally to 3 sections).

Sessional marks will be given on the basis of the work done during the session in all the three sections. At least five works will be submitted in each section. Sessional marks shall be given by external and internal examiners jointly. In case of difference of opinion, marking may be done separately by each examiner giving marks out of 50% of the aggregate of the sessional marks.

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## HISTORY OF ART

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

- Note :*
1. Each paper carries 100 marks.
  2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.
  3. The first question shall be of short answer type containing 14 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 28 marks and shall be a **Compulsory** question.
  4. 8 questions are to be set from the entire syllabus consisting of 4 Units. Two questions will be set from each Unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each Unit. So in all, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 18 marks.

### Paper-A : HISTORY OF INDIAN PAINTING AND SCULPTURE

Max. Marks : 100

Time : 3 Hours

### Objectives :

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

### Study of Indian Painting :

#### Unit-I

- (a) Pre-historic Painting.
- (b) *Ajanta* : Early Period, Classical Period and Post-Classical Period.

#### Unit-II

- (a) Bagh
- (b) Badami.
- (c) Sittanavasal.
- (d) Ellora.

**Study of Indian Sculpture :****Unit-III**

- (a) Indus Valley Civilization.
- (b) Mauryan Period.
- (c) Bharhut.
- (d) Sanchi.

**Unit-IV**

- (a) Amaravati.
- (b) Nagarjunikonda.
- (c) Mathura under the Kushanas.
- (d) Gandharan Art.

**Pedagogy :**

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

**Suggested Readings :**

1. Kramrisch, Stella : *Survey of Painting in the Deccan*, Oriental Books Reprint Corporation, New Delhi, 1983.
2. Majumdar, R.C. (editor) : *The History and Culture of Indian People*, Vols. I, II and III (Sculpture and Painting Sections only) Bhartiya Vidya Bhawan Bombay, 1996, 1990, 1988.
3. Gupte and Mahajan : *Ajanta, Ellora and Aurangabad Caves*, D.B. Taraporevala Sons & Co. Pvt. Ltd., Bombay, 1962.
4. Rowland, Benjamin : *The Art and Architecture of India*, Penguin Books, Great Britain, 1959.
5. Saraswati, S.K. : *A Survey of Indian Sculpture*, Munshiram Manoharlal Publishers Pvt. Ltd., New Delhi, 1975.
6. Ray, Niharajan : *An Approach to Indian Art*, Publication Bureau, Panjab University, Chandigarh, 1974.

7. Barrett, D. and Gray, B. : *Painting of India*, The World Publishing Co., Ohio, 1963.
8. Aggarwala, V.S. : *Heritage of Indian Art*, Publications Division, Ministry of Information & Broadcasting, Govt. of India, New Delhi, 1976.
9. Aggarwala, V.S. : *Indian Art* (English), Varanasi, 1965.
10. Aggarwala, V.S. : *Bhartiya Kala* (Hindi), Prithvi Prakashan, 1977.

**Paper-B : STUDY OF WESTERN PAINTING AND SCULPTURE (from the earliest times to ca. 1400 A.D.) and Theory and Principles of Art Appreciation**

Max. Marks : 100  
Time : 3 Hours

**Objectives :**

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in the west. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

**History of Western Art :**

**Unit-I**

- (a) Pre-historic Painting.
- (b) Egyptian Art.

**Unit-II**

- (a) Greek Art.
- (b) Roman Art.

**Unit-III**

- (a) Art of Early Christian Period.
- (b) Byzantine Period.
- (c) Gothic Period.

**Unit-IV****Explanation through illustrations of the concept of :**

- (a) Space, Line, Colour, Form, Texture, Light and Shade, Design, Balance, Harmony, Composition, Perspective, Foreshortening.
- (b) Mural, Fresco and Tempera techniques.

**Pedagogy :**

The students are expected to familiarize themselves with the art form as seen from the books, slides and related films.

**Suggested Readings :**

- 1. Read, Herbert : *Meaning of Art*, Faber & Faber, London, 1972.
- 2. Janson, H.W. : *History of Art*, Thames & Hudson, London, 2001.
- 3. Gardener, Helen : *Art Through the Ages*, Harcourt Brace & Co., U.S.A., 1991.
- 4. Gombrich, E.H. : *The Story of Art*, Phaidon Press Limited, New York, 1995.

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## ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### **Paper-A : HISTORY AND CULTURE OF INDIA FROM THE INDUS VALLEY CIVILIZATION TO 321 B.C.**

#### **Objectives :**

The paper is a survey of the proto-historic and historic background to Indian history from the Harappan Civilization to the time of the Iranian and Macedonian invasions.

#### **Pedagogy of the Course Work :**

Students are expected to familiarize themselves with sources and with methods of reconstructing ancient political history. Further, an attempt is made to view the political events in their situational context, locating the interconnection of social, economic and political developments, as far as their sources permit.

#### **INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :**

1. The theory paper will be of 90 marks and 10 marks will be for internal assessment.
2. For Private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

#### **The paper-setter must put note (2) in the question paper.**

3. The paper-setter is required to set **9** questions in all. All questions shall carry equal marks. The paper shall be of 3 hours duration.
4. The first question shall be of short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each short answer type question shall be of 2 marks to be answered in 25 to 30 words. **OR** a question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.
5. The map question shall have the following topics :
  - (a) Extent of Harappan Civilization.
  - (b) Location of 16 Mahajanapadas.
  - (c) Alexander's Indian campaign.
6. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. The paper setter shall set 2 questions from each Unit and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each Unit. Each question shall carry 18 marks.

**UNIT-I** : The Vedic Culture & Civilization.

**UNIT-II** : Harappan Civilization.



**UNIT-III** : The sixteen Mahajanapadas with special reference to the rise of Magadha (from Bimbisara to the fall of the Nandas).

**UNIT-IV** : The Iranian and Macedonian Invasions.

**Essential Readings :**

1. Basham, A.L. : *The Wonder that was India*, Mumbai, 1971.
2. Jha, D.N. : *Ancient India in Historical Outline*, New Delhi, 1977.
3. Majumdar, R.C. et al : *The Vedic Age*, Mumbai, 1971.
4. Ratnagar, S. : *Understanding Harappa*, New Delhi, 2001.
5. Raychaudheri, H.C. : *The Political History of Ancient India*, rev. ed. Delhi, 1996.
6. Thapar, R. : *A History of India*, Vol. I, New Delhi, 1966.

**Paper-B : HISTORY AND CULTURE OF INDIA FROM THE MAURYAS TO 319 A.D.**

**Objectives :**

This course deals with the political and cultural history of India from Mauryas to 319 A.D. It also acquaints the students about the foreign invasions which took place during the time span as mentioned above and their impact on the Indian Culture.

**Pedagogy of the Course Work :**

The students are to be taught with the help of slides, photographs, topographical maps, political maps etc. In addition to it, lectures, workshops and seminars may be arranged to facilitate the students to understand the subject in a better way.

**INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :**

1. The theory question paper will be of 90 marks and 10 marks will be for internal assessment.
2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (2) in the question paper.**

3. The paper-setter is required to set 9 questions in all. All questions shall carry equal marks. The paper shall be of 3 hrs. duration.
4. The first question shall be of short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each short answer type question shall be of 2 marks to be answered in 25 to 30 words. **OR** a question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.

5. The map question shall have the following topics :
- Extent of Mauryan empire.
  - Location of Ashokan inscriptions.
  - Extent of Kanishka's empire.
6. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. The paper setter shall set 2 questions from each Unit and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each Unit. Each question shall carry 18 marks.

**UNIT-I** : (i) Chandragupta Maurya.  
 (ii) Ashoka.  
 (iii) Causes of the downfall of the Mauryan empire.  
 (iv) Culture and Socio-economic conditions during the Mauryan period.

**UNIT-II** : Sunga Dynasty : Political and Cultural Survey.  
 Satavahana Dynasty : Political and Cultural History.

**UNIT-III** : Brief History of the Bactrian Greeks, Sakas and the Parthians in India.

**UNIT-IV** : Kushana Dynasty : Political and Cultural Survey.

#### Essential Readings :

- Bongard Levin, G. : *Mauryan India*, Delhi, 1985.
- Jha, D.N. : *Ancient India in Historical Outline*, New Delhi, 1977.
- Majumdar, R.C. et al, eds. : *The History and Culture of the Indian People*, Mumbai, 1951.
- Mukherjee, B.N. : *The Rise and Fall of the Kushana Empire*, Calcutta, 1988.
- Narain, A.K. : *The Indo-Greeks*, Oxford, 1957.
- Nilakantha Sastri, K.A. (ed.) : *The Age of the Nandas and Mauryas*, Varanasi, 1952.
- Shastri, A.M. : *Early History of the Deccan*, New Delhi, 1987.
- Raychaudheri, H.C. : *The Political History of Ancient India*, rev. ed., Delhi, 1996.
- Thapar, R. : *Ashoka and the Decline of the Mauryas*, 2<sup>nd</sup> ed. Delhi, 1997.

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## DEFENCE & STRATEGIC STUDIES

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

- Note :*
1. There will be two theory papers A and B carrying 70 marks each. The internal assessment will be of 10 marks for each of the two papers . 40 marks are kept for the practical test. Each theory paper will have one compulsory short answer type question containing 15 questions of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition to it, there will be four sections of the question paper. The candidate will be required to attempt one question from each of these sections carrying 12 ½ marks. Each theory paper will be of three hours duration. The practical test will be of 1 ½ hours duration.
  2. Practical examination will be compulsory for regular, University School of Open Learning and private candidates. The serving armed forces and para-military personnel will be exempted from practical examination and marks secured by such candidates in theory papers will be proportionately raised out of 200.
  3. The persons appearing as private candidates (except serving armed forces and para-military personnel) shall have to complete the requirement of attending the practical at the department of Defence & National Security Studies, Panjab University, Chandigarh, in January every year, after paying the required fee as prescribed by the University from time to time. Private candidates shall have to attend practical classes for 10 hours spread over two to three days for which the certificate shall be issued by the Chairman, Department of Defence & National Security Studies, Panjab University only.
  4. For reappearing candidates, who have not been assessed earlier for internal assessment and practical examination the marks secured by them in theory papers will proportionately be increased to the maximum marks of the each theory paper in lieu of internal assessment and practical marks.

### Paper-A : EVOLUTION OF WARFARE IN INDIA

Marks : 70  
Time : 3 Hrs.

**Objective :** This paper deals with the salient features of Indian Warfare with emphasis on Military organization, battle technique & leadership.

### SECTION-I

1. Battle of Hydaspes and Alexander's Art of War.
2. Kautilya's Philosophy of War.

**SECTION-II**

3. Military organizations and battle techniques of Rajputs and Turks with particular reference to Battle of Tarrain, 1192 A.D.
4. Military organizations and battle techniques of Mughals and Afghans with particular reference to First Battle of Panipat, 1526 A.D.

**SECTION-III**

5. Battle techniques of Southern Muslim Sultans with particular reference to Battle of Talikota, 1565 A.D.
6. Military organization and Battle techniques of Marathas under Shivaji.

**SECTION-IV**

7. Military organization and battle techniques of Sikh Army under Maharaja Ranjit Singh.
8. Warfare under East India Company with particular reference to Battle of Assaye 1803 A.D. and Chilianwala 1849 A.D.
9. Indian Armed Forces 1858 to 1947 – General Evolution and Development (A Broad Perspective).

**Books Recommended :**

1. JFC, Fuller : *Generalship of Alexander, The Great.*
2. K.P. Kangle : *Kautilya's Arthshastra.*
3. B.K. Majumdar : *Military Systems in Ancient India.*
4. J.N. Sarkar : *Military History of India.*
5. William, Irvin : *Army of the Indian Mughals.*
6. S.N. Sen : *Military System of the Marathas.*
7. F.S. Bajwa : *The Military Systems of Sikhs.*
8. S.T. Dass : *An Introduction to the Art of War.*
9. Gautam Sharma : *Indian Army Through the Ages.*
10. Mallesan : *Decisive Battle of India.*
11. Erskin : *Memories of Babur.*
12. Gurcharan Singh : *Battles of Panipat.*
13. Rajendra Nath : *Military Leadership in India : Vedic Period to Indo-Pak Wars.*

**Paper-B : EVOLUTION OF WARFARE IN OTHER COUNTRIES**

Marks : 70

Time : 3 Hrs.

**Objective :** This paper deals with salient features of Warfare (from 331 B.C. to 1865 A.D.) and changes in military strategy & tactics and the impact of Science and Society on warfare.

**SECTION-I**

1. Military organizations and battle techniques of Macedonians, Persians with particular reference to the Battles of Arbella, 331 B.C.
2. Military organisations and battle techniques of Romans and Carthaginians with particular reference to the Battles of Cannae, 216 B.C.
3. Military organizations and battle techniques of Barbarians with particular reference to Battle of Adrianople, 378 A.D.

**SECTION-II**

- 4.. Military organizations and battle techniques of the English and French with reference to the Battle of Hastings, 1066 A.D.
5. The Mongol Art of War under Changez Khan and his successors.

**SECTION-III**

6. Industrial revolution and its impact on weapons, communications and tactics.
7. Elements and Principles of Napoleonic Warfare.

**SECTION-IV**

8. Naval Warfare with particular reference to the Battle of Trafalgar, 1805 A.D.
9. American Civil War (1861-65) – Causes and Events.

**Books Recommended :**

1. Montgomery, F.M. : *A History of Warfare.*
2. Montress, L. : *War through the Ages.*
3. Fuller, JFC : *Conduct of War.*
4. Bullock, H. : *Military History of the Western World, Vol. I.*
5. Fuller, JFC : *Armament and History.*

6. Fuller, JFC : *Machine Warfare.*
7. Fuller, JFC : *Military History of the Western World.*
8. Barrie and Rackett : *The Art of Warfare, Vols. I & II.*

**Paper-C : PRACTICAL**

Total Marks : 40

- Note :*
1. There will be 3 hours of teaching per week for practicals. For practical classes, the number of students in one group shall not ordinarily exceed fifteen.
  2. Practical exercise should be carried out on drawing sheets with explanatory notes OR on computer.

**SECTION-A : Practical Test**

Marks : 25  
Time : 1 ½ Hrs.

- Note :*
1. There will be five questions in all and candidates will be required to attempt any three questions.
  2. Examiners are required to set the question paper at least half an hour before the examination.

**Course Contents for Practicals :**

1. *Conventional Signs* : Military and Geographical.
2. *Introduction to Topographical Maps* : Definition, features, classification, enlargement and reduction of maps.
3. *Grid System* : Four figure, six figure and eight figure map references.
4. *Distance and Scale* : Definition, types, methods of representing scale, inter conversion of statement into representative fraction, construction of simple scale line and comparative scale lines.
5. *Directions* : Types of North, finding out True North, direction by equal altitude method, Watch method, Map method and Compass method.
6. *Service Protector* : Its type and uses.

**SECTION-B**

Marks : 15  
Time : 1 ½ Hrs.

1. Lecture by the candidate  
(on any of the topics in the syllabus of theory papers A or B) = 5 marks
  2. Practical Record = 5 marks
  3. Viva-Voce = 5 marks
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## HISTORY

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES : (For Papers A & B)

1. *The syllabus has been divided into four Units.*

There shall be **9 questions** in all. The first question is **compulsory** and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain **4 Units**. Each Unit shall have **two** essay type questions and the candidate shall be given internal choice of attempting one question from each Unit– 4 in all. Each question will carry 18 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (2) in the question paper.**

3. One question from Unit IV shall be set on the map.

#### Explanation :

1. Each essay type question would cover about one-third to one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under :

Map	:	10 marks
Explanatory Note	:	08 marks

In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 10 places on map of 1 mark each and write explanatory note on any four of 2 marks each.

3. The paper-setter would avoid repetition between different types of questions within one question paper.

### Paper A : HISTORY OF INDIA UPTO 1200 A.D.

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 Hours

**Objectives :** To introduce the students to the history of India in Ancient times.

**Pedagogy :** Lectures, library work and discussions.

#### Unit-I

1. *Geography and History :* The physical features and their influence on the course of Indian History.

2. *Major Sources of Ancient Indian History* : Literary sources; Archaeological findings; Inscriptions; Coins; Travel Accounts.
3. *Harappan Civilization* : Extent; town planning; social conditions; economy and religion.

### Unit-II

4. *Vedic Period* : Original home of the Aryans; Political, Social, Economic and Religious life in the early Vedic Period; developments in the later Vedic Period.
5. *Jainism and Buddhism* : Causes responsible for the rise of new religions; life and teachings of Mahavir Swami; life and teachings of Gautam Buddha.
6. *Greek Invasion* : Political conditions on the eve of Alexander's invasion; Alexander's invasion and its impact.

### Unit-III

7. *The Mauryan Empire* : Conquests of Chandragupta Maurya; Ashoka's Dhamma; Administration under the Mauryas.
8. *Post Mauryan Period* : Decline of the Mauryan Empire; Kanishka and his achievements.
9. *The Gupta Empire* : Achievements of Samudragupta and Chandragupta II; social, economic, cultural and scientific developments under Guptas.

### Unit-IV

10. *The Age of Vardhanas* : Campaigns of Harsha Vardhan; administration; literary and religious activities of Harsha Vardhan.
11. *The Rajputs* : Origin of the Rajputs; polity, society and culture under the Rajputs.
12. **Map :**
  - (a) *Important Historical Places* : Taxila, Indraprastha, Kurukshetra, Kannauj, Patliputra, Ujjain, Bodhgaya, Varanasi, Sopara, Ajanta, Ellora, Sanchi, Tanjore, Kanchi, Lothal, Nalanda, Hastinapur, Kalibangan, Harappa and Kalinga.
  - (b) Extent of the Mauryan Empire.
  - (c) Gupta Empire under Samudragupta.

### Reading List :

1. Basham, A.L. : *The Wonder That Was India*, Calcutta : Rupa & Co., 1992.
2. Jha, D.N. : *Ancient India : An Historical Outline*, Delhi : Manohar, 2<sup>nd</sup> Rev. Ed., 2005.
3. Sharma, R.S. : *India's Ancient Past*, Delhi : OUP, 2005.
4. Sharma, R.S. : *Parambhik Bharat Ka Parichay*, Delhi : Orient Black Swan, 2007 (Hindi Medium).
5. Thapar, Romila : *Early India from the Origin to A.D. 1300*, Penguin, 2002.



**Paper B : HISTORY OF INDIA 1200-1750 A.D.**

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 hours

**Objectives :** To introduce the students to the history of India in Medieval times.

**Pedagogy :** Lectures, library work and discussions.

**Unit-I**

1. *Establishment of Consolidation of the Delhi Sultanate* : The conquests of Muizuddin of Ghor and their impact.
2. *The consolidation of Turkish rule* : Iltutmish and Balban.
3. *The Khaljis* : His administrative, agrarian and market reforms.
4. *The Tughluqs* : Muhammad bin Tughluq's administrative experiments and their impact; Feroze Shah Tughluq's administrative and economic reforms and their consequences.

**Unit-II**

5. *The Vijaynagar Kingdom* : Establishment and expansion; administration and economy.
6. *Foundation of Mughal Empire* : Political conditions of India on the eve of Babur's invasion; conquests of Babur; causes of his success.

**Unit-III**

7. *The Mughal Empire under Akbar* : His relations with the chiefs of Rajputana; his religious policy; his civil administration.
8. *The Reigns of Jahangir and Shahjahan* : The Deccan policies of Jahangir and Shahjahan.
9. *The Decline of Mughal Empire* : Causes responsible for the decline; responsibility of Aurangzeb.

**Unit-IV**

10. *The Rise of the Marathas* : Shivaji and his administration.
11. *Bhakti Movement* : Causes responsible for the rise of Bhakti Movement; main features; prominent Bhakti saints.

12. **Map :**

- (a) *Important Historical Places*—Lahore, Delhi, Agra, Mathura, Fatehpur Sikri, Chittor, Jaipur, Udaipur, Panipat, Lucknow, Ahmednagar, Poona, Surat, Golkunda, Bijapur, Daultabad.
- (b) The Empire of Alauddin Khalji.
- (c) The Mughal Empire under Aurangzeb.

**Reading List :**

1. Alam, Muzaffar and Sanjay Subrahmanyam (eds.) : *The Mughal State 1526-1750*, New Delhi : Oxford University Press, 1998.
2. Chandra, Satish : *Medieval India from Sultanate to the Mughals (1206-1526)*, New Delhi : Har-Anand Publications Pvt. Ltd., 1997.
3. Chandra, Satish : *Medieval India from Sultanate to the Mughals, Part Two Mughal Empire (1526-1748)*.
4. Chandra, Satish : *Essays on Medieval Indian History*, New Delhi : Oxford University Press, 1987.
5. Chandra, Satish : *History of Medieval India*, Delhi : Orient Black Swan, 2007 (Hindi Medium).
6. Habib, Irfan : *Medieval India : The Study of Civilization*, New Delhi : National Book Trust, India, 2008.
7. Ray Chaudhri Tapan and Irfan Habib : *The Cambridge Economic History of India*, Vol. I., c. 1200-c.1750, New Delhi : Orient Longman, 2007.
8. Rizvi, S.A.A. : *The Wonder That Was India*, Vol. II, 1200-1700, New Delhi : Rupa & Co., 1996.

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## POLITICAL SCIENCE

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper–A : POLITICAL THEORY-I

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 hours

**Objectives :** The objective of this paper is to introduce first year undergraduate students to some of the basic aspects, concepts and themes in the discipline of Political Science.

### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

- (a) There shall be 9 questions in all.
- (b) In Question No. One, 15 short answer type questions be asked spreading over whole syllabus to be answered in 25-30 words each. The students shall have to attempt 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be a compulsory question.
- (c) Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice. The candidates shall attempt one question from each Unit i.e. 4 in all of 18 marks each.
- (d) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (d) in the question paper.**

### Unit-I

1. *Political Science* : Meaning, Definition and Scope.
2. Distinction between Political Theory and Political Science.
3. Relationship of Political Science with Economics, History and Sociology.

### Unit-II

1. *The State* : Definition, Elements and its Distinction from Government and Society.
2. *Theories of the Origin of State* : Social Contract, Historical/Evolutionary.

**Unit-III**

1. *State* : Liberal, Marxian and Gandhian View.
2. *Functions of State* : Liberal and Socialist Perspective.
3. *Welfare State* : Concept and Functions.

**Unit-IV**

1. *Sovereignty* : Definition, Attributes/ Characteristics and Types.
2. *Theories of Sovereignty* : Monistic and Pluralistic.
3. *Political System* : Meaning, Characteristics, Functions and its Distinction from State.

**Paper-B : POLITICAL THEORY-II**

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 hours

**Objectives :** The aim of this paper is to deepen and expand the knowledge of the student in Political Science. It introduces higher level concepts and themes in political theory. It will provide students with the tools to engage with some key political issues of our times.

**INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES**

- (a) There shall be 9 questions in all.
- (b) In Question No. One, 15 short answer type questions be asked spreading over whole syllabus to be answered in 25-30 words each. The students shall have to attempt 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be a compulsory question.
- (c) Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice. The candidates shall attempt one question from each Unit i.e. 4 in all of 18 marks each.
- (d) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (d) in the question paper.**

**Unit-I**

1. *Power, Authority, Legitimacy* : Meaning and Characteristics.
2. *Political Culture* : Meaning, Characteristics and Types.

3. *Political Socialisation* : Meaning, Characteristics and Agencies.

### Unit-III

1. *Rights and Duties* : Meaning, Types and Relation between the two.
2. Universal Declaration of Human Rights.
3. *Environmental Protection* : Issues and Efforts.

### Unit-III

1. *Liberty* : Meaning, Types of its Safeguards.
2. *Equality* : Meaning, Types and Relationship between Liberty and Equality.
3. *Justice* : Meaning and its various Dimensions.

### Unit-IV

1. *Social Change* : Meaning, Characteristics and Factors.
2. *Democracy* : Meaning, Characteristics and Types.
3. *Theories of Democracy* : Liberal, Marxian and Elite.

### Books Recommended :

1. J.C. Johri : *Principles of Political Science*, Sterling Publishers, New Delhi.
2. S.P. Verma : *Political Theory*, Geetanjali Publishing House, New Delhi.
3. A.C. Kapoor : *Principles of Political Science*, S. Chand & Company, New Delhi.
4. E. Ashirvatham : *Political Theory*, S. Chand & Company, New Delhi.
5. M.P. Jain : *Political Theory*, Authors Guild Publication, Delhi (Punjabi & Hindi).
6. David Easton : *The Political System*, Scientific Book Agency, Calcutta.
7. D.C. Bhattacharya : *Political Theory*, Vijay Publishing House, Calcutta.

8. O.P. Gauba : *An Introduction to Political Theory*, Macmillan India Ltd., New Delhi.
  9. Frank Bealey, Richard Chapman and Michael Sheehan : *Elements in Political Science*, Edinburgh University Press, Edinburgh, 1999.
  10. Andrew Heywood : *Politics*, Macmillan, London, 1997.
  11. Andrew Heywood : *Political Theory : An Introduction*, Macmillan Press, London, 1999.
  12. Andrew Heywood : *Political Ideologies : An Introduction*, Third Edition, Palgrave MacMillan, 2004.
  13. Robert A. Dahl & Bruce S. Finebric Kner : *Modern Political Analysis*, Sixth Edition Pearson, Education, 2003.
  14. Aron I. Skoble & Fiber R. Maclian (eds.) : *Political Philosophy : Essential Selections*, Pearson Education, 1999.
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## ECONOMICS

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper–A : MICRO ECONOMICS

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 hours

#### Course Objective :

Microeconomics is concerned with the analysis of economic phenomena from the perspective of the individual. The course covers the basic concepts and tools needed to undertake the analysis of such problems that arise due to the law of scarcity. The course also aims at introduction of the functioning of competitive and noncompetitive product markets and performance of the markets for resources. The students are expected to develop rudimentary understanding of how and why consumers, firms, and markets in the economy function the way they do.

#### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

- (i) There shall be **9** questions in all. All questions carry equal marks. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any **9** short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be **compulsory** question. Rest of the paper shall contain **4** Units. Each Unit shall have **two** questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all.
- (ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (ii) in the question paper.**

#### Unit-I

*Introduction* : Meaning, Nature and Scope of Economics, Definition of Economics (Adam Smith, Marshall and Robbins).

*Theory of Demand and Consumer Behaviour* : Utility Analysis and Indifference Curve Analysis and introduction to Revealed Preference Theory; Consumers Surplus and its measurements; Law of Demand and its Exceptions; Elasticity of demand and its measurement, Law of Supply.

## Unit-II

*Theory of Production and Costs* : Concept and Types of Production Function, Laws of Returns to Scale and Law of Variable Proportions; Cost Concepts and Cost Curves in Short and Long periods (Traditional Theory of Costs).

*Market Forms and Revenue* : Behaviour of Average Revenue and Marginal Revenue under Perfect and Imperfect Competition; Relationship Between Average Revenue, Marginal Revenue and Elasticity of Demand.

## Unit-III

*Price and Output Determination* : Price and Output Determination of the Firm and Industry under Perfect Competition in the Short and Long run; Firm's Equilibrium under Monopoly in the Short and Long run; Discriminating Monopoly, and Monopolistic Competition.

## Unit-IV

*Distribution* : Marginal Productivity Theory and Modern Theory of Wage Determination, Concept of Rent and Quasi Rent; Ricardian Theory and Modern Theory of Rent; Concept of Interest, Classical and Loanable Funds Theory; Concept of Profit, Gross and Net Profit, Risk and Uncertainty Theories of Profit.

### Recommended Readings :

1. Joginder Singh, P.N. Chopra & P.S. Grewal (Punjabi Medium) : *Price Theory and Distribution* (Latest edition).
2. A.W. Stonier & D.C. Hague : *A Text Book of Economic Theory* (Fourth Edition).
3. P.A. Samuelson (trans. Piar Singh) : *Arth-Shastar Ek Prarmbhik Vishleshan*, Punjabi University, Patiala, 1972.

### Supplementary Readings :

1. R.G. Lipsey & K.A. Chrystal : *Economics*, 10<sup>th</sup> Edition, Oxford University Press, New Delhi, 2004.
2. D. Salvatore : *Micro Economics : Theory & Applications*, Oxford University Press, New York, 2003.
3. John Robinson (Trans.) : *Apuran Prtiyogita Di Arthiki* (Punjabi University, Patiala).



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|----|---|---|--|
| 4  | H.K. Manmohan Singh<br>(Trans. Om Parkash Vashisht) | : | <i>Mang Sidhant Ate Mishrat Arth-Vivstha Vich Arthik Ganana</i> , Punjabi University, Patiala, 1971. |
| 5. | N.C. Ray (1980)                                     | : | <i>An Introduction to Microeconomics</i> ; The Macmillan Company of India Ltd., New Delhi.           |
| 6. | P.N. Chopra (1998)                                  | : | <i>Micro Economic Theory and Welfare Economics</i> , Kalyani Publishers, New Delhi.                  |
| 7. | H.L. Ahuja (1999)                                   | : | <i>Advanced Economic Theory</i> , S. Chand & Co., New Delhi.   |

**Note : Four to five lectures of 45 minutes each per week are required to complete the syllabi.**

#### **Paper–B : INDIAN ECONOMY**

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 hours

#### **Course Objective :**

The objective of the paper is to familiarize the students with the features and characteristics of the Indian economy. It also includes performance and problems of Industrial development, Indian tax structure, external trade and balance of payments, and objectives, strategy and performance of Indian planning. The course aims to develop analytical understanding of the students by exposing them to the basic issues of the Indian economy.

#### **INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :**

- (i) There shall be **9** questions in all. All questions carry equal marks. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any **9** short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be **compulsory** question. Rest of the paper shall contain **4** Units. Each Unit shall have **two** questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all.
- (ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (ii) in the question paper.**

**Unit-I**

*Features and Characteristics of Indian Economy* : Agriculture : Importance of Agriculture; Causes of Backwardness and Low Productivity; New Agricultural Strategy, Green Revolution and Critical Evaluation with Special Reference to Environmental Degradation; Land Reforms : Need, Implementation and Critical Evaluation.

**Unit-II**

*Industry* : Problems of Industrial Development; Public and Private Sector; Industrial Policy since 1956 with special emphasis on Recent Trends of liberalization; Role and Problems of Small and Large Scale Industries. Major large scale industries: Iron & Steel, Cotton Textile, Petroleum & I.T.

**Unit-III**

Principal Features of Indian Tax Structure. Division of Financial Resources between Centre and the States. Direction and Composition of Exports and Imports and Changes therein since Independence; Balance of Payment problem; Role of MNCs in India.

**Unit-IV**

*Planning* : Objectives, Strategy and Achievements of Indian Planning; Critical Evaluation of the latest Five Year Plan (plan wise details to be excluded); Major Indian Economic Problems : Inflation, Unemployment, Poverty and Population Growth; Introduction to Consumer Education and Consumer Protection (elementary ideas).

**Recommended Readings :**

1. P.K. Dhar : *Indian Economy*, 1999, Kalyani Publishers, Ludhiana.
2. K.S. Gill : *Evolution of Indian Economy*, NCERT, New Delhi.
3. A.N. Aggarwal : *Indian Economy*, Wiley Eastern Ltd.
4. Rudder Datt & KPM Sundram : *Indian Economy*, S. Chand & Co. (Latest Edition).
5. R.N. Soni : *Leading Issues in Agriculture Economics*, Sohan Lal Nagin Chand & Sons.
6. A. Ghosh (Trans. Avtar Narinder Singh) : *Bhartiy Arth Vivstha* (Punjabi University, Patiala).
7. Chander Gupt Singh : *Bharti Arth Shastar* (Punjabi University, Patiala).

8. S.K. Misra & V.K. Puri : *Indian Economy*, Himalya Publishing House, Mumbai  
(English & Hindi Medium) (Latest Edition).
9. B.B. Tandon & K.K. Tandon : *Indian Economy*, Tata McGraw Hills Pub. Co., New  
Delhi (1998).

**Supplementary Readings :**

1. Government of India : *Five Year Plan* (latest).
2. Government of India : *Economic Survey* (latest).

**Note : Four to five lectures of 45 minutes each per week are required to complete the syllabi.**

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## SOCIOLOGY

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper-A (SOC-101) : FUNDAMENTALS OF SOCIOLOGY

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 Hours

#### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

- (i) For written paper, the students will be required to attempt **five** questions in all. Question No. I will be **compulsory** comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt **nine** short answer type questions out of 12, i.e.  $9 \times 2 = 18$  marks.  
In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each Unit with internal choice carrying 18 marks each i.e.  $4 \times 18 = 72$  marks. The students are required to attempt one question from each of the four Units.
- (ii) On an average, 15 hours are to be devoted for each Unit.
- (iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (iii) in the question paper.**

#### Objective :

This paper aims at introducing beginners of the subject to the Fundamentals of Sociology besides providing the basic understanding about Sociology as a discipline. Study of various terms, concepts and processes will help students in formulating a Sociological Viewpoint and an easy comprehension of the discipline at later stages.

#### Course Content :

##### Unit-I

*Introduction to Sociology* : Definition, Nature, Relationship with other Social Sciences – Anthropology, History, Political Science, Economics and Psychology.

*Human Society* : Meaning, Characteristics, Theories of Origin of Society – Organic and Social-Contract; Relationship between Individual and Society.

##### Unit-II

*Basic Concepts* : Social Groups - Meaning, Characteristics & Classification. Detailed discussion on Primary and Secondary Groups.

Association – Meaning and Characteristics.

Community – Meaning and Characteristics.

**Unit-III**

*Culture* : Meaning and Features, Culture and Civilization, Cultural Lag, Conceptual Understanding of Acculturation, Assimilation, Cultural Pluralism.

**Unit-IV**

*Socialization* : Meaning, Stages, Agencies and Theories of G.H. Mead and C.H. Cooley.

*Social Control* : Meaning, Types and Agencies – Formal and Informal

**Essential Readings :**

1. Bottomore, T.B. (1975) : *Introduction to Sociology*, Bombay : Blackie and Sons.
2. Bottomore, T.B. (1975) : *Sociology : A Guide to Problems and Literature* (Hindi and English), Bombay : Blackie and Sons.
3. Davis, Kingsley (1978) : *Human Society*, London : MacMillan Company.
4. Dube, S.C. (1990) : *Understanding Society - A Text Book*, NCERT.
5. Maciver, R.M. and C.H. Page (1983) : *Society*, London : MacMillan Company.
6. Macionis, John, J. (2005) : *Society : The Basics*, New York : Prentice Hall.
7. Madhurima (2009) : *Readings in Sociology – Part-I*, Jalandhar : New Academic Publishing House (All Mediums).
8. Rao, Shankar, C.N. (2005) : *Sociology—Primary Principles*, S.C. Chand and Company Ltd.
9. Sharma, R.N. (2001) : *Samajshastra Ke Sidhant*, New Delhi : Atlantic Publishers.

**Further Readings :**

1. Broom, L. and P. Selznick (1968) : *Sociology*, New York : Harper and Row.
2. Berger, Peter L. (1998) : *Invitation to Sociology : A Humanistic Perspective*, U.S.A. : Pelican Books.
3. Giddens, Anthony (2001) : *Sociology : A Textbook for the Nineties*, London : Polity.
4. Haralambos, M. (1998) : *Sociology : Themes & Perspectives*, New Delhi : Oxford University Press.
5. Schaefer, Richard, T. and Robert P. Lamm (1999) : *Sociology*, New Delhi : Tata-McGraw Hill.

**Paper-B : (SOC-102) SOCIAL INSTITUTIONS**

Max. Marks	:	100
Theory	:	90 marks
Internal Assessment	:	10 marks
Time	:	3 Hours

**INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :**

- (i) For written paper, the students will be required to attempt **five** questions in all. Question No. I will be **compulsory** comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt **nine** short answer type questions out of 12 i.e.  $9 \times 2 = 18$  marks.  
In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each Unit with internal choice carrying 18 marks of each i.e.  $4 \times 18 = 72$  marks. The students are required to attempt one question from each of the four Units.
- (ii) On an average, 15 hours are to be devoted for each Unit.
- (iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (iii) in the question paper.**

**Objectives :**

In this paper, social institution as a concept is introduced to the students. Study of various institutions which are foundations of human society, will help students to look at society in an objective and analytical way. This paper prepares the students to understand social theories in next classes.

**Course Content :****Unit-I**

Institutions – Meaning, Features; Normative and Relational aspects of Institutions.

Types – Social, Political, Economic and Cultural.

Difference among Institutions, Associations, Society and Groups.

**Unit-II***Social Institutions :*

Marriage –Types : Monogamy and Polygamy; Rules of Mate Selection, Changing Trends.

Family – Meaning, Types, Structure, Function; Development Cycle and Changing Trends.

Kinship – Meaning, Significance and a Brief Understanding of Incest, Consanguinity, Affinity, Clan, Lineage.

**Unit-III**

Political Institutions – State, Government, Political Parties – Features and Functions.

Economic Institutions – Features and Functions, Property, Division of Labour (Emile Durkheim).

**Unit-IV**

Cultural Institutions – Religion : Meaning, Types, Functions (Emile Durkheim & Max Weber).

**Essential Readings :**

1. Christensen, H. (ed.) (1964) : *Handbook of Marriage & Family*, New Delhi : Allyn and Bacon.
2. Fox, Robin (1967) : *Kinship and Marriage : An Anthropological Perspective*; Baltimore : Penguin Books.
3. Giddens, Anthony (2001) : *Sociology : A Textbook for the Nineties*, London : Polity.
4. Haralambos, M. (1998) : *Sociology : Themes and Perspectives*, New Delhi : Oxford University Press.
5. Johnson, Harry, M. (1980) : *Sociology : A Systematic Introduction*, Delhi : Allied Publishers.
6. Macionis, John, J. (2005) : *Society : The Basics*, New York : Prentice Hall.

**Further Readings :**

1. Aron, Raymond (1967) : *Main Currents in Sociological Thought, Vols. I & II*, New York : Penguin.
2. Durkheim, E. (1960) : *The Division of Labour in Society*, Illinois : Free Press of Glenocoe.
3. Morris Jones W.H. (1971) : *The Government and Politics of India*, London, Hutchinson University Press, Pages 15-48.
4. Patel, Tulsi (ed.) (2005) : *Family in India : Structure and Practice*, New Delhi : Sage.

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## PUBLIC ADMINISTRATION

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper-A : ADMINISTRATIVE THEORY

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

#### Objectives :

The objective of this paper is to acquaint the students with the basic concepts and principles of Public Administration. In addition, the paper would trace the evolution of Public Administration and its relationship with other social sciences.

#### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

- (i) For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

**The paper-setter must put a note in question paper in this regard.**

- (ii) The candidate shall attempt 5 questions in all (one compulsory and one each from four Units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 Units, each Unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

#### Unit-I

Meaning, Nature, Scope and Significance of Public Administration; Public and Private Administration; Public Administration as a Science or an Art. Relationship of Public Administration with other Social Sciences; Evolution of Public Administration since 1887.

#### Unit-II

*Organization* : Meaning, Types : Formal and Informal Organization.

*Forms of Organization* : Department, Public Corporation, Government Company.

*Principles of Organization* : Hierarchy, Span of Control, Unity of Command, Authority and Responsibility.

#### Unit-III

*Chief Executive* : Line and Staff Agencies; Centralisation and Decentralisation; Decision Making.



**Unit-IV**

*Co-ordination* : Concept, Methods and Hindrances.

*Communication* : Concept, Process and Barriers.

*Supervision* : Concept and Methods.

*Leadership* : Concept, Styles, Qualities of a good leader.

**Essential Readings :**

1. Felix A. Nigro and Llyod G. Nigro : *Modern Public Administration* (New York : Harper and Row, 1970).
2. Mohit Bhattacharya : *Public Administration : Structure, Process and Behaviour* (Calcutta : World Press, 2002).
3. Rumki Basu : *Introduction to Public Administration* (New Delhi : Sterling Publishers, 1990).
4. Chander Mohan Mahajan : *Elements of Public Administration* (Patiala : Publication Bureau (Panjabi) Punjabi University).
5. S.L. Goel : *Public Administration : Theory and Practice* (New Delhi : Deep & Deep Publishers, 2003).
6. Sahib Singh and Swinder Singh : *Public Administration : Theory and Practice* (Jalandhar : New Academic, 2007).
7. K.K. Puri and G.S. Barara : *Elements of Public Administration* (Jalandhar : Bharat Parkashan, 2010).
8. M.P. Sharma and Sadana : *Public Administration in Theory and Practice* (Allahabad : Kitab Mahal, 2009)
9. Fadia B.L. and Fadia Kuldeep : *Public Administration: Administrative Theories and Concepts* (Agra: Sahitya Bhawan Publication.)
10. R. K. Saprú : *Administrative Theories and Management Thought* (New Delhi, Prentice-Hall of India, 2008)
11. Avasti and Maheshwari : *Public Administration* (Agra, Laxminarayan Aggarwal Publication, 2011)
12. Rumki Basu : *Public Administration: Theory and Concept* (New Delhi: Sterling Publisher, 2008))
13. Pundrik Ojha and Kiran Sharma : *Public Administration: Theory and Practice* (Jalandhar : Raj Publishers, 2009)

**Further Readings :**

1. E.N. Gladden : *An Introduction to Public Administration* (London : Staples Press, 1964).
2. John, M. Pfiffner and R. Vance : *Public Administration* (New York : Ronald Press 1953). Presthus

3. A.T. Phillip and K.H. Sivaji Rao : *Indian Government and Politics* (New Delhi : Sterling Publishers, 1989).
4. H. Koontz and Cyril O' Donnel : *Principles of Management : An Analysis of Managerial Functions* (New York : McGraw Hill, 1972).
5. Nicholas Henry : *Public Administration and Public Affairs* (New Jersey : Prentice Hall, 2008).
6. Robert T. Golembiewski : *Public Administration as a Developing Discipline* (New York : Marcel Dekker, 1977).
7. John M. Pfiffner and Frank P. Sherwood : *Administrative Organization* (New Delhi : Prentice Hall 1960).
8. Peter Self : *Administrative Theories and Politics* (London : George Allen and Unwin, 1972).
9. S.P. Naidu : *Public Administration Concept and Theories* (New Delhi, New Age International Publication.)
10. Pundrik Ojha and Kiran Sharma : *Public Administration: Theory and Practice* (Jalandhar : Raj Publishers, 2012)

### Paper-B : INDIAN ADMINISTRATION

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

### Objective :

The objective of this paper is to give the student an in-depth understanding of various aspects of Indian administration particularly the functioning of executive, legislature and judiciary at the union and state levels. It would also make them aware of the bureaucratic set up at these levels.

### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

- (i) For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

**The paper-setter must put a note in question paper in this regard.**

- (ii) The candidate shall attempt 5 questions in all (one compulsory and one each from four Units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 Units, each Unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

### Unit-I

Features of Indian Administration.

*Union Executive* : President; Prime Minister; and Council of Ministers.

*Union Legislature* : Lok Sabha – Composition and Functions; *Rajya Sabha* : Composition and Functions.

### Unit-II

*State Executive* : Governor, Chief Minister and State Council of Ministers.

*State-Legislature* : Legislative Assembly and Legislative Council – Composition and Functions.

*Centre-State Relations* : Administrative and Legislative.

### Unit-III

*Union and State Judiciary* : Supreme Court – Composition and Functions.

High Court – Composition and Functions.

*Control over Administration* : Legislative and Judicial.

*Delegated Legislation* : Meaning, Reasons and Safeguards.

### Unit-IV

*Cabinet Secretary* : Powers, Functions and Role.

*Chief Secretary* : Powers, Functions and Role.

*District Administration* : Structure and Functions.

*Contemporary Concepts* : Good Governance, e-governance, Right to Information and Citizen Charters.

### Essential Readings :

1. A. Avasthi : *Central Administration* (New Delhi: Tata McGraw Hill, 1980)
2. S.R. Maheshwari : *State Government in India* (New Delhi: Mc. Millan, 1979)
3. R.K. Saprui : *Indian Administration* (Ludhiana : Kalyani Publishers)
4. K.K.Puri : *Indian Administration* (Jalandhar : Bharat Prakashan, 2006)
5. Sahib Singh and Swinder Singh : *Public Administration: Theory and Practice*, (Jalandhar: New Academic, 2007)
6. Fadia B.L. and Fadia Kuldeep : *Indian Administration*: (Agra: Sahitya Bhawan Publication, 2011)
7. Arora, Ramesh. K and Chaturvedi Geeta : *Indian Public Administration: Institution and Issues*, (New Delhi, Wishwas Prakashan, 2000)
8. S. R. Maheshwari : *Indian Administration* (New Delhi, Orient Longman, 2001)

### Further Readings

1. M.V. Pylee : *Constitutional Government in India* (Bombay: Asia, 1965)

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## PHILOSOPHY

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Outlines of Tests, Syllabi and Courses of Reading

#### Paper I : ELEMENTS OF PHILOSOPHY

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours
Lectures	: 75

#### AIMS & OBJECTIVES :

The aim of this paper is to familiarize the students with the subject, its branches, problems and methods. The contents of this paper provide the students with a wider canvas about tackling day-to-day problems from a larger perspective.

#### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

- (i) There shall be **9** questions in all.
- (ii) The first question shall be of short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25-30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
- (iii) Rest of the paper shall contain 4 Units and each Unit shall have two questions with internal choice. The candidates shall attempt one question from each Unit i.e. – 4 in all.
- (iv) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (iv) in the question paper.**

#### Unit-I

1. Nature of Philosophy (Introduction).
2. Problems of Philosophy with special focus on social equality, self knowledge and rationality.
3. Methods of Philosophy : Phenomenology, Analytical.

**Unit-II**

4. Introduction to main branches of Philosophy : Metaphysics, Epistemology, Ethics, Social Philosophy and Aesthetics (The interrelation between the branches will be focused).
5. Relation of Philosophy with Science and Religion.

**Unit-III**

6. Ethics and Social Philosophy : Good life and Good Society.
7. Morality in Public life.
8. Morality in Personal life.
9. Individual and Society.

**Unit-IV**

10. State and Civil Society.
11. Tolerance : Respect for Cultural Pluralism and Social diversities.
12. Justice : Virtue, Fairness, Equality.
13. Caste System in India : Jyoti Ba Phule, Gandhi, Ambedkar.

**Essential Readings :**

1. Mandukya Upanisad : *Advait Ashram Publication.*
2. Hitopadesa : *Guru Prashad Shastri, Bhargava Pustakalaya, Gayaghat, Kaashi, 3<sup>rd</sup> ed.*
3. Avtar Singh : *Ethics of Sikhs, Punjabi University, Patiala, 1972.*
4. Titus, H.H. : *Living Issues in Philosophy, N. Delhi, Eurasia Publishing House.*
5. Narvane, V.S. : *Modern Indian Thought, Asia Publishing House, Bombay.*

**Further Readings :**

1. Mandukya Upanisad, Yamuna Prasad Tripathi : *Varanasi Bhartiya Vidya Prakashan, 1966.*
2. Narayana Hitopadesa : *Translated from Sanskrit by A.B.D. Haksar, Penguin Books, 1998.*
3. Aesop's Fables : *Penguin Books, Harmondsworth, 1998.*

**Paper-II : LOGIC**

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours
Lectures	: 75

**AIMS AND OBJECTIVES :**

This paper aims at a systematic study of the Science of Logic which is the most effective means of developing logical abstract thinking in us. It tries to provide students with a mastery of Logic so that they can think in clearer terms and be less prone to error.

**INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :**

- (i) There shall be **9** questions in all.
- (ii) The first question shall be of short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25-30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
- (iii) Rest of the paper shall contain 4 Units and each Unit shall have two questions with internal choice. The candidate shall attempt one question from each Unit i.e. – 4 in all.
- (iv) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper-setter must put note (iv) in the question paper.**

**Unit-I**

1. Nature, Scope and Utility of Logic.
2. Terms and Propositions : Kinds of Terms, Connotation and Denotation of Terms. Aristotle's classification of proposition (Square of Opposition—Contradictories), Contraries, Sub-Contraries and Sub-Alterns.

**Unit-II**

3. Laws of Thought : Identity, Contradiction, Excluded Middle and Sufficient Reason.
4. Argument : Immediate Inference and Mediate Inference. Some kinds of immediate inference : Conversion, Obversion, Contraposition, Inversion.

**Unit-III**

5. Categorical Syllogism : The Structure and Rules of validity of Pure Categorical Syllogism, Figures and moods, Fallacies of Syllogism.
6. Introduction to Truth-Tables, Negation, Conjunction, Disjunction, Implications and Equivalences.

**Unit-IV**

7. Nature of Induction : Distinction between Deduction and Induction.
8. Kinds of Induction.
9. Causation : Nature of Cause, Plurality of Causes.

**Essential Readings :**

1. Cohen and Nagel : *Introduction to Logic and Scientific Method* (Allied Publishers), New Delhi, 2000.
2. Copi, I. M. : *Introduction to Logic* (N.Y., Macmillan, 1972, Hindi Translation available); London : Routledge and Kegan Paul.
3. Copi, Irvin M. : *Introduction to Symbolic Logic* (Prentice Hall of India), New Delhi, 1998.

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## PSYCHOLOGY

### B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

#### Objectives :

- (I) The course introduces to the students the general concepts and historical viewpoints in general psychology. The students would also get an understanding of the principles and theories in different areas like personality, motivation, intelligence, etc. The course also apprises them of the overall development and also introduces them to the elementary statistics.
- (II) Pedagogy of the Course Work :  
 80% Lectures (including expert lectures).  
 20% assignments, discussion and seminars and tests.

#### Paper A : GENERAL PSYCHOLOGY

Max. Marks	: 80
Theory	: 70 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

#### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

There shall be **9** questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be **Compulsory** question. Rest of the paper shall contain **4** Units. Each Unit shall have **two** questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

- Unit I** : *Introduction to Psychology* : Nature, Scope, Historical Background of Psychology.
- Unit II** : *Methods of Psychology* : Observational, Experimental (with emphasis on control of variables), Survey techniques, Methods of Sampling.
- Unit III** : *Emotions* : Concept, theories (James–Lange, Cannon Bard, Attribution Theory), Measurement of Emotions.
- Unit IV** : *Motivation* : Concept, types, theories Humanistic (Maslow) and Need Theories (McClelland and Murray).



**Paper B : GENERAL PSYCHOLOGY**

Max. Marks	: 80
Theory	: 70 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

**INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :**

There shall be **9** questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be **Compulsory** question. Rest of the paper shall contain **4** Units. Each Unit shall have **two** questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

**Unit I** : *Personality* : Concept, theories with emphasis on Trait (Eysenck and Cattell), Psychoanalytic (Freud, Adler and Jung), and Humanistic Theory (Rogers). Measurement of Personality (Self Report Measures, Projective Methods and Behavioural Assessment).

**Unit II** : *Intelligence* : Concept, Theories (Spearman, Thurstone, Guilford and Cattell), Measurement of Intelligence (Verbal and Non-Verbal tests; Individual and Group Tests).

**Unit III** : *Development* : Concept, Heredity and Environmental Influences, Erikson's Theory of Development, and Piaget's theory of Cognitive Development.

**Unit IV** : *Statistics* : Graphical Representation of Data; Measures of Central Tendency and Variability.

*Correlation* : Meaning of Correlation, Rank Order and Product Moment. Calculation and Interpretation.

*Note* : The use of non-programmable calculators and statistical tables are allowed in the examination.

**PSYCHOLOGY PRACTICALS**

Max. Marks : 40  
Time : 3 Hrs.

*Eight practicals have to be performed out of the following :*

1. Levels of Aspiration.
2. Verbal Test of Intelligence.
3. Non-Verbal Test of Intelligence.

4. Performance Test of Intelligence.
5. Structured Test of Personality.
6. Facial Expressions in Emotions.
7. DAT—any one to perform.
8. Public Opinion Survey.
9. Measurement of Motivation.
10. Zeigarnik Effect.

#### **Books Recommended :**

##### **Essential Readings :**

1. Shashi, J. (2000) : *Introduction to Psychology*, New Delhi : Kalyani.
2. Kerlinger, F.N. (1964) : *Foundations of Behavioural Research*, New York : Holt, Rinehart and Winston.
3. Morgan, C.T., King, R.A., Weisz, J.R. and Schopler, J. (1987) : *Introduction to Psychology*, Singapore : McGraw Hill.

##### **Reference Books :**

1. Baron, R.A. (2002) : *Psychology*, New Delhi : Pearson Education.
  2. Das, J.P. (1998) : *The Working Mind : An Introduction to Psychology*, New Delhi : Sage.
  3. Feldman, R.S. (1996) : *Understanding Psychology*, New Delhi : Tata McGraw Hill.
  4. Guilford, J.P., and Fruchter, B. (1981) : *Fundamental Statistics in Psychology and Education*, Singapore : McGraw Hill.
  5. Garrett, H.E. (1966) : *Statistics in Psychology and Education*, New Delhi : Vakils, Feffer and Simons.
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## GEOGRAPHY

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**Paper-A : PHYSICAL GEOGRAPHY-I : Geomorphology**

Max. Marks	: 75
Theory	: 65 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

**Objective :**

The objective of the paper is to introduce the basic concepts in physical geography, essentially geomorphology to the students of geography concisely.

**Course Content :**

### UNIT-I

Nature & Scope of Geography; place of physical geography within the discipline of Geography, divisions of physical geography —geomorphology, climatology and oceanography. (6 lectures)

*Theories of the Origin of the Earth:* Laplace, James, Jeans and Jeffreys, and Otto Schmidt. (6 lectures)

*Interior of the Earth:* Constitution, continental drift (with special reference to Wegener's Theory and Plate Tectonics), isostasy. (6 lectures)

### UNIT-II

Movements of the Earth : Orogenic and epeirogenic movements (with special reference to Geosyncline theory), landforms resulting from forces of compression and tension; earthquakes and volcanoes (causes, types and distribution) (16 lectures)

### UNIT-III

*Rocks* : Their origin, classification and characteristics. (3 lectures)

*Major Land Forms* : Mountains, plateaus and plains in the world. (6 lectures)

### UNIT-IV

*Geomorphic Agents and Landscapes* : Fluvial, glacial, aeolian, coastal, karst. (5 lectures)

Brief Introduction to applications of geomorphology to transport, landuse, and environmental hazards management. (3 lectures)

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts. The answer of each part should not exceed 25 words. Each part will carry 1.5 marks (Total 15 marks) .
  2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, two from each Unit. The students will be required to attempt one question from each Unit. Each question will carry 12.5 marks. These will be in addition to the compulsory question at serial number 1.
  3. Special credit will be given to suitable use of maps and diagrams. Use of unmarked stencils and colours are allowed.
  4. Internal assessment will include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
  5. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

**The paper-setter must put note (5) in the question paper.**

#### **Books Recommended :**

##### **Essential Readings :**

1. Blij, H.J. De & Petor O. Muller : *Physical Geography of the Global Environment*, John Wiley & Sons, Inc., New York, 1996.
2. Khan, Nizamuddin : *An Introduction to Physical Geography*, Concept, New Delhi, 2001.
3. Monkhouse, F.J. : *Principles of Physical Geography*, Orient Longman, New Delhi, Latest Edition.
4. Pal, Saroj K. : *Physical Geography of India : A Study in Regional Earth Sciences*, Orient Longman, Calcutta, 1998.
5. Singh, Savindra : *Physical Geography*, Gyanodya Prakashan, Gorakhpur, 2009.
6. Strahler, A.N. & Strahler, A.H. : *Modern Physical Geography*, John Wiley, New York, 2003.

##### **Further Readings :**

1. Dayal, P. : *A Text Book of Geomorphology*, Shukla Book Depot, Patna, 1995.
2. Dury, G.H. : *The Face of the Earth*, Penguin, England, 1973.
3. Gass, I.G. : *Understanding the Earth*, The Artemis Press, Sussex, 1973.

4. Kaur, Dhian : *The Earth*, Kalyani Publishers, Ludhiana, 2000.
5. Kale, V. and Gupta, A. : *Elements of Geomorphology*, Oxford University Press, Calcutta, 2001.
6. Mamoria, C.P. and Niati, J.L. : *Bhautic Bhoogol Ke Tatwa* (in Hindi), Agra, 1976.
7. Singh, Savindra : *Geomorphology*, Prayag Pustak Bhawan, Allahabad, 2004.
8. Sparks, B.W. : *Geomorphology*, Longman, London, 1986.
9. Thornbury, W.D. : *Principles of Geomorphology*, Second Edition, Wiley Eastern Ltd., New Delhi, 1993.

**Pedagogy :**

The teacher may familiarize the students with Indian examples of landforms with photographs and diagrams. In case it is possible, short field trips may be organised.

**Paper-B : PHYSICAL GEOGRAPHY-II (Climatology & Oceanography)**

Max. Marks	: 75
Theory	: 65 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

**Objective :**

The objective of the paper is to acquaint the students with the elements and attributes of climatology and oceanography as climate plays a very vital role in human life and oceans are storehouse of resources.

**Course Content :****UNIT-I**

- Definition of Climatology* : Concepts of Climate and Weather. Nature and Scope of Climatology. (1 lecture)
- Climate* : Elements and Controls. (2 lectures)
- Physical Structure of the Atmosphere* : Troposphere, Tropopause and Stratosphere and attributes of these three divisions. (3 lectures)
- Physical and Chemical Composition of the Atmosphere* : Dust particles, vapour particles, active gases, inert gases. (2 lectures)
- Insolation and Temperature* : Horizontal distribution of insolation, vertical and horizontal and annual, seasonal and diurnal distributions of temperature. (6 lectures)

**UNIT-II**

*Atmospheric Pressure and Winds Distribution* : Atmospheric disturbances : Tropical cyclones, temperate cyclones and anticyclones. (6 lectures)

*Atmospheric Moisture* : Forms of condensation—cloud, dew, fog, frost and snow. Precipitation forms and types. World patterns of precipitation : Spatial and seasonal. (5 lectures)

*Role of Climate in Human Life* : Atmospheric pollution and global warming – General Causes, consequences and measures of control (2 lectures)

**UNIT-III**

Nature and Scope of Oceanography

*Oceanography* : Definition, topography of the ocean basins; (topographies of Atlantic, Pacific and Indian Ocean). (4 lectures)

Factors controlling the world patterns of distribution of temperature and salinity in the ocean waters. (4 lectures)

**UNIT-IV**

*Movements of Oceanic Waters* : Waves and currents. Surface currents of the oceans. (4 lectures)

Marine Deposits, Corals. Tide : Their types, origin and uses to man. (4 lectures)

Oceans as storehouse of resources for the future. (1 lecture)

- Note :
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts. The answer of each part should not exceed 25 words. Each part will carry 1.5 marks (Total 15 marks).
  2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, two from each Unit. The students will be required to attempt one question from each Unit. Each question will carry 12.5 marks. These will be in addition to the compulsory question at serial number 1.
  3. Special credit will be given to suitable use of maps and diagrams. Use of unmarked stencils and colours are allowed.
  4. Internal assessment will include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
  5. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

**The paper-setter must put note (5) in the question paper.**

**Books Recommended :****Essential Readings :**

1. Critchfield, H.J. : *General Climatology*, Prentice Hall of India Private Ltd., New Delhi, 1975.
2. Lal, D.S. : *Climatology*, Chaitanya Publishing House, Allahabad, 2009.
3. Trewartha, G.T. : *An Introduction to Climate*, McGraw Hill Book Co., New Delhi, International Student Edition, 1980.
4. Khan, N. : *An Introduction to Physical Geography*, Concept, New Delhi, 2001.
5. Sharma, R.C. and Vatal, M. : *Oceanography for Geographers*, Chetnya, Allahabad, 2005.
6. Singh, Savinder : *Climatology*, Prayag Pustak Bhavan, Allahabad, 2004.

**Further Readings :**

1. Bhutani, Smita : *Our Atmosphere*, Edited by R.C. Chandna, Kalyani Publishers, Ludhiana, Delhi, 2000.
2. Gross, Grant M. : *Oceanography : A View of the Earth*, Prentice Hall, New Jersey, 1975.
3. Mathew, J.R. : *Climatology*, McGraw Hill, New York, Latest Edition.
4. Monkhouse, F.J. : *The Principles of Physical Geography*, University of London Press, London, 1959.
5. Pattersen, S. : *Introduction to Meteorology*, McGraw Hill Book Co., London, Latest Edition.
6. Stringer, E.T. : *Foundations of Climatology*, Surjeet Publications, Delhi, 1982.

**Pedagogy :**

- Throughout the course, conscious effort should be made to make the students aware of the significance of climate and oceans to human life. Slides, photographs, documentaries on climates and oceans may be used to illustrate the various aspects of climatology and oceanography.

**Paper-C : CARTOGRAPHY**

Max. Marks : 50

Time : 3 Hours

Written paper of 3 hours duration at college level (except USOL) : 30 marks

Viva and Practical Record (10+10) : 20 marks

**Objective :**

Geography is an amalgam of physical as well as social sciences and as such it is necessary for the students to go through laboratory exercises, particularly to show directions and bearings and different methods of representing relief. The concept of scale is to be understood in the initial stage, and also an introduction to weather maps is required.

**Course Content :****UNIT-I**

*Maps and Scales* : History of cartography and types of maps. Scales : methods of representing scale; methods of construction of graphic scales : plain, comparative, time and diagonal scale.

(3 lectures, 6 lab. sessions)

**UNIT-II**

*Directions and Bearings* : Plotting of a course, true north, magnetic north, finding true north with the pole star, a watch and a rod; bearing and its conversion.

Introduction to Elementary Concept of Global Positioning System (GPS).

*Enlargement and Reduction of maps* : Graphic methods – Square and Similar triangle.

(6 lectures, 12 lab. sessions)

**UNIT-III**

*Representation of Relief*

*Methods of showing Relief* : Contours, hill-shading, hachures, and layer tints.

(6 lectures, 12 lab. sessions)

**UNIT-IV**

*Weather Maps* : General introduction to the study of weather maps, the scheme of weather symbols including Beaufort's scale employed in Indian daily weather maps; weather in India : summer season (period of summer monsoon), winter season, forecasting of weather through the study of weather maps and recent advances in weather forecasting.

(6 lectures, 12 lab. sessions)

- Note :*
1. The written and practical examination including viva-voce shall be conducted at the respective college itself except USOL. However, the format of the question paper shall be uniform. A separate paper of 30 marks shall be prepared for colleges by the University from the prescribed syllabus.
  2. Practical examination at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teacher of Geography in the college.



3. **For students of USOL, a written theory paper for 30 marks shall be conducted by the University alongwith the University examination. A separate paper of 30 marks shall be prepared for USOL students from the prescribed syllabus.**
4. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 6 parts. The answer of each part should not exceed 25 words. Each part will carry 1 mark (Total 6 Marks).
5. The whole syllabus has been divided into 4 Units. Eight questions will be set out of the whole syllabus, i.e. 2 from each Unit. The students will be required to attempt one question from each Unit. These will be in addition to the compulsory question at serial number 1.
6. Evaluation of Practical Record will be done at the time of viva-voce examination. A minimum of 20 sheets are to be prepared by the students. There will be no laboratory exercise at that time.
7. There will be no viva-voce examination for the candidates appearing through USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of Open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).
8. For the students of University School of Open Learning, there will be an internal assessment of 10 marks in lieu of the viva-voce examination.
9. A fresh practical note book shall be prepared by failed/improvement candidates.
10. For practical classes, the number of students in one group shall not exceed fifteen.
11. There will be 3 hours of teaching per week for this paper.
12. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

**The paper-setter must put note (12) in the question paper.**

#### **Books Recommended :**

##### **Essential Readings :**

1. Mishra, R.P. & Ramesh, A. : *Fundamentals of Cartography*, Concept Publishing Co., New Delhi, 1989.
2. Singh, Gopal : *Mapwork and Practical Geography*, Vikas Publishing House Pvt. Ltd., New Delhi, 1995.
3. Singh, R.L. & Singh, Raghunandan : *Mapwork and Practical Geography*, Central Book Depot, Allahabad, 2007.

4. Phyllis Dink : *Mapwork*, Atma Ram & Sons, Latest Edition.
5. Anderle, R. : *The Global Positioning System*, Royal Society of London, U.K., 1998.
6. Kulkarni, M.N. : *The GPS and Its Applications, Training*, Volume GPS Training Course, Civil Engg. Dept., I.I.T. Bombay, 9-19 May, 2000.
7. Hoffman-Wellenhof, B. et al. : *GPS Theory and Practice*, 4<sup>th</sup> Rev. Edition, Springer Wien, New York.

#### Further Readings :

1. Monkhouse, F.J. & Wilkinson, H.R. : *Maps and Diagrams*, Methuen & Co., London, Third Edition, 1976.
2. Robinson, A.H. & Randall, D. Sale : *Elements of Cartography*, John Wiley & Sons, New York (Sixth Edition), 1995.
3. Colombo, O.L. & Watkins, M.M. : *Satellite Positioning in US National Report to IUGG*, on Geodesy, 1991.
4. King, R.W. & Others : *Surveying with GPS*, University of New South Wales, Australia, 1985.
5. Kulkarni, M.N. : *GPS from an Indian Perspective*, GIM International Journal, GITC Publication, The Netherlands, Vol. 14, Oct., pp. 43-45. (2000a).
6. Mueller, I.I. : *Global and Regional Geodynamics*, IAG Symposia 101, Springer Verlag, 1989.
7. Wells, D.E. : *Guide to GPS Positioning*, Canadian GPS Association, New Brunswick, Canada, 1988.

#### Pedagogy :

- The course should be taught with the help of topographical sheets of Survey of India and weather maps. It is necessary to have a well equipped cartographic laboratory and motivate the students to familiarize themselves with the use of instruments and prepare necessary exercises.

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## GANDHIAN STUDIES

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper–A : LIFE OF MAHATMA GANDHI

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

#### Course Objectives :

The paper is designed to acquaint the students with the life of Mahatma Gandhi.

#### Pedagogy of the Course Work :

90% Lectures (including expert lectures)

10% Unit Tests, Snap Tests, assignments, attendance and class room participation.

#### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

1. *The syllabus has been divided into four Units.*
2. There shall be 9 questions in all.
3. The first question shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be **compulsory** question.
4. Rest of the paper shall contain four (4) Units and each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidate shall attempt one question from each Unit – 4 in all. Each question shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper setter must put note (5) in the question paper.**

**Unit-I****1. Childhood and Youth :**

- (a) Early Childhood.
- (b) Law Student in London.
- (c) Western & Indian Influences.
- (d) Experiences in India as an advocate.

**Unit-II****2. Gandhi in South Africa :**

- (a) Experiences of Racial Discrimination.
- (b) Struggle for Human Rights.

**Unit-III****3. Establishing Ashrams :**

- (a) Phoenix Ashram.
- (b) Tolstoy Ashram.
- (c) Kochrub Ashram.
- (d) Sabarmati Ashram.
- (e) Seva Gram Ashram.

**4. Early Political Activities :**

- (a) Champaran Satyagraha.
- (b) Kheda Satyagraha.
- (c) Ahmedabad Mill Strike.

**Unit-IV****5. Experiences in Jail.****6. Approach to Communal Harmony.**

**Essential Readings :**

1. Gandhi, M.K. : *An Autobiography or The Story of My Experiments with Truth*, Ahmedabad : Navajivan Publishing House, 1986, 1995, 2004.
2. Gandhi, M.K. : *Satyagraha in South Africa*, Ahmedabad : Navajivan Publishing House, 1987.
3. Kripalani, J.B. : *Mahatma Gandhi, His Life and Thought*, New Delhi : Publications Division, Ministry of Information and Broadcasting, 1971.
4. Malhotra, S.L. : *Lawyer to Mahatma : Life, Work and Transformation of M.K. Gandhi*, New Delhi, Deep & Deep Publications, 2001.

**Further Readings :**

1. Nanda, B.R. : *Mahatma Gandhi – A Biography*, London : George Allen and Unwin, 1976.
2. Fischer, Louis : *Life of Mahatma Gandhi*, Bombay, Bhartiya Vidya Bhawan, 1996.

**Paper-B : GANDHI IN INDIAN FREEDOM STRUGGLE**

Max. Marks	: 100
Theory	: 90 marks
Internal Assessment	: 10 marks
Time	: 3 Hours

**Course Objectives :**

The paper is designed to acquaint the students with the role played by Mahatma Gandhi in the Freedom Struggle.

**Pedagogy of the Course Work :**

90% Lectures (including expert lectures).

10% Unit Tests, Snap Tests, assignments, attendance and class room participation.

- Note :*
1. The syllabus has been divided into four (4) Units.
  2. There shall be 9 questions in all.
  3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e.2 marks of each.

4. Rest of the paper shall contain four (4) Units and each Unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question shall carry 18 marks.
5. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

**The paper setter must put note (5) in the question paper.**

### **Unit-I**

**1. National Movements before Gandhi :**

- (a) First War of Independence 1857.
- (b) Birth of Congress.
- (c) Muslim League.
- (d) Hindu Mahasabha.
- (e) Home Rule League.

**2. Partition of Bengal :**

- (a) Swadeshi Movement.
- (b) Era of Moderate & Militant Nationalism.

### **Unit-II**

3. Gandhi on Indian Political Scene
4. Rowlatt Act.
5. Non-Cooperation Movement and Simon Commission.

### **Unit-III**

6. Civil Disobedience Movement.
7. Quit India Movement.

### **Unit-IV**

8. Parleys for Transfer of Power : Cripps Mission, Cabinet Mission.
9. Partition.

**Essential Readings :**

1. Bose, Subhash Chandra : *The Indian Struggle*, Calcutta : Neta Ji Publishing Society, 1948.
2. Chandra, Bipin : *Struggle for India's Independence*, New Delhi : Penguin, 1987.
3. Nanda, B.R. : *Making of a Nation : India's Road to Independence*, New Delhi : Harper Collins, 1998.

**Further Readings :**

1. Chopra, P.N. : *India's Major Non-Violent Movements, 1919-1934*, New Delhi : Vision Books, 1979.
  2. Sarkar, Sumit : *Modern India, 1887-1947*, New Delhi : Macmillan, 1981.
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## JOURNALISM & MASS COMMUNICATION

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Objectives :

- (i) The course will introduce to the students the general concepts and historical viewpoints in communication and media. The students would also get an understanding of the principles and theories of mass communication and develop an understanding of various aspects of the media industry and application areas such as advertising and public relations.
- (ii) Pedagogy of the Course Work :
  - 80 % Lectures (including expert lectures).
  - 20 % assignments, discussion and seminars.

### Paper-A : INTRODUCTION TO MASS COMMUNICATION

Max. Marks	:	80
Theory	:	70 marks
Internal Assessment	:	10 marks
Time	:	3 Hours

### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

There shall be **9** questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a **compulsory** question. Rest of the paper shall contain **4** Units. Each Unit shall have **two** questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

**Unit-I** : Definition, nature and types of communication.

**Unit-II** : Basic theories of mass communication.

**Unit-III** : History of Mass Media.

**Unit-IV** : Overview of the current status of the media industry in India.



**Paper-B : INTRODUCTION TO MASS COMMUNICATION-II**

Max. Marks	:	80
Theory	:	70 marks
Internal Assessment	:	10 marks
Time	:	3 Hours

**INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :**

There shall be **9** questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a **compulsory** question. Rest of the paper shall contain **4** Units. Each Unit shall have **two** questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

**Unit-I** : Basic terms, concepts, definitions and nature of Print, TV and Radio Journalism.

**Unit-II** : Folk Media : Types, reach and relevance.

**Unit-III** : New Media : Cyberspace as a source of information, communication and entertainment.

**Unit-IV** : Definition, scope and concept of Advertising and Public Relations.

**PRACTICALS**

Max. Marks : 40 Marks

- |   |   |          |
|---|---|----------|
| 1. Case study of any one media organization           | : | 10 Marks |
| 2. Project on any one aspect of communication         | : | 10 Marks |
| 3. Project on any one historical event or personality | : | 10 Marks |
| 4. Project on either folk or new media                | : | 10 marks |

**Books Recommended :****Essential Readings :**

- |                              |   |  |
|------------------------------|---|--|
| 1. Watson James and Hill Ann | : | <i>A Dictionary of Communication and Media Studies</i> , Universal Publications, 1998. |
| 2. Rayudu, C.S.              | : | <i>Communication</i> , Himalaya Publishing House, 1998.                                |

3. Shrivastava, K.M. : *Radio and TV Journalism*, Sterling Publishers, New Delhi, 1989.
4. Lafrance Pierre : *Fundamental Concepts in Communication*, Prentice Hall, New Delhi, 1992.
5. Ravindran, R.K. : *Handbook of Mass Communication*, Anmol Publications, N.D., 1999.
6. Chatterji, P.C. : *Broadcasting in India*, Sage Publications, New Delhi, 1987.
7. Alexander Patt : *Broadcasting Glossary*, Asian Mass Comm. Re. and Info. (AIMC), Singapore, 1994.
8. Ravindran, R.K. : *Handbook of Radio, TV and Broadcast Journalism*, Anmol Publications, N.D., 1999.
9. Prabhakar, M. and Bhanavat, S. : *Media Scene in India : Emerging Facets*, University Book House, Jaipur, 1999.
10. Gunaratne, Shelton : *Handbook of the Media in Asia*, Sage Publications, New Delhi, 2000.
11. Bhatt, S.C. : *Satellite Invasion of India*, Gyan Publishing House, New Delhi, 1994.
12. Sharma, S.R. : *Elements of Modern Journalism*, S.S. Publishers, New Delhi, 1999.
13. Chauhan, Swati and Chandra, Navin : *Foundation of News and Journalism*, Kanishka Publishers, New Delhi, 2000.
14. Mencher, Melvin : *Basic News Writing*, Brown Publishers, Iowa, 1989.
15. Bhatt, S.C. : *Broadcast Journalism : Basic Principles*, Har Anand Publications, New Delhi, 1993.
16. Sudarshan, K.N. : *Electronic Media*, Indian Publishers Distributors, 1998.
17. Anderson, Kenneth : *Introduction to Communication : Theory and Practice*, Commings Publishing Co., California, 1972.
18. Ball-Rokheach, Sandra and DeFleur, Melvin : *Theories of Mass Communication*, Longman, New York, 1975.

19. Folkherts, J. and Lacy, S. : *The Media in Your Life : An Introduction to Mass Communication*, Pearson Education, 2004.
21. Mackenzie, R. : *Comparing Media from around the World*, Pearson Education, 2007.

**Reference Books :**

1. Mudgal, Rahul : *Contemporary Issues in Journalism*, Sarup and Sons, New Delhi, 1998.
2. Kamath, M.V. : *Journalists Handbook*, Vikas Publishing House, New Delhi, 1983.
3. Chauhan, Swati and Chandra, Navin : *Journalism Today : Principles, Practices and Challenges*, Kanishka Publishers, N.D., 1997.
4. Mahajan Kamlesh : *Communication and Society – The Emerging Human Concerns*, Classical Publishing Company, New Delhi, 1990.
5. Andal, N. : *Communication Theories and Models*, Himalaya Publishing House, Mumbai, 1998.
6. Devito, Joseph : *Essentials of Human Communication*, Harper Collins, New York, 1996.
7. Flichy, Patrice : *Dynamics of Modern Communication*, Sage Publications, N.D., 1995.
8. Sharma, S.R. : *Information Technology, Mass Media and Management Systems*, Book Enclave, Jaipur, 1997.
9. Meyer, Philip : *Precision Journalism*, Indiana University Press, Bloomington, 1973.
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## **POLICE ADMINISTRATION**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### **Outlines of Tests, Syllabi and Courses of Reading**

#### **Paper-A : PRINCIPLES OF POLICE ADMINISTRATION**

**(A) Course Objectives :**

The principal objective of the syllabi is to acquaint the students with the basics of Police Administration. In particular, the syllabi is structured and organized to impart knowledge to the students relating to meaning, nature, scope and importance of Police and Police Administration along with the emerging trends. The aim of the course is also to initiate the candidate to the select principles of police organization, such as, division of work; hierarchy; Unity of command; span of control; bases of organization; delegation of authority; coordination; supervision; and communication. Further, the course endeavours to discuss chief executive, line and staff agencies, headquarter-fied relationship; police accountability to Parliament, Executive and Judiciary; relationship between Police and Media; and People's control over Police.

**(B) Pedagogy of the Course Work :**

90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of two internal examinations and attendance.

**(c) Instructions for Paper Setters and Candidates :**

- The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
- Time allowed will be 3 hours.
- There shall be 9 questions in all.
- The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words each. The candidate is required to attempt any 9 short answer type questions carrying 2 marks (9×2 = 18 marks).
- Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each Unit i.e. four questions in all. Each question will carry 18 marks (4×18 = 72 marks).

**(D) Course Content :**

#### **Unit-I**

Meaning, Nature and Scope of Police Administration; Importance of Police Administration in Developed and Developing Countries; Emerging Trends in Police Administration.

**Unit-II**

Principles of Organization : Division of Work; Hierarchy; Unity of Command; Span of Control; Delegation of Authority; Coordination; Supervision; and Communication with special reference to Police Administration.

**Unit-III**

Police Chief Executive – Role and Functions; Police as Staff Agency at the State Level; Police as Line Agency at the District Level; Headquarter – Field Relationship.

**Unit-IV**

Police Accountability – Parliamentary, Executive and Judicial; Relationship between Police and Media; People's Control Over Police.

**Essential Readings :**

1. Sen, Shankar : *Indian Police Today*, Ashish Publishing House, New Delhi, 1994.
2. Sharma, P.D. : *Indian Police – A Developmental Approach*, Research Publications, New Delhi, 1977.
3. Srivastava, Aparna : *Role of Police in a Changing Society*, A.P.H. Publishing Corporation, New Delhi, 1999.
4. Chaturvedi, J.C. : *Police Administration and Investigation of Crime*, Isha Books, Delhi, 2006.
5. Ghosh, S.K. and Rustamji, K.F. : *Encyclopaedia of Police in India, Volume-I*, Ashish Publishing House, New Delhi, 1993.
6. Bharti, Dalbir : *Police Evam Log : Donon Ke Adhikar Va Zimmedarian*, A.P.H. Publishing Corporation, New Delhi, 2007.
7. Bailey, David, H. : *The Police and Political Development in India*, Princeton University Press, New Jersey, 1969.

**Further Readings :**

1. Ghosh, S.K. : *Keeping the Peace: For Whom the Bell Tolls (Police Then and Now)*, Ashish Publishing House, New Delhi, 1989.
2. Saxena, Anil K. : *Professionalism in Indian Police*, A.P.H. Publishing Corporation, New Delhi, 1997.
3. Sharma, K.K. : *Law and Order Administration*, National Book Organization, New Delhi, 1985.
4. Bharti Dalbir : *Police and People: Role and Responsibilities*, A.P.H., New Delhi, 2006

**Paper-B : INDIAN POLICE ADMINISTRATION****(A) Course Objectives:**

The principal objective of the syllabi is to acquaint the students with the features of Indian Police Administration along with its history and growth. Considerable attention has been paid to the concept and significance of reforms in Police Administration with special reference to reform initiatives after independence. The endeavour of the course is to familiarize the students with the Police Administration at the Union Level with special focus on the Union Ministry of Home Affairs and Central Para Military Forces (CPMF's). The powers, functions and role of Police at Union, State and District level will also be discussed. An effort would be made to discuss the emerging issues in Police Administration with regard to Citizen-Police relationship; Community Policing; and Police and Human Rights. Some basic concepts relating to the functioning of police personnel like DDR, FIR, chargesheet, detection and investigation have also been included in the syllabus.

**(B) Pedagogy of the Course Work :**

90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of two internal examinations and attendance.

**(C) Instructions for Paper Setters and Candidates :**

- The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
- Time allowed will be 3 hours.

- There shall be 9 questions in all.
- The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words each. The candidate is required to attempt any 9 short answer type questions carrying 2 marks (9×2 = 18 marks).
- Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each Unit i.e. four questions in all. Each question will carry 18 marks (4×18 = 72 marks).

**(D) Course Content :**

**Unit-I**

Indian Police Administration : History, Growth and Features; Police Reforms : Concept and Significance; Police Reforms in India after Independence.

**Unit-II**

Organization and Working of Union Ministry of Home Affairs; Origin, Structure and Growth of Central Para Military Forces (CPMFs) with Special Reference to BSF, CRPF, ITBP and CISF.

**Unit-III**

Organization and Working of Police Administration at the State Level and District Level. Organization and Working of Police Station in context of lodging of FIR, NCR, Investigation and Beat System.

**Unit-IV**

Citizen-Police Interface; Community Policing; Police and Human Rights; Gender Sensitization of Police Force.

**Essential Readings :**

1. Gupta, Anandswarup : *The Police in British India: 1861-1947*, Bureau of Police Research & Development, New Delhi, 2007.
2. Srivastava, Aparna : *Role of Police in a Changing Society*, A.P.H. Publishing Corporation, New Delhi, 1999.
3. Sharma, P.D. : *Indian Police – A Developmental Approach*, Research Publications, New Delhi, 1977.

4. Sen, Shankar : *Indian Police Today*, Ashish Publishing House, New Delhi, 1994.
5. Dogra, R.S.D. : *Nation Keepers: Central Reserve Police Force (C.R.P.F.)*, A.P.H. Publishing Corporation, New Delhi, 2004.

**Further Readings :**

1. Vadackumchery, James : *National Police Commission: Issues for Rethinking*, APH Publishing Corporation, New Delhi, 1998.
  2. Saxena, Anil K. : *Professionalism in Indian Police*, A.P.H. Publishing Corporation, New Delhi, 1997.
  3. Chaturvedi, J.C. : *Police Administration and Investigation of Crime*, Isha Books, Delhi, 2006.
  4. Bailey, David, H. : *The Police and Political Development in India*, Princeton University Press, New Jersey, 1969.
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## WOMEN'S STUDIES

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper-I : FOUNDATIONAL CONCEPTS IN WOMEN'S STUDIES

Max. Marks	:	100
Theory	:	90 Marks
Internal Assessment	:	10 Marks
Time	:	3 Hours

**Objectives :** The objective of this course is to conscientise the students about some of the key concepts in women's studies, their meaning from a feminist and gender perspective with special reference to India.

### INSTRUCTIONS FOR PAPER SETTERS AND THE CANDIDATES :

- In this paper, the candidate will be assessed for 90 marks on the basis of a written examination and for 10 marks internal assessment.
- There shall be 9 questions in all. The first question shall be compulsory containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 9 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidate shall attempt one question from each Unit – 4 in all. Each question will carry 18 marks.

### Course Contents :

#### Unit-I : Gender

- Definition: Sex and Gender
- Difference: Sex and Gender
- Gender Stereotypes: Genesis and Persistence through Family, School and Media
- Social Construction of Gender: From infancy to Adulthood to Old age

#### Unit-II : Patriarchy

- Definition and Origin of Patriarchy
- Manifestations of Patriarchy :
  - (a) Preference for Son
  - (b) Discrimination against girl-child and women in the family
  - (c) Violence against Women
  - (d) Gender discrimination at the Workplace

**Unit-III : Empowerment**

- Definition and Indicators
- Types of Empowerment :
  - (a) Social
  - (b) Political
  - (c) Economic

**Unit-IV : Women's Studies**

- (a) Definition
- (b) Rationale for Women's Studies
- (c) Evolution of Women's Studies
- (d) Women's Studies as a discipline

**Essential Readings :**

1. Anderson, Margaret : *Thinking About Women*, Macmillan, New York, 1993.
2. Bhasin, Kamla : *What is Patriarchy?*, Kali for Women, New Delhi, 1994.
3. Bhasin, Kamla : *Understanding Gender*, Kali for Women, New Delhi, 2000.
4. Connel, R.W. : *Gender*, Polity, Cambridge, 2002.
5. Jain, Devaki and Rajput, Pam (eds.) : *Narratives from the Women's Studies Family*, Sage, New Delhi, 2003.
6. Poonacha, Veena : *Understanding Women's Studies*, RCWS, SNDT Univ., Mumbai, 1999.

**Further Readings :**

1. Aravamudan, Gita : *Disappearing Daughters : The Tragedy of Female Foeticide*, Penguin, New Delhi, 2007.
2. Lerner, Gerda : *The Creation of Patriarchy*, Oxford University Press, New Delhi, 1986.
3. Lorber, Judith and Farell, Susan A. (ed.) : *The Social Construction of Gender*, Sage, New Delhi, 1991.
4. Mies, Maria : *Indian Women and Patriarchy*, Concept Publishing Company, New Delhi, 1980.
5. Rajput, Pam & Kaur, Manvinder : "Women's Studies in Higher Education in India: Some Reflections", *Samyukta*, Vol. III, No.1, January, 2003.

**Paper-II : STATUS OF WOMEN IN INDIA-I**

Max. Marks	:	100
Theory	:	90 Marks
Internal Assessment	:	10 Marks
Time	:	3 Hours

**Objectives :** The status of women in India has changed over time in relation to historical and cultural realities, levels of consciousness, perceptions and actions of individual women, women's groups and finally state initiatives. This course first aims to acquaint the student with women in the Indian tradition from ancient times to the present, a tradition which has arisen out of the heterogeneity of experience. Further, it aims to sensitize the student to the status of women in contemporary India, with a special focus upon the factual situation apart from the major issues confronting Indian women.

**INSTRUCTIONS FOR PAPER SETTERS AND THE CANDIDATES :**

- In this paper, the candidate will be assessed for 90 marks on the basis of a written examination and for 10 marks internal assessment.
- There shall be 9 questions in all. The first question shall be compulsory containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 9 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidate shall attempt one question from each Unit – 4 in all. Each question will carry 18 marks.

**Course Contents :****Unit-I : Status of women in India in a historical perspective :**

- (a) Ancient India
- (b) Medieval India
- (c) Modern India

**Unit-II : Demography :**

- (a) Age-specific sex ratios
- (b) Decline in Sex Ratio : Causes and Consequences
- (c) Fertility Rates
- (d) Mortality Rates – Definitions, Infant Mortality Rate, Child Mortality Rate, Total Mortality Rate, Maternal Mortality Rate; Causes of Differentials in Mortality Rates

**Unit-III : Education :**

- (a) Education : Gender Gaps in Literacy Rates, Enrolment and Dropout rates
- (b) Obstacles to Women's Education : Socio cultural, Economic and Infrastructural
- (c) Women in Higher Education

**Unit-IV : Health :**

- (a) Definition : Health; Reproductive Health
- (b) Health Status : Nutritional health status of women and girl child in India
- (c) Factors affecting Women's Health Status

**Essential Readings :**

1. Altekar, A.S. : *The Position of Women in Hindu Civilization*, Motilal, Banarsidass, Delhi, 1959.
2. Bader, Clarisse : *Women in Ancient India: Moral and Literary Studies*, Anmol Pub., Delhi, 1987.
3. Chatterjee, Meera : *A Report on Indian Women from Birth to Twenty*, NIPCCD, New Delhi, 1999.
4. Gopalan, Sarala and Shiva, Mira : *National Profile on Women, Health and Development*, VHAI, & WHO, 2000.
5. Gopalan, Sarala : *Towards Equality – The Unfinished Agenda : Status of Women in India-2001*, National Commission for Women, New Delhi, 2002.
6. Menon-Sen, Kalayani and Shiva Kumar, A.K. : *Women in India! How Free? How Qual?*, Report Commissioned by the Office of the United Nations Resident Coordinator in India, New Delhi, 2001.
7. *National Human Development Report, 2001*, Planning Commission, Govt. of India, March, 2002.
8. Pruthi, Raj Kumar, Devi, Rameshwari and Pruthi, Romila (ed.) : *Status and Position of Women : In Ancient, Medieval and Modern India*, Mangal Deep, Jaipur, 2001.

**Further Readings :**

1. Ali, Aruna Asaf : *Resurgence of Indian Women*, Nehru Memorial Museum and Library, New Delhi, Radiant, 1991.
2. Ali, Azra Asghar : *The Emergence of Feminism Among Indian Muslim Women, 1920-1947*, Oxford, Karachi, 2000.
3. Anand, Meena : *Dalit Women : Fear and Discrimination*, Isha Books, Delhi, 2005.

4. Bhattacharya, Rinki (ed.) : *Behind Closed Doors : Domestic Violence in India*, Sage, New Delhi, 2004.
5. Chaturvedi, Archana (ed.) : *Muslim Women : From Tradition to Modernity*, Commonwealth, New Delhi, 2004.
6. Choudhary, Prem : *Contentious Marriages : Eloping Couples : Gender, Caste and Patriarchy in Northern India*, OUP, New Delhi, 2007.
7. Desai, Neera and Krishnaraj, Maithreyi (ed.) : *Women and Society in India*, Ajanta Publication, New Delhi, 1987.
8. Jacobson, Doranne and Wadley, Susan S. : *Women in India: Two Perspectives*, Manohar, New Delhi, 1986.
9. Kumar, Hajira (ed.) : *Status of Muslim Women in India*, Aakar Books, Delhi, 2002.
10. Mohanti, Bedabati : *Violence Against Women : An Analysis of Contemporary Realities*, Kanishka Publications, New Delhi, 2005.
11. Mohini Giri, V. : *Deprived Devis : Women's Unequal Status in Society*, Gyan, New Delhi, 2006.
12. Nagar, N.S. : *Changing Status of Indian Women*, Vista International Pub., Delhi, 2008.
13. Rajawat, Mamta : *Dalit Women: Issues and Perspectives*, Anmol Pub., New Delhi, 2005.
14. Thomas, P. : *Indian Women Through the Ages*, Asia Publishing House, Bombay, 1964.

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## HUMAN RIGHTS AND DUTIES

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper A : HUMAN RIGHTS AND DUTIES : CONCEPTUAL UNDERSTANDING

Max. Marks	:	100
Theory	:	90 Marks
Internal Assessment	:	10 Marks
Time	:	3 Hours

#### Objectives :

The course is designed for those who want to pursue a general graduate degree programme. It may be offered to any student drawn from multiple disciplinary backgrounds after 10+2. It is designed to have two papers that would provide adequate theoretical understanding about human rights and duties. The proposed under graduate course shall constitute as one of the subjects in the graduate level curriculum. This paper purports to deal with developing a broad understanding about human rights and duties, awareness about theoretical origins of human rights and their correlation with governance issues.

#### INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

*Note :* (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be **compulsory** comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12 i.e.  $9 \times 2 = 18$  marks.

In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions i.e. two questions from each Unit with internal choice carrying 18 marks of each i.e.  $4 \times 18 = 72$  marks.

(ii) On an average, 15 hours are to be devoted for each Unit.

#### Unit-I

##### The Concept of Human Rights :

Meaning, nature and definition of Human Rights; Classification of rights, Relationship between the rights and duties.

#### Unit-II

##### Concept of Human Duties :

Meaning, nature and definition of Human Duties; Moral, ethical, social, economic, political and cultural; universal; Traditional/Modern; Classification of Human Duties : Individual, family, Community , Nation-State, Humankind and Mother Earth.

#### Unit-III

##### Theories of Rights :

Natural Rights theory, Liberal theory of rights, Legal/positive theory of rights, Marxist theory of rights.

### Unit-IV

#### Good Governance :

- Democracy : Guaranteed freedoms; People's participation.
- Rule of Law : Non-arbitrariness, fairness in criminal justice administration.
- Open and transparent governance.
- Role of Civil Society Organizations.

#### Suggested Books :

1. Brundland Report : *Our Common Future* (1986), Oxford.
2. David Robertson : *A Dictionary of Human Rights* (2004), Europa Publications, London.
3. Darren, J.O'. Byrne : *Human Rights : An Introduction* (2005), Pearson Education Pvt. Ltd., Singapore.
4. Ian Brownlie, et al. (eds.) : *Basic Documents on Human Rights* (2006), Oxford.
5. Jayapalan, N. : *Human Rights* (2000), Atlantic Publishers, New Delhi.
6. Kalpana Kammabiran : *Crafting Human Rights Cultures, NALSAR University of Law, Hyderabad* (2006).
7. Gandhi, P.R. (ed.) : *Blackstone's International Human Rights Documents*, (2001), University, Delhi.
8. Upendra Baxi (ed.) : *The Right to be Human*, Lancer International, New Delhi (1987).
9. Sanajaoba, N. : *Human Rights in the New Millennium*, Manas Publication, New Delhi (2000).

#### Paper B : HUMAN RIGHTS : INTERNATIONAL DIMENSIONS

Max. Marks	:	100
Theory	:	90 Marks
Internal Assessment	:	10 Marks
Time	:	3 Hours

#### Objectives :

This paper purports to deal with promotion and protection of human right in the international context, particularly the UN bodies. It aims to create awareness regarding the Universal Declaration of Human Rights, 1948 and significant Covenants.

**INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :**

*Note :* (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be **compulsory** comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12 i.e.  $9 \times 2 = 18$  marks.

In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each Unit with internal choice carrying 18 marks of each i.e.  $4 \times 18 = 72$  marks.

(ii) On an average, 15 hours are to be devoted for each Unit.

**Unit-I****UN bodies involved in promotion of Human Rights (I) :**

- Economic and Social Council.
- UN Commission on Human Rights.
- UN General Assembly.
- UN Council on Human Rights.

**Unit-II****UN bodies involved in promotion of Human Rights (II) :**

- ILO
- UNESCO
- WHO
- FAO

**Unit-III****International Norms and Mechanisms :**

- League of Nations.
- The United Nations Charter and the development of Human Rights.
- The Universal Declaration of Human Rights, 1948.

**Unit-IV****International Covenants :**

- International Covenant on Civil and Political Rights (ICCPR), 1966.
- International Covenant on Economic, Social and Cultural Rights (ICESCR), 1966.
- Optional Protocols, 1976.



**Suggested Books :**

1. Philip Alston (ed.) : *The United Nations and Human Rights* (1996), Clarendon Press, Oxford.
2. Henry J. Steiner et al (eds.) : *International Human Rights in Context* (1996), Chapter 10, Clarendon Press, Oxford.
3. Saxena, J.N. et al (ed.) : *United Nations for Better World* (1986), Lancers Books, New Delhi.
4. Louis Henkin : *International Bill of Rights : The Covenant on Civil and Political Rights* (1981), Columbia University Press, New York.
5. Krasno Jean A. : *The United Nations* (2005), Viva, New Delhi.
6. Lauterpacht, Hersch : *An International Bill of the Right of Man* (1945), Columbia University Press, New York.
7. Morsink, Johannes : *The Universal Declaration of Human Rights : Origins, Drafting and Intent* (1999), University of Pennsylvania Press, Philadelphia.
8. UN Centre for Human Rights : *International Human Rights Standards for Law Enforcement* (1996), World Campaign for Human Rights, Geneva.

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**HOME SCIENCE**

B.A. (GENERAL) FIRST YEAR EXAMINATION, 2013

**SCHEME OF STUDIES**

<i>Sr. No.</i>	<i>Subject</i>	<i>Theory</i>	<i>Practical</i>
1.	Family Resource Management	3 hrs./week or 4 periods/ week	3 hrs./week
2.	Hygiene & Physiology	3 hrs./week or 4 periods/week	

**SCHEME OF EXAMINATION****Theory**

<i>Sr. No.</i>	<i>Name of Paper</i>	<i>No. of Papers</i>	<i>Time in hrs.</i>	<i>Marks</i>	<i>Int. Assessment</i>	<i>Total Marks</i>
1.	Family Resource Management	1	3	65	10	75
2.	Hygiene & Physiology	1	3	65	10	75

**Practical**

1.	Family Resource Management	1	3	40	10	50
2.	Hygiene & Physiology	---	---	---	---	---

**Total of Theory & Practical : 200***Note :* Internal Assessment should be based on assessment/term test/seminar/attendance.**Paper A : FAMILY RESOURCE MANAGEMENT**

Max. Marks : 65  
Time : 3 Hours/week

**INSTRUCTIONS FOR THE PAPER SETTER :**

The question paper will consist of five Sections : A, B, C, D and E. Sections A, B, C and D will have **two** questions from the respective section of the syllabus and will carry 13 marks each. Section E will consist of 13 objective type/very short answer type questions which will cover the entire syllabus uniformly.

**INSTRUCTIONS FOR THE CANDIDATES :**

Candidates are required to attempt one question each from the Sections A, B, C and D of the question paper and the entire section E.

**SECTION-A**

1. *Home* : Meaning and importance of Home Science.
2.
  - (a) Functions of Home.
  - (b) Renting v/s owning.
  - (c) Selection of site, soil, locality for a house.
  - (d) Principles of planning a house, orientation aspect, prospect, privacy, roominess, grouping, flexibility, circulation, sanitation, furniture, requirement and practical considerations.

**SECTION-B**

1. *Furniture* : Basic considerations while selection of furniture.
2. *Element of Art* : Line, form, shape, texture, size.
3. Principles of Art in relation to Interior Decoration, Harmony, Balance, Rhythm, Proportion and Emphasis.

**SECTION-C**

1. *Colour* :
  - (a) Characteristics of colour.
  - (b) Colour wheel.
  - (c) Colour schemes.
  - (d) Use of colour in Interior Decoration for various rooms.
2. *Flower Arrangement* : Types, Essential equipment used in flower arrangement, selection of material, application of elements and principles of Art in it.

**SECTION-D**

1. *Resources* : Classification of Resources—Human & non-human, Factors affecting the use of resources.
2. *Money Management* : Types of income, budgeting, its advantages and limitations.
  - (a) Planning of Budget.
  - (b) Means of supplementing family income.
3. Time and Energy Management.

**Paper B : HYGIENE & PHYSIOLOGY**

Max. Marks : 65

Time : 3 Hours

**INSTRUCTIONS FOR THE PAPER SETTER :**

The question paper will consist of five sections : A, B, C, D and E. Sections A, B, C and D will have **two** questions from the respective sections of the syllabus and will carry 13 marks each. Section E will consist of 13 objective type/very short type questions and will cover the entire syllabus uniformly.

**INSTRUCTIONS FOR THE CANDIDATES :**

Candidates are required to attempt one question each from the Section A, B, C and D of the question paper and the entire Section E.

**SECTION-A**

1. *Hygiene :*
  - (a) Definition of hygiene.
  - (b) Definition of infection, sources, carrier and control.
  - (c) Definition and types of immunity.
2. *Causes and Spread of following Diseases :*
  - (a) Caused by insects—Malaria, dengue.
  - (b) Conveyed by ingestion – Enteric fever, cholera, dysentery and diarrhea.
  - (c) Spread by droplet infection, chicken pox, measles, mumps, tuberculosis.
  - (d) Sexually transmitted diseases—AIDS.

**SECTION-B**

1. *Food Hygiene:*
  - (a) Definition.
  - (b) Hygiene during preparation, service and storage of food.
  - (c) Food poisoning, causes and prevention.
2. Importance of water and its purification.

**SECTION-C**

1. *Circulatory System* :
  - (a) Blood and its composition.
  - (b) Coagulation of blood.
  - (c) Structure and functions of heart.
2. *Digestive System* : Structure and functions of the alimentary canal.

**SECTION-D**

1. Structure and Functions of kidney and skin.
2. Structure and Functions of Lungs.

**PRACTICAL****Paper-A : FAMILY RESOURCE MANAGEMENT**

Max. Marks : 40

Int. Ass. : 10

Time : 3 hrs./week

1. Cleaning & Polishing of household metals-brass, copper, silver, gold, aluminium, iron, steel, non-stick finish.
2. Cleaning of Leather.
3. Cleaning of glass, windowpanes.
4. Care and cleaning of refrigerators, food processors, microwave ovens.
5. Cleaning and polishing of wooden furniture.
6. Floor decoration—Making of Alpana and Rangoli for different occasions.
7. Making of Flower Arrangement for different rooms.
8. Table setting, table manners and napkin foldings.
9. One decorative/utility article from waste material.

Lists of Major Equipments required for Family Resource Management Laboratories.

(1) Geyser, (2) Refrigerator, (3) Vacuum Cleaner, (4) Food Processor, (5) Mixer, (6) Oven, (7) Tea Kettles, (8) Gas Stove, (9) Dinner sets, Tea sets, Cutlery sets and other accessories for table settings, (10) Cement, Marble, Mosaic, Tiles and Wooden flooring for cleaning of different types of floors.

**References :**

1. Pearce Evelyn, C. : *Anatomy and Physiology for Nurses*, Oxford University.
2. Best, Charles, H. and Tylor, N.B. : *The Living Body – A Text in Human Physiology*, Asia Publishing House.
3. Bedi, Y.P. : *Hygiene and Public Health*.
4. Phadke : *Aids to Hygiene*.
5. Saxena, R.R. (1990) : *Social and Prevention Medicine*, CBS Publishers and Distributors, Delhi.
6. Selman, A.C. (1992) : *Health and Longevity*, Oriental Watchman Publishing House, Park, Poona, India.
7. Bhatia, B.C. and Sri P.N. (1968) : *Elementary Hygiene*, Oriental Longman.
8. Anna Hong Rutt : *Home Furnishing*, Wiley Eastern Ltd., N. Delhi, 1973.
9. Hazel Thompson, Criag Old Day Rush : *Home with Character*, Universal Books Stall, Delhi, Kanpur, 1969.
10. Betty Pepis : *Interior Decoration A to Z*, Doubleday & Co., Inc., New York, 1965.
11. Julia Elements : *101 Ideas for Flower Arrangement*, C. Arthur Pearson Ltd., London, 1963.
12. Walter Ian Fischman, Richard Demsbe, William Bernard : *Basic Home Repairs*, A Grosset Super Good Life Book Publishers, New York, 1975.
13. Ray Faulkner, Sarah Faulkner : *Inside Today's Home*, Holt, Rinehart & Winston, 1973.
14. R.S. Deshpandae : *Modern Ideal Home for India*, United Book Corporation, Poona, 1983.
15. R.S. Deshpandae : *Build Your Own Home*, United Book Corporation, Poona, 1983.
16. Paulena Nickell & H. Jean Muir Dorsey : *Management in Family Living*, Wiley Eastern Ltd., 1983.
17. M.A. Varghese, N. M. Ogale, K. Srinivasan : *Home Management*, Wiley Eastern Ltd., 1985.

18. The Educational Planning Group, : *Home Management*, Arya Publishing House, N. Delhi, Delhi. 1986.
19. Stella Sounderaj : *A Text Book of House Hold Arts*, Orient Longman Ltd., 1974.
20. I. H. Gross & E. W. Grandall : *Management for Modern Families*, Wiley Eastern Ltd.
21. A. Margaret Kaye : *A Students Hand Book of Housewifery*, J.M. Dent & Sons Ltd., London, 1958.
22. Amella Leaitt Hill : *Complete Book of Table Setting and Flower Arrangement*, Greystone Press.
23. Ball, Vectrio Kloss : *Art of Interior Design*, The Macmillan Co., New York, 1962.
24. Goldstein, H. I. and Goldstein, V. : *Art in Everyday Life*, Macmillan, New York, 1964.
25. Halse, A.O. : *The Use of Colour in Interior*, McGraw Hill Book Co., New York, 1961.
26. Swanson, Betty : *Introduction to Home Management*, Macmillan Co., New York, 1981.

**Journals :**

1. Indian Journal of Home Science, Home Science Association of India, Sri Avinashilingam Home Science College for Women, Coimbatore.
  2. Inside Outside, Edited and Published by Mallika Sarabhai, Wadia Building, 19/21 Dalal Street, Bombay.
  3. Journal of Home Economics, American Home Avenue, N.W., Washington.
  4. Journal of Indian Housewife.
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## AGRICULTURE

B.A./B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper-A : (THEORY)

Max. Marks	: 75
Theory	: 70 marks
Internal Assessment	: 5 marks
Time	: 3 Hours

- Period per week :**
1. Theory - Three of 45 minutes duration each.
  2. Practical - One of three hours duration.

### INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS :

1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall have five sections.
3. Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be **compulsory**. Each question will carry 1 (one) mark.
4. Sections B, C, D and E shall have two questions each from respective sections, out of which one question from each section is to be permitted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

### Unit-I

Plant Morphology - Root, Stem, Leaf - Their types and modifications.

Inflorescence - Types and classification.

Flower - Parts and their functions.

Fruit - Types and classification.

### Unit-II

Pollination - Type, Significance, Emasculation.

Life cycle of a typical angiosperm.



**Unit-III**

Cultivation practices including soil requirements, Water requirements, Improved varieties for :

Cereals - Wheat, Rice, Maize.

Fibres - Cotton.

Oil Crops - Sarson, Soyabean.

Fruits - Mango, Grapes, Citrus, Sapota.

**Unit-IV**

Importance of forests, Important forest trees of India and Punjab.

Raising of Nurseries for forestry.

Social forestry.

**PRACTICAL**

Max. Marks	:	25
Practical	:	20 marks
Internal Assessment	:	5 marks
Time	:	3 Hours

Study of root stem leaf modifications.

Raising of crops/visit to farms/fields to have knowledge of various agricultural tools, implements, and methods of crop production of related area.

Visit to Fruit and Forest nurseries.

Performance of emasculation techniques.

**Books Recommended :**

1. ICAR : *Hand Book of Agriculture*, New Delhi (2008).
2. S.S. Sinh, P. Gupta and A.K. Gupta : *Hand Book of Agricultural Science*, Kalyani Publishers, Ludhiana (2009).
3. Rabi Crops : *Package and Practices*, P.A.U., Ludhiana (2010).
4. Kharif Crops : *Package and Practices*, P.A.U., Ludhiana (2010).
5. Bhatia and Widge : *Elementary Biology*, Trumen Publishers, Jalandhar (2010).
6. Alan Stephens : *Dictionary of Agriculture*, Universal Book Stall, New Delhi (1998).
7. Chidda Singh, Prem Singh and Rajbir Singh : *Modern Techniques of Raising Field Crops*, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi (2009).
8. B.S. Chundawat and S.K. Gautam : *Text Book of Agroforestry*, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi (2006).

**Paper-B : (THEORY)**

Max. Marks	:	75
Theory	:	70 marks
Internal Assessment	:	5 marks
Time	:	3 Hours

- Period per week :**
1. Theory - Three of 45 minutes duration each.
  2. Practical - One of three hours duration.

**INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS :**

1. The syllabus of this paper has been divided into four Units.
2. Question paper shall have five sections.
3. Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be **compulsory**. Each question will carry 1 (one) mark.
4. Sections B, C, D and E shall have two questions each from respective sections, out of which one from each section is to be permitted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

**Unit-I**

Agricultural Banking, Agricultural Loans – Its various types, repayment mode, form filling for agricultural loans.

National policy for agricultural loans.

Agriculture credit cards.

**Unit-II**

Various legal aspects of import and export of raw crop and crop products.

Quarantine law.

Fundamentals of agricultural economics.

Psychological pressure on farmer and villagers of different classes.

**Unit-III**

Storage of vegetables, Fruits, Grains at local and large level.

Vegetable and fruit preservation.

**Unit-IV**

Soil types, Management, Improvement and Amendments.

Soil Testing.

Fundamental of fertilizers and manures.

Important fertilizers and their uses.

Nitrogen fixation.

**PRACTICAL**

Max. Marks	:	25
Practical	:	20 marks
Internal Assessment	:	5 marks
Time	:	3 Hours

Visit to Agricultural, Rural Banks to have basic knowledge of loan processing and recovery.

Identification of financial problems of a village.

Identification and collection of fertilizers.

Preservation of fruits and vegetables in Pickle, Jam, Jellies, Squash and Sauce forms.

**Books Recommended :**

1. K.T. Acharya : *Every Day Indian Processed Foods*, National Book Trust, New Delhi (2008).
2. Malkit Nagi and Satinder Bajaj : *Home Preservation of Fruit and Vegetables*, P.A.U., Ludhiana (2008).
3. ICAR : *Hand Book of Agriculture*, New Delhi.
4. T.D. Biswas and S.K. Mukherjee : *Text Book of Soil Sciences*, Kalyani Publishers, Ludhiana (2008).
5. Girdhari Lal, G.S. Siddappa and G.L. Tandon : *Preservation of Fruit and Vegetables*, ICAR Publication, New Delhi (2008).
6. Das and Gupta : *Manures and Fertilizers*, Kalyani Publishers, Ludhiana (1999).

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## ENVIRONMENT CONSERVATION

B.A/B.Sc. (General) FIRST YEAR EXAMINATION, 2013

<i>Paper</i>	<i>Name</i>	<i>Time in Hrs.</i>	<i>Theory Marks</i>	<i>Internal Assessment Marks</i>	<i>Total Marks</i>
A	Environment & Forestry	3	65	10	75
B	Soil and Water Pollution	3	65	10	75
Practical					
A	Environment & Forestry	3	50		50
B	Soil and Water Pollution				
<b>Total Marks</b>					<b>200</b>

**Note:** The practical will include survey and its project reports carrying 15 marks and 35 marks will be allotted to laboratory practicals. The number of hours for theory and practical per week shall be 5 hours and 4 hours respectively.

The time allotted for practical examination will be 3 hours duration.

There will be 9 questions in all, two each from section I to IV. Question No. I (17 marks) will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each (12 marks) from section I to IV and the first compulsory question.

### Paper-A : ENVIRONMENT AND FORESTRY

#### Section-I

#### Environment and Natural Resources:

**Environment:** Definition, Scope & importance of Environment. A brief introduction of Physical & biological environment.

**Ecosystem:** Concept of Ecosystem, Biotic & abiotic components, food chain, food web trophic levels, types of ecosystems, terrestrial and aquatic. Biogeochemical cycles - nitrogen, carbon, phosphorous and sulphur cycle.

#### Section-II

**Natural Resources:** Definition, type of natural resources (Renewable and nonrenewable natural resources) and the policies of their conservation. Energy resources; Fossil fuel, Alternative source of energy (Solar energy, wind power, geothermal energy, dung energy and wood energy).

#### Section-III

**Forestry:** Concept, types of forests in India & the world. Deforestation, reforestation and afforestation. Major and minor forest products. Reasons of forest destruction and its impact on Environment. Community forestry, Farm forestry, Social forestry and Agro forestry.

#### Section-IV

**Indoor Environment:** Pollution of the in house environment pollutants in the offices, workplaces (School, Bus stand, College and Kitchens). Environmental problems linked to urban and rural lifestyle, Adulterants; Food adulterants (Wheat flour, milk, red chili powder, mustard oil, desi ghee, sweets, artificial sweetness, dyes, food allergens.)

#### PRACTICAL

##### Paper-A

**Based on theory paper.**

Laboratory work: Tests of food adulterants.

Study the forest products with help of charts and specimens.

Survey reports of indoor environmental pollutants and local forests.

A visit to forest to study different components of these ecosystems.

##### Paper-B :

#### SOIL AND WATER POLLUTION

##### Section-I

**Lithosphere:** Meaning of Soil profile, its components, types of soil, physical-chemical properties of soil.

**Soil Fertility:** Micro and macro nutrients, technique of testing soil sample. Methods of increasing soil fertility, merits and demerits of fertilizers, role of soil micro organisms.

##### Section-II

Degradation of soil; Soil erosion (Water and Wind erosion) causes of effect of erosion.

Soil pollution: Different types of soil pollutants (Chemicals, Pesticides, Fertilizers & manure, discarded material. Pollution and control measures.

##### Section-III

**Hydrosphere:** Major sources and uses of water. Over utilization of surface & ground water, floods, drought. Conflicts over water. Potable water, its characteristics. Water cycle (Global and Biological)

##### Section-IV

**Water pollution:** Definition, Types & Sources of water pollution, its consequences and control measures. Different types of diseases due to water pollution. Treatment of waste water by green method (Root-zone technology), Marine pollution- a brief account.

**PRACTICAL****Paper-B**

Determination of soil pH

Use of Portable Kit

Determination of organic matter in soil

Determination of Ca CO<sub>3</sub> in soil.

Determination of available Nitrogen in soil.

Identification of different fertilizers.

Determination of pH of water.

Determination of organic carbon.

Determination of microbial carbon.

Determination of available N<sub>2</sub>

Determination of dissolved O<sub>2</sub>, BOD.

Determination of hardness and alkalinity of water.

Survey reports of different water samples in local and adjoining areas and interpretation of water test report.

**Books Recommended**

1. Purochit, S.S., Shammi, Q.J. & Agarwal, A.K. : Text Book of Environment Sciences, Saraswati Pub., Jodhpur, 2007.
2. Dhaliwal, G.S & Kukul, S.S. : Essentials of Environmental Sciences, Kalyani Pub., Ludhiana, 2008.
3. Chundawat, B.S. & Gautam, S.K : Text Book of Agroforestry, Raju Primalai, New Delhi, 2006.
4. Chandna, R.C. : Environmental Geography, Kalyani Pub., Ludhiana, 2006.
5. Sagreiya, K.P. : Forests and Forestry, National Book Trust, New Delhi, 2007.
6. Ralhon, P.K., Dhaliwal, G.S. & Avtar Singh : The Forests Production and Management, Kalyani Pub., Ludhiana.
7. Arora, S. : Fundamentals of Environmental Biology, Kalyani Pub., Ludhiana, 2008.
8. Dwivedi, A.P. : Forestry in India, Surya Publications, Dehradun, 1993.

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## MATHEMATICS

B.A./B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

### Paper-I : GEOMETRY : PLANE AND SOLID

Max. Marks	: 67
Theory	: 60 marks
Internal Assessment	: 7 marks
Time	: 3 Hours

- Note :*
1. The syllabus has been split into two Sections—Section-A and Section-B. Four questions will be set from each Section.
  2. A student will attempt five questions in all, selecting atleast two questions from each Section. Each question will be of 12 marks.
  3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.

### SECTION-A

#### Pair of Straight Lines :

Joint equation of pair of straight lines and angle between them, Condition of parallelism and perpendicularity, Joint equation of the angle bisectors, Joint equation of lines joining origin to the intersection of a line and a curve.

#### Circle :

General equation of circle, Circle through intersection of two lines, Tangents, normals, chord of contact, pole and polar, pair of tangents from a point, equation of chord in terms of mid-point, angle of intersection and orthogonality, power of a point w.r.t. circle, radical axis, co-axial family of circles, limiting points.

#### Conic :

General equation of a conic, tangents, normals, chord of contact, pole and polar, pair of tangents from a point, equation of chord in terms of mid-point, diameter. Conjugate diameters of ellipse and hyperbola, special properties of parabola, ellipse and hyperbola, conjugate hyperbola, asymptotes of hyperbola, rectangular hyperbola.

### SECTION-B

#### Transformation of Axes in two Dimensions :

Shifting of origin, rotation of axes, invariants, reduction of general second degree equation into standard forms by transformation, identification of curves and to find other parameters, tracing of conics.

**Polar Co-ordinates :**

Polar equation of a line, circle, conics, equations of chords, tangents and normals only.

**Transformation of Axes in three Dimensions :**

Shifting of origin, rotation of axes.

**Sphere :**

Section of a sphere and a plane, spheres through a given circle, intersection of a line and a sphere, tangent line, tangent plane, angle of intersection of two spheres and condition of orthogonality, power of a point w.r.t. a sphere, radical planes, radical axis, radical center, co-axial family of spheres, limiting points.

**Cylinder :**

Cylinder as a surface generated by a line moving parallel to a fixed line and through a fixed curve, different kinds of cylinders such as right circular, elliptic, parabolic and hyperbolic cylinders in standard forms, enveloping cylinders.

**Cone :**

Cone with a vertex at the origin as the graph of a homogeneous equation of second degree in  $x, y, z$ , cone as a surface generated by a line passing through a fixed curve and a fixed point outside the plane of the curve, reciprocal cones, right circular and elliptic cones, right circular cone as a surface of revolution obtained by rotating the curve in a plane about an axis, enveloping cones.

Equations of ellipsoid, hyperboloid and paraboloid in standard form, tangent planes and normals.

**References :**

1. Erwin Kreyszing : *Advanced Engineering Mathematics*, John Wiley & Sons, 1999.
2. Loney, S. L. : *The Elements of Coordinate Geometry*, Macmillan and Company, London.
3. Gorakh Prasad and Gupta, H.C. : *Text Book on Coordinate Geometry*, Pothishala Pvt. Ltd., Allahabad.
4. Bill, R.J.T. : *Elementary Treatise on Coordinate Geometry of Three Dimensions*, Macmillan India Ltd., 1994.
5. Jain, P.K. and Khalil Ahmad : *A Text Book of Analytical Geometry of Two Dimensions*, Wiley Eastern Ltd., 1994.
6. Jain, P.K. and Khalil Ahmad : *A Text Book of Analytical Geometry of Three Dimensions*, Wiley Eastern Ltd., 1999.
7. Saran, N. and Gupta, R.S. : *Analytical Geometry of Three Dimensions*, Pothishala Pvt. Ltd., Allahabad.
8. Shanti Narayan and Mittal, P.K. : *Analytical Solid Geometry, Seventeenth Revised Edition*, 2006, S. Chand & Co., New Delhi.



**Paper-II : CALCULUS**

Max. Marks	:	67
Theory	:	60 marks
Internal Assessment	:	7 marks
Time	:	3 Hours

- Note :*
1. The syllabus has been split into two Sections—Section-A and Section-B. Four questions will be set from each Section.
  2. A student will attempt five questions in all, selecting atleast two questions from each Section. Each question will be of 12 marks.
  3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.

**SECTION-A****Properties of Real Numbers :**

Order property of real numbers, bounds, l.u.b. and g.l.b. order completeness property of real numbers, archimedian property of real numbers.

**Limits :**

$\epsilon - \delta$  definition of the limit of a function, basic properties of limits, infinite limits.

**Continuity :**

Continuous functions, types of discontinuities, continuity of composite functions, continuity of  $|f(x)|$ , sign of a function in a neighborhood of a point of continuity, intermediate value theorem, maximum and minimum value theorem.

Hyperbolic, inverse hyperbolic functions of a real variable and their derivatives, successive differentiation, Leibnitz's theorem.

**Mean Value Theorems :**

Rolle's Theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, their geometric interpretation and applications, Taylor's theorem, Maclaurin's theorem with various forms of remainders and their applications.

**Curvature :**

Curvature of a curve at a point, radius of curvature of Cartesian, parametric, polar curves and for implicit equations, evolute and involute, chord of curvature.

**SECTION-B**

Indeterminate forms, Asymptotes, Concavity, Convexity and points of inflexion, Multiple points, Tracing of curves (Cartesian and parametric co-ordinates only).

**Integral Calculus :**

Integration of hyperbolic and inverse hyperbolic functions, Reduction formulae, Application of definite integral, Quadrature, Rectification, Volumes and Surfaces of solids of revolution (Cartesian co-ordinates only).

**References :**

1. Gabriel Klambauer : *Mathematical Analysis*, Marcel Dekkar, Inc., New York, 1975.
2. Murray R. Spiegel : *Theory and Problems of Advanced Calculus*, Schaum's Outline Series, Schaum Publishing Co., New York.
3. Piskunov, N. : *Differential and Integral Calculus*, Peace Publishers, Moscow.
4. Jain, P. K. and Kaushik, S. K. : *An Introduction to Real Analysis*, S. Chand & Co., New Delhi, 2000.
5. Gorakh Prasad : *Differential Calculus*, Pothishala Private Ltd., Allahabad.
6. Gorakh Prasad : *Integral Calculus*, Pothishala Private Ltd., Allahabad.
7. Murray, D.A. : *Introductory Course in Differential Equations*, Orient Longman (India), 1967.
8. Simmons, G.F. : *Differential Equations*, Tata McGraw Hill, 1972.
9. Coddington, E.A. : *An Introduction to Ordinary Differential Equations*, Prentice Hall of India, 1961.
10. Piaggio, H.T.H. : *Elementary Treatise on Differential Equations and their Applications*, C.B.S. Publishers & Distributors, Delhi, 1985.
11. Boyce, W.E. and DiPrima, P.C. : *Elementary Differential Equations and Boundary Value Problems*, John Wiley, 1986.
12. Erwin Kreyszig : *Advanced Engineering Mathematics*, John Wiley and Sons, New York, 1999.
13. Thomas, G.B. and Finney, R.L. : *Calculus and Analytic Geometry (Ninth Edition)*, Pearson Publication.
14. Shanti Narayan and Mittal, P.K. : *Differential Calculus*, Edition 2006, S. Chand & Co., New Delhi.

**Paper- III : ALGEBRA AND TRIGONOMETRY**

Max. Marks	: 66
Theory	: 60 marks
Internal Assessment	: 6 marks
Time	: 3 Hours

- Note :*
1. The syllabus has been split into two Sections–Section-A and Section–B. Four questions will be set from each Section.
  2. A student will attempt five questions in all, selecting atleast two questions from each Section. Each question will be of 12 marks.
  3. The teaching time shall be five periods (45 minutes) per paper per week including tutorial.

**SECTION-A**

Relation between sides and trigonometric ratios of the angles of a triangle, Circum-circle, in-circle, ex-circles of a triangle and their radii, Orthocentre, and centroid.

De'Moiver's theorem, application of De'Moiver's theorem including primitive  $n^{\text{th}}$  root of Unity. Expansions of  $\sin n\theta$ ,  $\cos n\theta$ ,  $\sin^n \theta$ ,  $\cos^n \theta$  ( $n \in \mathbb{N}$ ). The exponential, logarithmic, direct and inverse circular and hyperbolic functions of a complex variable.

Euclid's algorithm, synthetic division, roots and their multiplicity. Complex roots of real polynomials occur in conjugate pairs with same multiplicity. Relation between roots and co-efficients. Transformation of equations. Descartes' Rule of Signs.

**SECTION-B**

Solution of cubic and bi-quadratic equations, Cardan's method of solving a cubic, discriminant and nature of roots of real cubic, trigonometric solutions of a real cubic with real roots. Descartes' and Ferrari's method for a bi-quadratic.

Hermitian and Skew-Hermitian matrices, linear dependence of row and column vectors, row rank, column rank and rank of a matrix and their equivalence. Theorems on consistency of a system of linear equations (both homogeneous and non-homogeneous). Eigen-values, eigen-vectors and characteristic equation of a matrix, Cayley-Hamilton theorem and its use in finding inverse of a matrix.

**References :**

1. Datta, K.B. : *Matrix and Linear Algebra*, Prentice Hall of India Pvt. Ltd., New Delhi, 2000.
2. Bhattacharya, P.B., Jain, S.K. and Nagpaul, S.R. : *First Course in Linear Algebra*, Wiley Eastern, New Delhi, 1983.
3. Jain, S.K., Gunawardena, A. and Bhattacharya, P.B. : *Basic Linear Algebra with MATLAB*, Key College Publishing (Sprinder-Verlag), 2001.
4. Hall, H.S. and Knight, S.R. : *Higher Algebra*, H.M. Publications, 1994.
5. Chandrika Prasad : *Text Book on Algebra and Theory of Equations*, Pothishala Private Ltd., Allahabad.
6. Loney, S.L. : *Plane Trigonometry Part II*, Macmillan and Company, London.
7. Verma, R.S. and Shukla, K.S. : *Text Book on Trigonometry*, Pothishala Pvt. Ltd., Allahabad.
8. Shanti Narayan and Mittal, P.K. : *A Text Book of Matrices*, S. Chand & Co., New Delhi, Revised Edition, 2007.

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## COMPUTER SCIENCE

### B.A./B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

*Note :* A student who has passed the + 2 examination under 10+2+3 system of education of a recognised University/Board/Council or any other examination recognised by the Panjab University as equivalent thereto shall be eligible to offer the subject of Computer Science/Commerce/Economics/Mathematics as his/her subjects.

Only such colleges as have all necessary infrastructure or equipment and staff shall admit students to the subject of Computer Science. The infrastructure must be approved by the University as per practice.

### SCHEME OF EXAMINATION

			<i>Exam. Hrs.</i>	<i>Ext.</i>	<i>Int.</i>	<i>Max. Marks</i>
Paper A	: Theory	: Computer Fundamentals & C Programming	3	65	10	75
Paper B	: Theory	: PC Software under Windows	3	65	10	75
Paper C	: Practical	: Practicals based on Paper-A and Paper-B	3	50	--	50

*Note :* Practical marks will include the appropriate weightage for proper maintenance of Lab. Record.

### Paper-A : COMPUTER FUNDAMENTALS AND C PROGRAMMING

- Note :*
1. The question paper will consist of four sections.
  2. Examiner will set total of **nine** questions comprising **two** questions from each section and **one** compulsory question of short answer type covering whole syllabi.
  3. The students are required to attempt **one** question from each section and the compulsory question.
  4. All questions carry equal marks unless specified.

**Objective :** The course is designed to introduce basic concepts of computer system, programme Language, O.S., Networks and problem solving (Using C)

### SECTION-A

1. *Information Concepts and Processing :*

Evolution of information processing, Data, Information language and communication.

Elements of a computer processing system : Hardware-CPU, storage devices and media.

VDU, Input-output devices, data communication equipment. Software — System software, Application software.

2. *Programming Languages* : Classification, machine code, assembly language, higher level languages.

Fourth generation languages.

### SECTION-B

3. *Operating Systems* : Concept as resource manager and coordinator of processor, devices and memory.

Concept of priorities, protection and parallelism. Command interpreter, typical commands of DOS/UNIX/Netware, GUI-Windows.

4. *Computers and Communication* : Single user, multi-user, workstation, and client server systems. Computer networks, Network protocols. LAN, WAN, Services offered by Internet.

### SECTION-C

5. *Information Integrity Definition, Ensuring Integrity, Computer Security* : Perverse software, concepts and components of security, preventive measures and treatment.

6. *Range of Applications* : Scientific, word processing, spread sheets, e-commerce, business, educational, industrial, national level weather forecasting, remote sensing, planning multilingual applications.

### SECTION-D

7. Problem analysis, flow charts, decision tables, pseudo codes and algorithms.

8. *Algorithmic Programming Language* : Representation of integers, characters, constants and variables, arithmetic expressions and their evaluation using rules of hierarchy. Assignment statements, logical constants, variables and expression, control structures—sequencing, alteration, iteration, arrays, manipulating vector and matrix. Subroutines and linkage. Data management. Sample I/O statements, Documentation, Debugging. Examples illustrating structured program development methodology. C should be used as the teaching language.

### Books Recommended :

1. Dromey, G. : *How to Solve It by Computer*, Prentice Hall, 1985.
2. Jackson, N.A. : *Principles of Programming Design*, Academic Press, 1975.

3. Gries, D. : *Programming Methodology*, Springer-Verlag, 1978.
4. Sanders, R. : *Computer Data Processing*, Tata Mcgraw Hill.
5. Sharma, A.K. and Khan , E.H. : *Computer & Data Processing with BASIC*, New Delhi, Oxford & IBH Pub.,1987.
6. Jones, Robin and Stewart : *The Art of C Programming*, Narosa Publ. House, New Delhi.
7. Cooper, Mullish : *The Spirit of C, An Introduction to Modern Programming*, Jaico Publ. House, New Delhi, 1987.
8. Kenneth, A. : *C Problem Solving and Programming*, Prentice Hall of India.
9. Kerningham, B.W. and Ritchie, D.M. : *The C Programming Language*, PHI.
10. Kaiker, S. : *Programming in C*, McMillan India, 1989.
11. Rajaraman,V. : *Fundamentals of Computers* (3<sup>rd</sup> edition), Prentice Hall of India.
12. Sanders, D.H. : *Computers Today*, McGraw Hill, 1988.
13. Trainer, T. et al : *Computers* (4<sup>th</sup> edition), McGraw Hill, 1994.
14. Kanitkar , Yashwant : *“Let us C”*, BPB Publications.

### Paper-B : PC SOFTWARE UNDER WINDOWS

- Note :**
1. The question paper will consist of four sections.
  2. Examiner will set total of **nine** questions comprising **two** questions from each section and **one** compulsory question of short answer type covering whole syllabi.
  3. The students are required to attempt **one** question from each section and the compulsory question.
  4. All questions carry equal marks unless specified.

**Objective :** The course is designed to provide Fundamentals of DOS & Windows, OS and app S/w for word processing, making spread sheets and presentations.

### SECTION-A

1. Concept of files and directories. Basic DOS commands for handling files and directories, use of wildcards, batch files, autoexec bat file creation of batch files, replaceable parameters, and MS-DOS editing and function keys, Line editor, configuring DOS, role of config.sys file, FDISK commands.

**SECTION-B**

2. Introduction to graphical user interface, *window operating system*, Anatomy of windows, organising folders and files, multitasking, recycle bin, my computer, windows explorer, control panel.

**SECTION-C**

3. *Word Processing* : Creation, editing, formatting of documents, global search and replacement of text, special print features, mailmerge, spelling checker, MS-Word should be used as teaching tool.

**SECTION-D**

4. *Spread Sheet* : Getting started with EXCEL, EXCEL worksheet, entering data into worksheet, editing, cell addressing, ranges and range names, commands, menus, copying and moving cell contents, inserting and deleting rows and columns, column—width control, cell protection, printing reports, creating and displaying graphs, printing graphs, statistical functions.
5. MS-Power Point software for presentation.

**Books Recommended :**

1. Judd Robbins : *Mastering DOS. 6.0 & 6.2*, New Delhi, BPB Publications, 1994.
2. Alan R. Miller : *The ABC's of DOS-6.2*, Syben Inc., 1993.
3. Richard Allen King : *MS-DOS Hand Book*, Delhi, BPB Publications, 1986.
4. Gilbert Held : *IBM PC and PCXT User's Reference Manual*, Delhi, BPB Publications, 1987.
5. Cowart, Robert : *Using Microsoft Windows 2000 Professional*, Que Publishing, 2000.
6. Taxali, Ravikant : *PC Software Made Simple*, New Delhi, Tata McGraw-Hill, 1995.
7. Mansfield, Ron : *Compact Guide to Windows, Word & Excel*, New Delhi, BPB Pub., 1993.

**Paper C : PRACTICAL : PRACTICALS BASED ON PAPERS A & B.**

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## STATISTICS

### B.A./B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

- Note :*
1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
  2. There are three papers code named 101, 102 and 103 in the subject of Statistics in B.A./B.Sc. 1<sup>st</sup> Year. These are to be taught simultaneously throughout the year.
  3. 4 lectures (45 minutes each) per paper per week amounting in all to 12 lectures for three papers shall be allocated for the teaching.

#### Paper- 101: PROBABILITY THEORY

Max. Marks	: 75
Theory	: 65 Marks
Internal Assessment	: 10 Marks
Time	: 3 Hours

- Note :*
1. There will be in all nine (9) questions, all of equal marks. The first question is **compulsory** and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
  2. Simple non-programmable calculator is allowed.
  3. Statistical tables and log tables will be provided on request

### SECTION-I

*Important Concepts in Probability :* Random experiment, trial, sample point and sample space, definition of an event, mutually exclusive, exhaustive, independent and equally likely events. Definition of probability – classical and relative frequency approaches to probability, their demerits and axiomatic approach to probability. Properties of probability based on axiomatic approach, conditional probability, Bayes' theorem and its applications (concepts and simple applications).

*Random Variables :* Definition of discrete random variable, probability mass function, continuous random variable, probability density function, illustrations of random variables and their properties, distribution function and its properties, expectation of a random variable and its properties – moments, (only definition), moment generating function. Two dimensional random variables—joint, marginal and conditional distributions. Distribution of random variables (univariate, and bi-variate setup).

### SECTION-II

*Standard Univariate Distributions and their Properties :* Discrete uniform, binominal, Poisson, hyper geometric, geometric and negative binomial distributions. Uniform, normal, exponential, gamma, beta distributions.

Bivariate normal distribution and associated marginal and conditional probability distributions (without derivation).

Chebyshev's inequality and its applications, statements and applications of weak law of large numbers, and central limit theorems (De-Moivre's–Laplace and Lindeberg–Levy).

#### References :

1. Meyer, P.L. (1971) : *Introductory Probability and Statistical Applications*, Addison Wesley.
2. Goon, A.M., Gupta, M.K., Das Gupta, B. (2005) : *Fundamentals of Statistics*, Vol. I, World Press, Calcutta.

#### Additional References :

1. Mood, A.M., Graybill, F.A. and Boes, D.C. (1977) : *Introduction to the Theory of Statistics*, McGraw Hill.
2. Miller, I. and Miller, M. (2002) : *John E. Freund's Mathematical Statistics* (6<sup>th</sup> Edition, Low Price Edition), Prentice Hall of India.
3. Sheldon, M.R. (2000) : *Introduction to Probability Models*, Fourth Edition.

#### Paper-102 : DESCRIPTIVE STATISTICS

Max. Marks	: 75
Theory	: 65 Marks
Internal Assessment	: 10 Marks
Time	: 3 Hours

- Note :**
1. There will be in all nine (9) questions, all of equal marks. The first question is **compulsory** and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
  2. Simple non-programmable calculator is allowed.
  3. Statistical tables and log tables will be provided on request

## SECTION-I

*Collection of Data* : Primary data – designing a questionnaire and a schedule. Secondary data—Its major sources including some government publications. Concept of a Statistical Population and samples from a population; qualitative and quantitative data; discrete and continuous data.

*Presentation of Data* : Diagrammatic representations of data, frequency distribution, graphical representation, histogram, frequency polygon, frequency curves and ogives, stem-and-leaf-display, Box and whisker plot.

*Analysis of Quantitative Data* : Univariate data concepts of central tendency, dispersion and relative dispersion, skewness and kurtosis and their measures including those based on quartiles and moments. Sheppard's correction for moments (without derivation).

## SECTION-II

*Bivariate Data* : Scatter diagram, product moment correlation coefficient, properties and coefficient of determination. Spearman's rank correlation coefficient. Simple linear regression and its properties, principles of least square, fitting of linear regression and related results.

*Multivariate Data* : Multiple and partial correlation in three variables (only results no derivations).

*Analysis of Categorical Data* : Consistency of categorical data, independence and association of attributes. Various measures of association for two way classified data.

### References :

1. Goon, A.M., Gupta, M.K., Das : *Fundamentals of Statistics*, Vol. I, World Press, Calcutta. Gupta, B. (2005)
2. Daniel, W.W. (1999) : *Biostatistics* (7<sup>th</sup> Edition), John Wiley.

### Additional References :

1. Croxton, F.E., Cowden, D. J. and Kelin, S. (1973) : *Applied General Statistics*, Prentice Hall of India.
2. Spiegel, M.R. (1967) : *Theory & Problems of Statistics*, Schaum's Publishing Series.

**Paper-103 : PRACTICAL**

Max. Marks : 50  
Time : 3 Hours

**(Viva-Voce : 10 marks; Record of the year : 10 marks; Annual Paper : 30 marks)**

*Note :* The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 10 marks in three hours' duration.

*Viva-Voce and record of the year will carry 10 marks each.*

1. Presentation of data by frequency tables, diagrams and graphs.
2. Calculation of measures of central tendency, dispersion, skewness and kurtosis.
3. Product Moment Correlation.
4. Linear Regression of two variables.
5. Fitting of Curves (reducible to linear form) by the least square method.
6. Spearman's Rank correlation.
7. Multiple and Partial correlations.
8. Fitting of Binomial, Poisson and Normal distributions.

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## APPLIED STATISTICS

### B.A./B.SC. (GENERAL) FIRST YEAR EXAMINATION, 2013

- Note :*
1. This course shall not be opted for along with courses in B.A./B.Sc. Mathematics and/or B.A./B.Sc. Statistics.
  2. The candidate opted for this course will not be eligible for admission to M.A./M.Sc. Statistics.
  3. There are two papers code named A and B in the subject of Applied Statistics in B.A./B.Sc., each of one credit and having a total of 100 marks. These are to be taught simultaneously throughout the year.
  4. 4 to 5 lectures (40 minutes each) per paper per week amounting in all to 9 lectures for two papers shall be allocated for the teaching.

### SYLLABI AND COURSES OF READING

#### Paper-A : MATHEMATICAL METHODS-I

Max. Marks	: 100
Theory	: 90 Marks
Internal Assessment	: 10 Marks
Time	: 3 Hours

- Note :*
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
  2. Simple non-programmable calculator is allowed.
  3. Statistical tables and log tables will be provided on request.

#### SECTION-I (CALCULUS AND TRIGONOMETRY)

Limits and continuity of functions, derivatives and their geometrical interpretations. Applications of derivatives to maxima and minima, exponential and logarithmic functions, integrals of functions of one variable, geometrical interpretation of integral as area, integration of standard functions, integration by substitution and parts.

*Trigonometry :* Definition of an angle, its various measures and relations between them, graphs, circular functions.

#### SECTION-II (ALGEBRA AND GEOMETRY)

The solution of linear and quadratic equations in one variable, arithmetic, geometric and harmonic progressions, permutations and combinations, principle of induction, binomial theorem for positive integral index.

*Elementary Analytical Geometry* : Equations of straight line, parabola, and hyperbola.

**Books Recommended :**

1. Allen, R.G.D. : *Mathematical Analysis for Economists*, Chapter-II (Sections 2.1, 2.2, 2.8), Chapter-III (Sections 3.1, 3.6), Chapter-IV (Sections 4.1, 4.7), Chapter-VI (Sections 6.1-6.8), Chapter VII, Chapter VIII (Section 8.2), Chapter IX (Sections 9.1-9.4).
2. Gurhard Tintner (1970) : *Mathematics and Statistics for Economists*, Chapter-VI.
3. Loney, S.L. (2010) : *Plane Trigonometry, Part-I, Chapter-I* (Sections 1 to 22), Part-II, Chapter V (Sections 61, 65).
4. Arye, F. Jr. (1999) : *First Year College Mathematics* (Schaum's Series).

**Paper-B : PROBABILITY**

Max. Marks	: 100
Theory	: 90 Marks
Internal Assessment	: 10 Marks
Time	: 3 Hours

- Note :*
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
  2. Simple non-programmable calculators are allowed.
  3. Statistical tables and log tables will be provided on request.

**SECTION-I**

Random experiments, sample space, events, probability-Finite sample spaces, equally likely outcomes, conditional probability, Bayes theorem; independent events, random variables, discrete and continuous probability density functions.

**SECTION-II**

Expectation and variance of random variable.

Binomial, Poisson, geometric, hypergeometric, uniform, exponential and normal distributions.

**Book Prescribed :**

- Meyer, P.L. (1971) : *Introductory Probability and Statistical Applications*, Addison Wesley, Chapters 1, 2, 3, 4, 5, 8 and 9.

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## PHYSICS

### B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

#### General Instructions for teachers, students and the paper setters :

1. There will be three papers of theory and one laboratory (practical) course.
2. The number of lectures per week will be three for each theory paper and six for practicals.
3. The examination time for each theory paper will be three hours and four hours for practical.
4. Each theory paper will consist of nine questions carrying equal marks and spread over five prescribed Units.
5. Eight questions in each theory paper will be set from Units I to IV with two questions from each Unit.
6. Ninth question in each paper will be compulsory and will comprise of seven small answer type questions covering the whole syllabus.
7. The numerical problems/exercises in the question paper should be 25-30%.
8. Student will attempt one question from each Unit (I-IV) and any six parts of question nine.
9. The use of Non-programmable calculators will be allowed (paper setter should explicitly mention this on the question paper) in the examination centre but these will not be provided by the University/College. Mobile phones and pagers are not allowed in the examination hall.

#### Papers, marks and teaching hours allocation :

Paper A	: Mechanics	: (45+5*) marks	Total Teaching hours** 60
Paper B	: Vibrations, Waves and EM Theory	: (45+5*) marks	Total Teaching hours** 60
Paper C	: Electricity and Magnetism	: (45+5*) marks	Total Teaching hours** 60
	Physics Practicals	: 50 marks	Total Teaching hours 90

\* marks allotted for Internal Assessment.

\*\* within the prescribed teaching load, teachers must give two assignments per paper per academic term (July–September, October – December, January – March) with stress on problem solving to enhance the skill component of the students.

**Paper A: MECHANICS**

(60 Hrs.)

**UNIT-I**

Cartesian and spherical polar co-ordinate systems, area, volume, velocity, and acceleration in these systems, solid angle, various forces in Nature (Brief introduction), centre of mass, equivalent one body problem, central forces, equation of motion under central force, equation of orbit and turning points. Kepler Laws.

**UNIT-II**

Relationship of conservation laws and symmetries of space and time. Inertial frame of reference, Galilean transformation and Invariance. Non-Inertial frames, coriolis force and its applications. Variation of acceleration due to gravity with latitude. Foucault pendulum. Elastic collision in Lab. and C.M. systems, velocities, angles, and energies, cross section of elastic scattering, Rutherford scattering.

**UNIT-III**

Rigid Body motion; Rotational motion, principal moments and Axes, Euler's equations, precession and elementary gyroscope, concept of stationary universal frame of reference and ether, Michelson-Morley experiment and its results.

**UNIT-IV**

Postulates of special theory of relativity, Lorentz transformations, observer and viewer in relativity, Relativity of simultaneity, Length, Time, Velocities. Relativistic Doppler effect. Variation of mass with velocity, mass-energy equivalence, rest mass in an inelastic collision, relativistic momentum & energy, their transformation, concepts of Minkowski space, four vector formulation.

**UNIT-V**

Spread over the entire syllabi of all the four Units above.

**Books Suggested :*****Essential Readings :***

1. Mechanics, Berkeley, Vol. I, C. Kittel.
2. Mechanics, H.S. Hans & S.P. Puri.

***Further Readings :***

1. *An Introduction to Mechanics*, Daniel Kleppner & Robert J. Kolenkow (TMH).
2. *Introduction of Classical Mechanics*, R.G. Takwale & P.S. Puranik (TMH, 2000).
3. *Basic Concepts of Relativity*, R.H. Good (East-West Press, New Delhi, 1974).
4. *Special Theory of Relativity*, S.P. Puri (Asia Publishing House, Bombay, 1972).



**Paper B: VIBRATIONS, WAVES & E.M. THEORY**

(60 Hrs.)

**UNIT-I**

Simple harmonic motion, energy of a SHM, Compound Pendulum, Torsional Pendulum, Electrical Oscillations, Transverse Vibrations of a mass on a string, composition of two perpendicular SHM of same period and of period in ratio 1: 2. Decay of free vibrations due to damping, differential equation of motion, types of damping, determination of damping co-efficient—Logarithmic decrement, relaxation time and Q-Factor. Electromagnetic damping (Electrical oscillator).

**UNIT-II**

Differential equation for forced mechanical and electrical oscillators, Transient and steady state behaviour. Displacement and velocity variation with driving force frequency, variation of phase with frequency, resonance. Power supplied to an oscillator and its variation with frequency. Q-value and band width. Q-value as an amplification factor.

**UNIT-III**

Stiffness, coupled oscillators, Normal co-ordinates and normal modes of vibration, Inductance coupling of electrical oscillators. Types of waves, wave equation (transverse) and its solution, characteristic impedance of a string. Impedance matching, Reflection and Transmission of waves at boundary. Reflection and transmission of energy. Reflected and transmitted energy coefficients. Standing waves on a string of fixed length. Energy of vibrating string. Wave and group velocity.

**UNIT-IV**

Physical interpretation of Maxwell's equations, E.M. waves and wave equation in a medium having finite permeability and permittivity but with conductivity  $\sigma = 0$ . Poynting vector, Impedance of a dielectric to EM waves. EM waves in a conducting medium and skin depth. EM wave velocity in a conductor and anomalous dispersion. Response of a conducting medium to EM waves. Reflection and transmission of EM waves at a boundary of two dielectric media for normal and oblique incidence. Reflection of EM waves from the surface of a conductor at normal incidence.

**UNIT-V**

Spread over the entire syllabi of all the four Units above.

**Books Suggested :*****Essential Readings :***

1. *Text Book of Vibrations and Waves* by S.P. Puri (Macmillan India Ltd.).
2. *Physics of Vibrations and Waves* by H.J. Pain, ELBS & John Wiley, London.
3. *EM Waves and Radiating Systems* by Edward C. Jordan and K.G. Balmain, Prentice Hall.

**Further Readings :**

1. *Vibrations and Waves* by A.P. French (Arnold Heinemann India, New Delhi).
2. *The Mathematics of Waves and Vibrations* by P.K. Ghosh (Mcmillan India).
3. *Waves and Oscillations* by N. Subrahmanayam & B. Lal (Vikas Pub., Delhi).

**Paper–C : ELECTRICITY AND MAGNETISM**

(60 Hrs.)

**UNIT-I**

Basic ideas of Vector Calculus, Gradient, Divergence, curl and their physical significance, Laplacian in rectangular, cylindrical and spherical coordinates. Coulomb's Law for point charges and continuous distribution of charges, electric field due to dipole, line charge and sheet of charge. Gauss's divergence theorem and differential form of Gauss's Law.

**UNIT-II**

Work and potential difference, Potential difference as line integral of field, Electric potential due to dipole and quadrupole, long uniformly charged wire, charged disc. Stoke's theorem and its applications in Electrostatic field, curl  $\mathbf{E} = 0$ , Electric field as gradient of scalar potential. Calculation of  $\mathbf{E}$  due to a point charge and dipole from potential. Poisson and Laplace's equation and their solutions in Cartesian and spherical coordinates, Concept of electrical images. Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet. Polarisation of matter, atomic and molecular dipoles, induced dipole moment and atomic polarizability. Electric susceptibility and polarization vector. Capacity of a capacitor filled with dielectric. Relation  $K = 1 + \chi$ , Gauss's law for dielectrics. Displacement vector, Div.  $\mathbf{D} = 0$ , Energy stored in dielectric medium.

**UNIT-III**

Current and current density, equation of continuity. Microscopic form of Ohm's Law ( $\mathbf{J} = \sigma \mathbf{E}$ ) and conductivity. Failure of Ohm's Law. Invariance of charge.  $\mathbf{E}$  in different frames of reference. Field of a point charge moving with constant velocity. Interaction between moving charges and force between parallel currents. Behaviour of various substances in magnetic field. Definition of  $\mathbf{M}$  and  $\mathbf{H}$  and their relation to free and bound currents. Permeability and susceptibility and their interrelationship. Orbital motion of electrons and diamagnetism, Electron spin and paramagnetism, Ferromagnetism, Domain theory of Ferromagnetism, Hysteresis Loss, Magnetisation curve, Ferrites.

**UNIT-IV**

Lorentz's force. Definition of  $\mathbf{B}$ . Biot Savart's Law and its application to long straight wire, circular current loop and solenoid. Ampere's Circuital law and its application. Divergence and curl of  $\mathbf{B}$ . Hall effect, expression and co-efficient. Vector potential, Definition and derivation, current density—definition, its use in calculation of change in magnetic field at a current sheet. Transformation equations

of E and B from one frame to another. Faraday's Law of EM induction, Displacement current, Maxwell's equations. Mutual inductance and reciprocity theorem. Self inductance, L for solenoid, Coupling of Electrical circuits. Analysis of LCR series and parallel resonant circuits, Q-factor. Power consumed, Power factor.

### UNIT-V

Spread over the entire syllabi of all the four Units above.

#### Books Suggested :

##### *Essential Readings :*

1. *Fundamentals of Electricity and Magnetism* by Arthur F. Kipp.
2. *Electricity and Magnetism, Berkeley Physics Course, Vol. II* by E.M. Purcell.
3. *Introduction to Classical Electrodynamics* by David Griffith, Prentice Hall.

##### *Further Readings :*

4. *Electricity & Magnetism*, A.S. Mahajan & A.A. Rangwala (Tata McGraw Hill).
5. *Electricity & Magnetism*, 4<sup>th</sup> Edition, W.J. Duffin.
6. *EM Waves and Radiating Systems*, Edward C. Jordan and K. G. Balmain, Prentice Hall.

#### General Guidelines for Physics Practical Examinations :

1. The distribution of marks is as follows :
 

(i)	One full experiment out of section–A requiring the student to take some data, analyse it and draw conclusions. (Candidates are expected to state their results with limits of error).	20 marks
(ii)	Brief theory.	05 marks
(iii)	One exercise based on experiment or Computer Programming (To be allotted by the external examiner at the time of examination).	10 marks
(iv)	Viva-Voce	10 marks
(v)	Record (Practical file)	05 marks

***Note for Examiners : The marks scored under each head must be clearly written on the answer sheet.***

2. There will be one session of 4 hours duration. The paper will have two sections. Section–A will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.
3. Section–B will consist of exercises which will be set by the external examiner on the spot. The length of the exercises should be such that any of these could be completed in one hour.
4. The examiner should take care that the experiment allotted to an examinee from section–A and exercise allotted from section–B are not directly related to each other.
5. *Number of candidates in a group for practical examination should not exceed 12.*
6. In a single group, no experiment be allotted to more than three examinees in the group.

### LIST OF EXPERIMENTS :

#### I Analysis of Experimental Data:

##### Objectives :

- (i) Knowledge of propagation of errors.
- (ii) Determination of standard deviation and probable error and their use in expressing the experimental result.
- (iii) Familiarity with the method of least square fitting of experimental data to a curve.
- (iv) Straight line fitting.

##### Activities :

Exercises on fitting of given data to straight line and calculation of probable error.

### MECHANICS

#### II Rotation :

##### Objectives :

- (i) Study of rotational motion.
- (ii) Establishing relationship between different quantities.

##### Activities :

- (i) To study the dependence of moment of inertia on distribution of mass (by noting time periods of oscillations using objects of various geometrical shapes but of same mass).
- (ii) To establish relationship between torque and angular acceleration using fly wheel.

**III Elasticity :****Objectives :**

Knowledge of elastic constants and related quantities.

**Activities :**

- (i) Study of bending of beams and determination of Young's Modulus.
- (ii) Determination of Poisson's ratio for rubber/plastic.

**IV Fluid Flow :****Objectives :**

- (i) Concepts of stream line flow and viscosity.
- (ii) Knowledge of factors affecting the flow of fluid in a capillary.

**Activities :**

To study flow of water through capillary tubes of different length and area of cross section (at least two each) and calculate coefficient of viscosity.

**V One-Dimensional Collisions :****Objectives :**

- (i) Conservation of linear momentum and kinetic energy in elastic collisions.
- (ii) Dependence of fraction of kinetic energy transferred on the masses of colliding bodies.
- (iii) Idea of coefficient of restitution.

**Activities :**

To determine energy transfer, coefficient of restitution and verify laws of conservation of linear momentum and kinetic energy in elastic collisions using one dimensional collisions of hanging spheres.

**VIBRATIONS, WAVES, AND E.M. THEORY****VI Standing waves :****Objective :**

Standing waves on a string and in air.

**Activities :**

- (i) Melde's experiment.
- (ii) Kundt's tube.

**VII Compound Pendulum :****Objectives :**

- (i) Idea of equivalent simple pendulum.
- (ii) Concepts of centre of suspension and oscillation.
- (iii) Dependence of time period on moment of Inertia .
- (iv) Radius of gyration.
- (v) Determination of  $g$ .

**Activities :**

- (i) Measure time period as a function of distance of centre of suspension (oscillation) from centre of mass, plot relevant graphs, determine radius of gyration and acceleration due to gravity.
- (ii) Find the value of  $g$  by Katers' pendulum.

**VIII Torsion Pendulum :****Objectives :**

- (i) Idea of torsional vibration, dependence of time period on M.O.I. and restoring torque.
- (ii) Modulus of rigidity.

**Activities :**

Measure time period of oscillation of a Maxwell needle and determine modulus of rigidity of the material of a given wire.

**IX Damped Oscillator :****Objectives :**

- (i) Study damped oscillations.
- (ii) Coefficient of damping, quality factor etc.

**Activities :**

To measure/obtain logarithmic decrement, coefficient of damping, relaxation time, and quality factor of a damped simple pendulum.

**ELECTRICITY AND MAGNETISM****X Low Resistance Measurements :****Objectives :**

- (i) Inadequacy of Wheatstone bridge to measure low resistances.
- (ii) Acquaintance with a method of measuring low resistances.

**Activities :**

To determine low resistance with Carey Fosters Bridge.

**XI Magnetic Field :****Objectives :**

- (i) Familiarity with the magnetic field produced by a solenoid.
- (ii) Dependence of solenoidal field on number of turns and current.
- (iii) Permeability of air.

**Activities :**

To study the magnetic field produced by a current carrying solenoid using a search coil and calculate permeability of air.

**XII Electromagnetic Induction :****Objective :**

Verification of laws of electromagnetic induction.

**Activity :**

To study the induced e.m.f. as function of the velocity of the magnet.

**XIII Objectives and Activities :**

Force on a conductor carrying current in a magnetic field.

**XIV LCR Circuits :****Objectives :**

- (i) Study of phase relationship between currents and voltages in ac circuits.
- (ii) Concepts of resonance and Q-value.

**Activities :**

- (i) Study of phase relationships using impedance triangle for LCR circuit and calculate impedance.
- (ii) Resonance in a series and parallel LCR circuits for different R-value and calculate Q-value.
- (iii) Study of Lissajous figures using a C.R.O.

**XV Capacitance :****Objectives :**

- (i) Measurement of capacitance, dielectric constant.
- (ii) Concept of time constant and time base circuit.
- (iii) Knowledge of a-c Bridges.

**Activities :**

- (i) Capacitance by flashing and quenching of a neon lamp.
- (ii) Measurement of capacitance, determination of permittivity of a medium, air and relative permittivity by De-Sauty's bridge.

**XVI Self Inductance :****Objectives :**

- (i) Knowledge of a-c bridges.
- (ii) Concept of self inductance.

**Activities :**

To determine L using Anderson Bridge.

**EXERCISES :**

1. Any one exercise based on above given experiments.
2. To study the efficiency of an electric kettle/heater/element with varying input voltage.
3. To study working of an energy meter-calibration etc.



**Computer based activities :**

4. Elementary FORTRAN programs, flowchart and their interpretation.
5. To print out all natural even/odd numbers between given limits.
6. To find maximum, minimum range of a given set of numbers.
7. To compile a frequency distribution and evaluate moments such as mean; standard deviation etc.
8. To evaluate sum of finite series and the area under a curve.
9. Numerical solution of equation of motion.

**Texts and Reference Books :**

1. *“Mechanical Systems”* by B. Saraf *et al.*
  2. *“A Laboratory Manual of Physics for Undergraduate Classes”* by D.P. Khandelwal.
  3. *“Elements of Statistics”* by C.G. Lambe.
  4. *“Numerical Analysis”* by C. Dixon.
  5. *“Schaum’s Outline of Theory and Problems of Programming with Fortran”* by S. Lipsdutz and A. Poe.
  6. *Fortran 77 and Numerical Methods* by C. Xavier.
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## CHEMISTRY

### B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

#### Scheme of Teaching and Examination

<i>Paper</i>	<i>Course</i>	<i>Teaching Hrs.</i>		<i>Max. Marks</i>
I	Inorganic Chemistry	60	3 periods per week	45 + 5 internal assessment
II	Organic Chemistry	60	3 periods per week	45 + 5 internal assessment
III	Physical Chemistry	60	3 periods per week	45 + 5 internal assessment
IV	Laboratory Practicals		6 periods per week	45 + 5 internal assessment
		<b>Total :</b>	<b>15 periods/week</b>	<b>200</b>

#### Paper- I : INORGANIC CHEMISTRY-I

Max. Marks	:	50
Theory	:	45 Marks
Internal Assessment	:	05 Marks
Time	:	3 Hours
60 hours (2Hrs./Week)		
3 Periods/week		

#### OBJECTIVE OF THE COURSE :

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (3 Year course) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged Unit wise and contents are included in such a manner so that due importance may be given to requisite intellectual and laboratory skills.

### UNIT-I

#### 1. Atomic Structure : 6 Hrs.

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation, significance of  $\Psi$  and  $\Psi^2$ , quantum numbers, radial and angular wave functions and probability distribution curves, shapes of *s*, *p*, *d* orbitals. Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements and ions.

2. **Periodic Properties :** 6 Hrs.  
Position of elements in the periodic table; effective nuclear charge and its calculations. Atomic and ionic radii, ionization energy, electron affinity and electronegativity—definition, methods of determination or evaluation, trends in periodic table and applications in predicting and explaining the chemical behaviour.
3. **Chemistry of Noble Gases :** 3 Hrs.  
Chemical properties of the noble gases, chemistry of xenon, structure and bonding in xenon compounds.

## UNIT-II

4. **s-Block Elements :** 5 Hrs.  
Comparative study, diagonal relationships, salient features of hydrides, solvation and complexation tendencies including their function in biosystems, an introduction to alkyls and aryls.
5. **Chemical Bonding-I :** 10 Hrs.  
Covalent Bond – Valence bond theory and its limitations, directional characteristics of covalent bond, various types of hybridization and shapes of simple inorganic molecules and ions.  $\text{BeF}_2$ ,  $\text{BF}_3$ ,  $\text{CH}_4$ ,  $\text{PF}_5$ ,  $\text{SF}_6$ ,  $\text{IF}_7$ ,  $\text{SnCl}_2$ ,  $\text{XeF}_4$ ,  $\text{BF}_4^-$ ,  $\text{PF}_6^-$ ,  $\text{SnCl}_6^{2-}$ . Valence shell electron pair repulsion (VSEPR) theory to  $\text{NH}_3$ ,  $\text{H}_3\text{O}^+$ ,  $\text{SF}_4$ ,  $\text{ClF}_3$ ,  $\text{ICl}_2^-$  and  $\text{H}_2\text{O}$ . MO theory, homonuclear (elements and ions of 1<sup>st</sup> and 2<sup>nd</sup> row), and heteronuclear ( $\text{BO}$ ,  $\text{CN}$ ,  $\text{CO}^+$ ,  $\text{NO}^+$ ,  $\text{CO}$ ,  $\text{CN}^-$ ), diatomic molecules, multicenter bonding in electron deficient molecule (Boranes). Percentage ionic character from dipole moment and electronegativity difference.

## UNIT-III

6. **Chemical Bonding-II :** 15 Hrs.  
Ionic Solids – Concept of close packing, Ionic structures, ( $\text{NaCl}$  type, Zinc blende, Wurtzite,  $\text{CaF}_2$  and antiferite), radius ratio rule and coordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy and Born-Haber cycle, solvation energy and solubility of ionic solids, polarizing power and polarisability of ions, Fajan's rule. Metallic bond-free electron, valence bond and band theories.

Weak Interactions –Hydrogen bonding, Van der Waals forces.

## UNIT-IV

7. **p-Block Elements :** 15 Hrs.  
Comparative study (including diagonal relationship) of groups 13-17 elements, compounds like hydrides, oxides, oxyacids and halides of groups 13-16, hydrides of boron-diborane and higher boranes, borazine, borohydrides, fullerenes, carbides, fluorocarbons, silicates (structural principle), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalides.

**INSTRUCTIONS FOR PAPER SETTERS AND CANDIDATES :**

- (i) Examiner will set total of **Nine** questions comprising **Two** questions from each Unit and **One** compulsory question of short answer type covering the whole syllabi.
- (ii) The students are required to attempt **Five** questions in all, **One** question from each Unit and the Compulsory question.
- (iii) All questions carry equal marks.

**Books Suggested :**

1. Cotton, F.A., Wilkinson, G., Gaus, P.L., *Basic Inorganic Chemistry*; 2<sup>nd</sup> edition, Pubs: John Wiley and Sons, 1995.
2. Lee, J.D., *Concise Inorganic Chemistry*; 4<sup>th</sup> edition, Pubs: Chapman & Hall Ltd., 1991.
3. Shriver, D.E., Atkins, P.W., *Inorganic Chemistry*; 4<sup>th</sup> edition, Pubs: Oxford University Press, 2006.
4. Douglas, B., Medaniel, D., Atenander, J., *Concepts and Models of Inorganic Chemistry*; 3<sup>rd</sup> edition, Pubs: John Wiley and Sons Inc., 1994.
5. Porterfeild, W.W., Wesky, A., *Inorganic Chemistry*; Pubs: Addison-Wesley Publishing Company, 1984.
6. Miessler, G.L., Tarr, D.A., *Inorganic Chemistry*; 3<sup>rd</sup> edition, Pubs: Pearson Education Inc., 2004.
7. Jolly, W.L., *Modern Inorganic Chemistry*; 2<sup>nd</sup> edition, Pubs: Tata McGraw-Hill Publishing Company Limited, 1991.
8. Purcell, K.F., Kotz, J.C., *Inorganic Chemistry*; Pubs: W.B. Saunders Company, 1977.
9. Puri, B.R., Sharma, L.R., Kalia, K.K., *Principles of Inorganic Chemistry*; 30<sup>th</sup> edition, Pubs: Milestones Publisher, 2006-07.

**Paper-II : ORGANIC CHEMISTRY-I**

Max. Marks	:	50
Theory	:	45 Marks
Internal Assessment	:	05 Marks
Time	:	3 Hours
60 hours (2 Hrs./Week)		
3 Periods/week		

**OBJECTIVE OF THE COURSE :**

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (3 Year course) in the subject of Chemistry has been upgraded as per provision of the

UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged Unit wise and contents are included in such a manner so that due importance may be given to requisite intellectual and laboratory skills.

### UNIT-I

1. **Structure and Bonding :** 4 Hrs.  
Hybridization, bond lengths and bond angles, bond energy, localized and delocalized chemical bond, Van der Waals interactions, resonance, hyperconjugation, aromaticity, inductive and field effects, hydrogen bonding.
2. **Mechanism of Organic Reactions :** 5 Hrs.  
Curved arrow notation, drawing electron movements with arrows, half-headed and double-headed arrows, homolytic and heterolytic bond breaking. Types of reagents—electrophiles and nucleophiles. Types of organic reactions. Energy considerations.  
Reactive intermediates—Carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples). Assigning formal charges on intermediates and other ionic species.  
Methods of determination of reaction mechanism (product analysis, intermediates, isotope effects, kinetic and stereochemical studies).
3. **Alkanes and Cycloalkanes :** 6 Hrs.  
Isomerism in alkanes, sources, methods of formation (with special reference to Wurtz reaction, Kolbe reaction, Corey-House reaction and decarboxylation of carboxylic acids), physical properties and chemical reactions of alkanes.  
Mechanism of free radical halogenation of alkanes : Orientation, reactivity and selectivity. Cycloalkanes—nomenclature, methods of formation, chemical reactions, Baeyer's strain theory and its limitations. Ring strain in small rings (cyclopropane and cyclobutane), theory of strain in rings. The case of cyclopropane ring : banana bonds.

### UNIT-II

4. **Stereochemistry of Organic Compounds :** 15 Hrs.  
Concept of isomerism, Types of isomerism.  
Optical isomerism—Elements of symmetry, molecular chirality, enantiomers, stereogenic centre, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centers, diastereomers, threo and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization.

Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature.

Geometric isomerism—Determination of configuration of geometric isomers. E & Z system of nomenclature, geometric isomerism in oximes and alicyclic compounds.

Conformational isomerism—Conformational analysis of ethane and n-butane; conformations of cyclohexane, axial and equatorial bonds, conformation of mono substituted cyclohexane derivatives. Newman projection and Sawhorse formulae, Fischer and flying wedge formulae.

Difference between configuration and conformation.

### UNIT-III

5. **Alkenes, Cycloalkenes, Dienes and Alkynes :** 15 Hrs.

Nomenclature of alkenes, methods of formation, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides, regioselectivity in alcohol dehydration. The Saytzeff's rule, Hofmann elimination, physical properties and relative stabilities of alkenes.

Chemical reactions of alkenes – mechanisms involved in hydrogenation, electrophilic and free radical additions, Markownikoff's rule, hydroboration—oxidation, oxymercuration-reduction. Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with  $\text{KMnO}_4$ . Polymerization of alkenes. Substitution at the allylic and vinylic positions of alkenes. Industrial applications of ethylene and propene.

Methods of formation, conformation and chemical reactions of cycloalkenes.

Nomenclature and classification of dienes : Isolated, conjugated and cumulated dienes. Structure of allenes and butadiene, methods of formation, polymerization. Chemical reactions – 1, 2 and 1, 4 additions, Diels-Alder reaction.

Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration-oxidation, metal-ammonia reductions, oxidation and polymerization.

### UNIT-IV

6. **Arenes and Aromaticity :** 8 Hrs.

Nomenclature of benzene derivatives. The aryl group, Aromatic nucleus and side chain, Structure of benzene : Molecular formula and Kekule structure. Stability and carbon-carbon bond lengths of benzene, resonance structure, MO picture.

Aromaticity : The Huckel rule, aromatic ions.

Aromatic electrophilic substitution—General pattern of the mechanism, role of  $\sigma$  and  $\pi$  – complexes. Mechanism of nitration, halogenation, sulphonation, mercuration and Friedel-Crafts reaction. Energy profile diagrams. Activating and deactivating substituents, orientation and ortho/para ratio. Side chain reactions of benzene derivatives.

Methods of formation and chemical reactions of alkyl benzenes, alkynyl benzenes and biphenyl.

7. **Alkyl and Aryl Halides :**

7 Hrs.

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms of nucleophilic substitution reactions of alkyl halides,  $S_N2$  and  $S_N1$  reactions with energy profile diagrams.

Methods of formation of aryl halides, nuclear and side chain reactions. The addition-elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions.

Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides.

**INSTRUCTIONS FOR PAPER SETTERS AND CANDIDATES :**

- (i) Examiner will set total of **Nine** questions comprising **Two** questions from each Unit and **One** compulsory question of short answer type covering the whole syllabi.
- (ii) The students are required to attempt **Five** questions in all, **One** question from each Unit and the Compulsory question.
- (iii) All questions carry equal marks.

**Books Suggested :**

- 1. Morrison, R.T., Boyd, R.N., *Organic Chemistry*, 6<sup>th</sup> Edition, Pubs : Prentice-Hall, 1992.
- 2. Solomons, T.W., Fryhle, C.B., *Organic Chemistry*, 9<sup>th</sup> Edition, Pubs : Wiley India, 2007.
- 3. Wade Jr., L.G., Singh, M.S., *Organic Chemistry*, 6<sup>th</sup> Edition, Pubs : Pearson Education, 2008.
- 4. Mukherji, S.M., Singh, S.P., Kapoor, R.P., *Organic Chemistry*, Pubs : New Age International, 1985.
- 5. Carey, F.A., Sundberg, R.J., *Advanced Organic Chemistry Part B: Reactions and Synthesis*, 5<sup>th</sup> Edition, Pubs : Springer, 2007.

**Paper–III : PHYSICAL CHEMISTRY–I**

Max. Marks	:	50
Theory	:	45 Marks
Internal Assessment	:	05 Marks
Time	:	3 Hours
60 hours (2 Hrs./Week)		
3 Periods/week		

**OBJECTIVE OF THE COURSE :**

To teach the fundamental concepts of Physical Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (3 Year course) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged Unit wise and contents are included in such a manner so that due importance may be given to requisite intellectual and laboratory skills.

**UNIT-I****1. Mathematical Concepts and Evaluation of Analytical Data : 8 Hrs.**

Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation and integration of functions like  $e^x$ ,  $x^n$ ,  $\sin x$ ,  $\log x$ ; maxima and minima, partial differentiation and reciprocity relations.

Terms of mean and median, precision and accuracy in chemical analysis, determining accuracy of methods, improving accuracy of analysis, data treatment for series involving relatively few measurements, linear least squares curve fitting, types of errors, standard deviation.

**2. Colloidal State : 7 Hrs.**

Definition of colloids, classification of colloids.

*Solids in Liquids (sols)* : Properties – Kinetic, optical and electrical; stability of colloids, protective action, Hardy-Schulze rules, gold number.

*Liquids in Liquids (emulsions)* : Types of emulsions, preparation, Emulsifier.

*Liquids in Solids (gels)* : Classification, preparation and properties, inhibition, general applications of colloids.



## UNIT-II

### 3. **Chemical Kinetics and Catalysis :** 15 Hrs.

Chemical kinetics and its scope, rate of a reaction, factors influencing the rate of a reaction – concentration, temperature, pressure, solvent, light, catalyst. Concentration, dependence of rates, mathematical characteristics of simple chemical reactions – zero order, first order, second order, pseudo order, half life and mean life. Determination of the order of reaction – differential method, method of integration, method of half life period and isolation method.

Radioactive decay as a first order phenomenon.

*Theories of Chemical Kinetics :* Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy.

Simple collision theory based on hard sphere model, transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects.

Catalysis and general characteristics of catalytic reactions, Homogeneous catalysis, acid-base catalysis and enzyme catalysis including their mechanisms, Michaelis Menten equation for enzyme catalysis and its mechanism.

## UNIT-III

### 4. **Thermodynamics-I :** 15 Hrs.

*Definition of Thermodynamic Terms :* System, surroundings etc., Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work.

*First Law of Thermodynamics :* Statement, definition of internal energy and enthalpy, Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's Law–Joule-Thomson coefficient and inversion temperature. Calculations of  $w$ ,  $q$ ,  $dU$  &  $dH$  for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.

*Thermochemistry :* Standard state, Standard enthalpy of formation-Hess's Law Constant Heat Summation and its applications. Heat of reaction at constant pressure and at constant volume. Enthalpy of neutralization. Bond dissociation energy and its calculation from thermo-chemical data, temperature dependence of enthalpy. Kirchoff's equation.

## UNIT-IV

### 5. **Gaseous States :** 8 Hrs.

Postulates of kinetic theory of gases, deviation from ideal behavior, van der Waal's equation of state.

*Critical Phenomena* : PV isotherms of real gases, continuity of states, the isotherms of van der Waal's equation, relationship between critical constants and van der Waal's constants, the law of corresponding states, reduced equation of state.

*Molecular Velocities* : Root mean square, average and most probable velocities. Qualitative discussion of the Maxwell's distribution of molecular velocities, collision number, mean free path and collision diameter. Liquification of gases (based on Joule-Thomson effect).

6. **Solutions, Dilute Solutions and Colligative Properties :**

7 Hrs.

Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient.

Dilute solution, colligative properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis, law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point, Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression of freezing point. Experimental methods for determining various colligative properties.

Abnormal molar mass, degree of dissociation and association of solutes.

**INSTRUCTIONS FOR PAPER SETTERS AND CANDIDATES :**

- (i) Examiner will set total of **Nine** questions comprising **Two** questions from each Unit and **One** compulsory question of short answer type covering whole syllabi.
- (ii) The students are required to attempt **Five** questions in all, **One** question from each Unit and the Compulsory question.
- (iii) All questions carry equal marks.

**Books Suggested :**

- 1. Atkins, P., Paula, J.de, *Atkins Physical Chemistry*; 8<sup>th</sup> edition, Pubs: Oxford University Press, 2008.
- 2. Puri, B.R., Sharma, L.R., Pathania, M.S., *Principles of Physical Chemistry*; 43<sup>rd</sup> edition, Pubs: Vishal Publishing Co., 2008.
- 3. Barrow, G.M., *Physical Chemistry*; 6<sup>th</sup> edition, Pubs: McGraw Hill Inc., 1996.
- 4. Rao, C.N.R., *University General Chemistry*; Pubs: Macmillan India, 1985.
- 5. Berry, R.S., Rice, S.A., Ross, J., *Physical Chemistry*, 2<sup>nd</sup> edition, Pubs: Oxford University Press, 2000.

6. Albert, R.A., Silbey, R.J., *Physical Chemistry*; 1<sup>st</sup> edition, Pubs: John Wiley & Sons Inc., 1992.
7. Dogra, S.K., Dogra, S., *Physical Chemistry Through Problems*; Pubs: Wiley Eastern Limited, 1991.
8. Levine, I.N., *Physical Chemistry*; 5<sup>th</sup> edition, Pubs: Tata McGraw Hill Publishing Co. Ltd., 2002.
9. Moore, W. J., *Basic Physical Chemistry*; Pubs: Prentice Hall of India Pvt. Ltd., 1983.
10. Metz, C.R., *Theory and Problems of Physical Chemistry*; Schaum's Outline Series, 2<sup>nd</sup> edition, Pubs: McGraw-Hall Book Company, 1989.

#### Paper-IV : LABORATORY PRACTICALS

Max. Marks	: 50
Theory	: 45
Internal Assessment	: 05
<b>6 Periods/week</b>	

#### INORGANIC CHEMISTRY :

(a) **Qualitative Analysis :**

Semimicro Analysis, cation analysis, separation and identification of ions from groups I, II, III, IV, V and VI. Anion analysis (4 ions).

**Instruction to Examiners :** Four ions with no interference (anions such as  $\text{PO}_4^{3-}$ ,  $\text{BO}_3^{3-}$  and similar anions like  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$  etc.) may not be given.

(b) **Quantitative Analysis :**

Volumetric titration involving acid-base,  $\text{KMnO}_4$  and  $\text{K}_2\text{Cr}_2\text{O}_7$ .

There are three experiments – one involving acid-base titrations, one involving  $\text{KMnO}_4$  and one involving  $\text{K}_2\text{Cr}_2\text{O}_7$ .

1. Determination of strength of  $\text{Na}_2\text{CO}_3$  solution by titrating it against a standard solution of  $\text{HCl}$ .
2. Determination of molarity of  $\text{KMnO}_4$  solution by titrating it against a standard solution of Oxalic acid.
3. Standardise the given  $\text{K}_2\text{Cr}_2\text{O}_7$  solution by titrating it against a standard solution of Mohr's Salt.

**ORGANIC CHEMISTRY :****Crystallization :**

Concept of induction of crystallization

1. Phthalic acid from hot water (using fluted filter paper and stemless funnel).
2. Acetanilide from boiling water.
3. Naphthalene from ethanol.
4. Benzoic acid from water.

**PHYSICAL CHEMISTRY :****Chemical Kinetics :**

1. To determine the specific reaction rate of the hydrolysis of methyl acetate/ethyl acetate catalyzed by hydrogen ions at room temperature.
2. To study the effect of acid strength on the hydrolysis of an ester.

**Viscosity, Surface Tension :**

To determine the viscosity and surface tension of  $\text{CCl}_4$  dioxane, n-Butyl alcohol, cyclohexane.

**General Instructions to the Examiners :**

*Note :* Practical examination will be of four hours duration & shall consist of the following questions :

Q. No. I	Qualitative Analysis	:	16 marks
Q. No. II	Quantitative Analysis	:	10 marks
Q. No. III	Physical Chemistry/Organic Chemistry	:	10 marks

Students shall be allowed the choice to opt for one experiment out of the three offered.

Q. No. IV	Viva-Voce.	:	6 marks
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Ask three questions (2 marks each) related to Chemistry practicals.

Q. No. V	Note Book	:	3 marks
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**Books Suggested (Theory Courses)**

1. Svehla, *Vogel's Qualitative Inorganic Analysis* (revised); 7<sup>th</sup> edition Pubs: Orient Longman, 1996.
2. Bassett, J., Denney, R.C., Jeffery, G.H., Mendham, J., *Vogel's Textbook of Quantitative Inorganic Analysis* (revised); 4<sup>th</sup> edition, 1978.
3. Palmer, W.G., *Experimental Inorganic Chemistry*; 1<sup>st</sup> edition, Pubs: Cambridge, 1954.
4. Brauer, *Handbook of Preparative Inorganic Chemistry*; 2<sup>nd</sup> edition, Pubs: Academic Press, 1963, Vol. I, & 1965, Vol. II.
5. Audrieth, L.F., *Inorganic Synthesis*; Pubs: McGraw Hill, 1950, Vol. 3<sup>rd</sup>; E.G. Rochow, 1960 Vol. VI; J. Kleinberg, 1963, Vol. 7; S.Y. Tyree, 1967, Vol.9; E.L. Muetterties, 1967, Vol.10; W.L. Jolly 1986, Vol 11; R.W. Parry 1970, Vol. 12; F.A. Cotton 1972, Vol. 13; A.G. Mac Diarmid, 1977, Vol. 17.
6. Bansal, R.K., *Laboratory Manual of Organic Chemistry*; 3<sup>rd</sup> edition, Pubs: Wiley Eastern Limited, 1994.
7. Khosla, B.D., Garg, V.C., Gulati, A., *Senior Practical Physical Chemistry*; 11<sup>th</sup> edition, Pubs: R. Chand & Co., New Delhi, 2002.
8. Das, R.C., Behra, B., *Experimental Physical Chemistry*; Pubs: Tata McGraw Hill Publishing Co. Ltd., 1998.
9. Levitt, B.P., *Findlays Practical Physical Chemistry*; 8<sup>th</sup> edition, Pubs: Longman Group Ltd., London & New York, 1978.

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## BOTANY

### B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

	<i>Time</i>	<i>Theory</i>	<i>Internal Assessment</i>	<i>Max. Marks</i>
Theory Paper-A : Diversity of Microbes & Cryptogams	3 hrs.	68	7	75
Theory Paper-B : Cell Biology & Genetics	3 hrs.	68	7	75
One practical pertaining to entire syllabus included in both theory papers	4 hrs.	45	05	50
<b>Total marks :</b>				200

- Note :*
1. The number of teaching hours for theory and practical per session shall be 120 hrs. and 200 hrs., respectively.
  2. There will be a total of nine questions in each theory paper A & B. Question No. 1 will be compulsory and will consist of 20 parts (one mark each) comprising 10 MCQ and the rest 10 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A & B. The remaining 8 questions in papers A & B shall include two questions from each Unit. Candidates shall be required to attempt one question from each Unit. Question No. 1 will carry 20 marks and the rest of 8 questions will be of 12 marks each.

### Paper A : DIVERSITY OF MICROBES & CRYPTOGRAMS

Max. Marks	:	75
Theory	:	68
Int. Assessment	:	07
Time	:	3 Hrs.

**Objective :** The basic objective of this paper is to make students aware about the diversity in various life forms of plant kingdom. It gives an idea about how different life forms have evolved from simpler to complex ones. A sequential study ranging from aquatic forms of algae, fungi and bryophytes (the amphibians of plant kingdom) and then to Pteridophytes - the first vascular land plants, would enable students to have a broad prospective of evolutionary trends in plant kingdom. This paper in fact – forms the basis of any advance study in Botany.

**Teaching Methodology :** Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

### UNIT-I

**Algae :** General characters, classification and economic importance; structure and life history of *Volvox*, *Oedogonium* (Chlorophyceae); *Vaucheria* (Xanthophyceae); *Ectocarpus* (Phaeophyceae); *Batrachospermum* (Rhodophyceae).

### UNIT-II

**Fungi :** General characters, classification and economic importance; structure and life history of *Cystopus* (Albugo) (white rust of crucifers) *Rhizopus*; *Saccharomyces*, *Peziza*; *Ustilago* (loose smut of wheat), *Puccinia* (black rust of wheat), *Agaricus*, *Colletotrichum* (Red rot of sugarcane); general account of Lichens.

### UNIT-III

**Bryophyta :** General characters, classification; structure, reproduction and life cycle of *Marchantia* (Hepaticopsida); *Anthoceros* (Anthocerotopsida); *Funaria* (Bryopsida) (excluding developmental stages).

### UNIT-IV

**Pteridophyta :** General characters, classification; structure, reproduction and life cycle of *Rhynia* (Psilophytosida); *Selaginella* (Lycopsida); *Equisetum* (Sphenopsida); *Pteris* (Pteropsida) (excluding developmental stages).

### Suggested Readings :

1. Dube, H.C., *An Introduction to Fungi*, Vikas Publishing House Pvt. Ltd., Delhi, 1990.
2. Pandey, B.P., *Botany for Degree Students*, S. Chand & Co. Ltd., New Delhi, 2009.
3. Puri, P., *Bryophyta*, Atma Ram & Sons, Delhi, 1980.
4. Sharma, O.P., *Text Book of Thallophytes*, McMillan India Ltd., New Delhi, 1992.
5. Sharma, O.P., *Text Book of Pteridophyta*, McGraw Hill Publishing Co., New Delhi, 1990.
6. Sharma, P.D., *The Fungi*, Rastogi & Co., Meerut, 1991.
7. Smith, G.M., *Cryptogamic Botany, Vol. I, Algae & Fungi*, Tata McGraw Hill Publishing Co., New Delhi, 1971.
8. Singh, V., Pandey, P.C. & Jain, D.K., *Text Book of Botany, Diversity of Microbes and Cryptogams*, Rastogi Publications, Meerut & New Delhi, 2008.
9. Smith, G.M., *Cryptogamic Botany, Vol. II, Bryophytes and Pteridophytes*, Tata McGraw Hill Publishing Co., New Delhi, 1971.
10. Srivastava, H.N., *Diversity of Microbes and Cryptogams, Vol. I*, Pradeep Publications, Jalandhar, 2005.

**Paper-B : CELL BIOLOGY & GENETICS**

Max. Marks	:	75
Theory	:	68
Int. Assessment	:	07
Time	:	3 Hrs.

- Note :*
1. The number of teaching hours for theory and practical per session shall be 120 hrs. and 200 hrs. respectively.
  2. There will be a total of nine questions in each theory paper A & B. Question No. 1 will be compulsory and will consist of 20 parts (one mark each) comprising 10 MCQ and the rest 10 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A & B. The remaining 8 questions in papers A & B shall include two questions from each Unit. Candidates shall be required to attempt one question from each Unit. Question No. 1 will carry 20 marks and the rest of 8 questions will be of 12 marks each.

**Objective :** This paper deals with the basic structural Unit of life i.e. cell & its organelles, along with hereditary trends within successive generations. It provides an insight into molecular, cellular and genetic basis of evolutionary trends within successive generations. It provides an insight into molecular, cellular and genetic basis of evolutionary trends. Coupled with the study of variations in life forms included in Paper A, the course material of Paper B provides an idea about the important role that genetics plays in structural and functional differentiation of plants.

**Teaching Methodology :** Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

**UNIT-I**

Ultra structure and functions of a typical plant cell and its organelles.

Presence and function of mitochondrial and plastid DNA; Plasmids.

Structure of chromosome; nucleosome model; chromosomal alterations (deletions, duplications, translocations, inversions); variations in chromosome number (aneuploidy, polyploidy) a brief account.

**UNIT-II**

Cell divisions (Mitosis and Meiosis) in plants and their significance. Structure and Replication of DNA. Mendelism (Laws of segregation dominance and independent assortment); Incomplete dominance and linkage (complete and incomplete); Chromosome mapping; cytological interpretation of Mendelism.

**UNIT-III**

Chromosome theory of heredity; Gene interactions (Dominant and recessive epistasis, supplementary genes, complementary genes, quantitative or polygenic inheritance, duplicate genes, multiple alleles, pleiotropic genes, sex-linked inheritance (Morgan's experiments on *Drosophila*; haemophilia and colour blindness).



#### UNIT-IV

Structure and concept of gene, one gene one enzyme hypothesis; Genetic code; Protein synthesis (transcription, translation). Regulation of gene expression in prokaryotes and eukaryotes (Lac and tryptophan operon model).

Mutations : Types, characteristics, importance, a brief account of mutagens, mechanism of gene mutations; DNA damage and repair. Extra nuclear inheritance with reference to *Mirabilis jalapa* and *Zea mays*.

#### Suggested Readings :

1. Alberts, B., Gray, D. Lewis, J., Raff, M., Roberts, K. and Watson, I.D., *Molecular Biology of Cell*, Garland Publishing Co., Inc., New York, USA, 1999.
2. Atherly, A.G., Girton, J.R. and McDonald, J.F., *The Science of Genetics*, Saunders College Publishing, Fort Worth, USA, 1999.
3. Bhatia, K.N. and Dhand, N., *Cell Biology and Genetics*, Truman Book Co., Jalandhar, 2009.
4. Gupta, P.K., *Genetics*, Rastogi Publications, Meerut, India, 1999.
5. Gupta, P.K., *Cell Molecular Biology*, Rastogi Publications, Meerut, India, 2003.
6. Kleinsmith, L.J. and Kish, V.M., *Principles of Cell and Molecular Biology* (2<sup>nd</sup> edition), Harper Collins College Publishers, New York, USA, 1995.
7. Lodish, H., Berk, A., Zipursky, S.L., Matsudaira, P., Baltimore, D. and Darnell, J., *Molecular Cell Biology*, W.H. Freeman & Co., New York, USA, 2000.
8. Pandey, B.P., *Botany for Degree Students*, S. Chand & Co. Ltd., New Delhi, 2009.
9. Russel, P.J., *Genetics*, The Benjamin/Cummings, Publishing Co. Inc., USA, 1998.
10. Snustad, D.P. and Simmons, M.J., *Principles of Genetics*, John Wiley & Sons, Inc., USA, 2000.
11. Srivastava, H.N., *Cell Biology and Genetics, Vol. II*, Pradeep Publications, Jalandhar, 2006.
12. Stent, G.S., *Molecular Genetics*, CBS Publications, 1986.
13. Wolfe, S.L., *Molecular and Cell Biology*, Wadsworth Publishing Co., California, USA, 1993.

#### Suggested Laboratory Exercises :

1. Study of morphology of various genera included in algae and fungi.
2. Study of Crustose, Foliose and Fruticose types of Lichen thalli.

3. Histopathological study of white rust of crucifers, loose smut of wheat, black rust of wheat and red rot of sugarcane.
4. Study of morphology of various genera mentioned in Bryophyta and Pteridophyta.
5. I Preparation of permanent stained slides of :

*Marchantia* (V.S. Thallus)

*Selaginella* (T.S. Stem)

*Anthoceros* (V.S. Thallus)

*Equisetum* (T.S. Aerial stem passing through internode)

*Funaria* (T.S. Stem)

*Pteris* (T.S. Petiole and leaflet)

- II Study through permanent slides :

*Marchantia* :

- (i) L.S. Antheridiophore.
- (ii) L.S. Archegoniophore.
- (iii) L.S. Mature Sporogonium.

*Anthoceros* :

- (i) T.S. Thallus passing through antheridia.
- (ii) T.S. Thallus passing through archegonia.
- (iii) L.S. Mature sporogonium.

*Funaria* :

- (i) L.S. Male receptacle.
- (ii) L.S. Female receptacle.
- (iii) L.S. Capsule.
- (iv) Primary protonema

*Selaginella* :

L.S. Sporangiferous spike.

*Equisetum* :

- (i) L.S. Strobilus.
- (ii) T.S. Strobilus.

*Pteris* :

Mature prothallus.

6. To study cell structure from onion leaf peels; demonstration of staining and mounting method.
7. Preparation of temporary slides to show different stages of mitosis from root tips of *Allium cepa*, and *A. sativum*.
8. Preparation of temporary slides to show different stages of meiosis from floral buds of *Allium/Brassica*.

**Guidelines for Botany Practical Examination :**

Max. Marks	: 50
Practical	: 45
Internal Assessment	: 05
Time	: 4 Hrs.

1. Cut T.S., stain and make a permanent mount of specimen A. Draw its labelled diagram and show the slide to the examiner. Identify it giving at least two reasons. 7
2. Make a temporary mount of .... (to be announced by the examiner) from specimen B and show it to the examiner. Identify, classify and write an illustrated note on it (specimen to be given from Algae, Fungi, Bryophyta or Pteridophyta). 4
3. Identify, classify and write illustrated morphological note on specimens C, D and E. 12
4. Prepare a squash mount of specimen F to show the stage of cell division visible in the slide and show it to the examiner. Identify it giving at least one reason. Draw the stage of cell division and show it to the examiner. 7
5. Identify the slides G, H and I, giving at least two reasons for each. 6
6. Viva-Voce & Practical Note-book. (5+4)=9

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**ZOOLOGY****B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013**

	<i>Time</i>	<i>Theory</i>	<i>Internal Assessment</i>	<i>Marks</i>
<b>Paper-A :</b> Cell Biology & Biodiversity-I	3 hrs.	67	8	75
<b>Paper-B :</b> Biodiversity-II & Ecology	3 hrs.	67	8	75
<b>Practical :</b> One paper covering entire syllabus of both the papers.	4 hrs.	45	05	50
<b>Total marks :</b>				<u>200</u>

*Note :* The number of hours for Theory and Practical per week shall be 5 and 4 hours, respectively.

**OBJECTIVES OF THE COURSE :**

The syllabus pertaining to B.Sc. (General) Part-I, in the subject of Zoology has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Zoology working in the Panjab University, Chandigarh and affiliated colleges.

The syllabus contents are duly arranged section wise as well as unit wise. The contents are included in such manner so that due importance may be given to skill oriented components.

The course contents are also given due stress for excursion/field trips to Zoological Parks, Sea-shores, Hill Stations, Museum, Fossil Park and Apiary/godowns for better academic outlook. The Department of Zoology, P.U., Chandigarh usually organizes workshop/seminars from time to time for updating the teachers.

**PAPER-A : CELL BIOLOGY & BIODIVERSITY-I (ZOO. 101)**

Max. Marks	: 75
Theory	: 67
Internal Assessment	: 8
Time	: 3 Hrs.

*Note :* Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 10 parts of 1½ marks each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

**UNIT-I**

Methods in Cell Biology	:	Principles of light and electron microscopes, fixation & fixatives, staining techniques.
Organization of Cell	:	Extra nuclear and nuclear.
Plasma membrane	:	Structure, Osmosis, active and passive transport, endocytosis and exocytosis.
Endoplasmic reticulum	:	Structure, types and associated enzymes.
Mitochondria	:	Structure, mitochondrial enzymes and the role of mitochondria in respiration and mitochondrial DNA.
Golgi complex	:	Structure and functions.
Ribosomes	:	Types of ribosomes, their structure and functions.
Lysosomes	:	Polymorphism and their function.

**UNIT-II**

Centrosome	:	Structure and functions.
Nucleus	:	Structure and functions of nuclear membrane, nucleolus and chromosomes.

An elementary idea of cell transformation in Cancer.

An elementary idea of cellular basis of immunity.

**UNIT-III****Detailed study of the following animal types :**

Protozoa	:	<i>Amoeba</i> , <i>Paramecium</i> and <i>Plasmodium</i> .
Parazoa (Porifera)	:	<i>Sycon</i> .
Cnidaria (Coelenterata)	:	<i>Obelia</i> .

**Classification upto orders with brief ecological note and economic importance (if any) of the following:**

Protozoa	:	<i>Entamoeba</i> , <i>Trypanosoma</i> , <i>Giardia</i> , <i>Noctiluca</i> , <i>Eimeria</i> , <i>Opalina</i> , <i>Vorticella</i> , <i>Balantidium</i> and <i>Nyctotherus</i> .
Parazoa (Porifera)	:	<i>Grantia</i> , <i>Euplectella</i> , <i>Hyalonema</i> and <i>Spongilla</i> .

Cnidaria (Coelenterata) : *Hydra, Sertularia, Plumularia, Obelia, Tubularia, Bougainvillea, Porpita, Velella, Physalia, Rhizostoma, Millipora, Aurelia, Alcyonium, Tubipora, Zoanthus, Metridium, Madrepora, Favia, Fungia* and *Astrangia*.

#### UNIT-IV

**Detailed study of the following animal types :**

Platyhelminthes : *Fasciola, Taenia*.  
 Aschelminthes : *Ascaris*, Parasitic adaptations in Helminthes.  
 Annelida : *Pheretima*.

**Classification upto orders with brief ecological note and economic importance (if any) of the following:**

Platyhelminthes : *Dugesia, Schistosoma* and *Echinococcus*.  
 Aschelminthes : *Ascaris, Oxyuris* and *Wuchereria*.  
 Annelida : *Nereis, Polynoe, Eunice, Arenicola, Aphrodite, Amphitrite, Chaetopterus, Tubifex* and *Pontobdella*.

#### PAPER-B : BIODIVERSITY-II & ECOLOGY (ZOO 102)

Max. Marks	: 75
Theory	: 67
Internal Assessment	: 8
Time	: 3 Hrs.

**Note :** Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 10 parts of 1½ marks each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts

#### UNIT-I

**Detailed study of the following animal types :**

Arthropoda : *Periplaneta*, Prawn, Social organizations in insects (honey bee and termite), life cycle of *Anopheles* and *Culex*.

**Classification up to orders with ecological notes and economic importance (if any)**

Arthropoda : *Peripatus*, Prawn, Lobster, *Cancer* (Crab), *Sacculina*, *Eupagurus* (Hermit crab), *Lepas*, *Balanus*, *Apis*, *Lepisma* (Silver Fish), *Schistocerca* (Locust), *Poecilocerus* (Ak Grasshopper), *Gryllus* (Cricket), *Mantis* (Preying Mantis) *Cicada*, *Forficula* (Earwig) *Scarabaeus* (Dung beetle), *Agrian* (Dragon fly), *Odontotermes* (Termite queen), *Cimex* (Bed bug), *Cicindela* (Tiger beetle), *Polistes* (Wasp), *Bombyx* (Silk moth), *Julus* (Millipede), *Scolopendra* (Centipede) *Palamnaeus* (Scorpion), *Aranea* (Spider) and *Limulus* (King crab).

**UNIT-II**

Mollusca : *Pila*.  
 Echinodermata : *Asterias*, Echinoderm larvae.  
 Hemichordata : *Balanoglossus*, External characters and affinities.

**Classification upto orders with ecological notes and economic importance (if any)**

Mollusca : *Chiton*, *Anodonta*, *Mytilus*, *Ostrea*, *Cardium*, *Pholas*, *Solen* (Razor Fish), *Pecten*, *Halotis*, *Patella*, *Aplysia*, *Doris*, *Limax*, *Loligo*, *Sepia*, *Octopus*, *Nautilus* shell and *Dentalium*.  
 Echinodermata : *Echinus*, *Cucumaria*, *Ophiothrix* and *Antedon*.  
 Hemichordata : *Balanoglossus*.

**UNIT-III****ECOLOGY :**

Ecology - Scope of ecology and subdivisions.  
 Ecosystem - Components, ecological energetics, food web, introduction to major ecosystems of the world.  
 Ecological factors - Temperature, light and soil as ecological factors.  
 Nutrients - Biogeochemical cycles & concept of limiting factors.  
 Ecological - Morphological, physiological and behavioural adaptations in animals in different habitats.  
 Population - Characteristics and regulation of population.

## UNIT-IV

Inter and intra	- Competition, predation, parasitism, commensalisms, specific relationships & mutualism.
Biotic Community	- Characteristics, ecological succession, ecological niche.
Natural resources	- Renewable and nonrenewable natural resources and their conservations.
Environmental Degradation	- Causes, impact and control of environmental pollution.

**PRACTICALS : Practical based on Theory Papers ZOO 101 & 102 (ZOO 151)**

- Classification upto orders with ecological notes and economic importance, if any, of the following animals :
 

Protozoa	(a) Examination of cultures of <i>Euglena</i> and <i>Paramecium</i> .
	(b) Slides : <i>Amoeba</i> , <i>Euglena</i> , <i>Trypanosoma</i> , <i>Noctiluca</i> , <i>Eimeria</i> , <i>Monocystis</i> , <i>Paramecium</i> (Binary fission and conjugation), <i>Opalina</i> , <i>Vorticella</i> , <i>Balantidium</i> , <i>Nyctotherus</i> & <i>Polystomella</i> .
Parazoa (Porifera)	: Specimens : <i>Sycon</i> , <i>Grantia</i> , <i>Euplectella</i> , <i>Hyalonema</i> , <i>Spongill</i> and <i>Euspongia</i> .
Cnidaria (Coelenterata)	(a) Specimens : <i>Porpita</i> , <i>Velella</i> , <i>Physalia</i> , <i>Aurelia</i> , <i>Rhizostoma</i> , <i>Metridium</i> , <i>Millipora</i> , <i>Alcyonium</i> , <i>Tubipora</i> , <i>Zoanthus</i> , <i>Madrepora</i> , <i>Favia</i> , <i>Fungia</i> and <i>Astrangia</i> .
	(b) Slides : <i>Hydra</i> (W.M.) <i>Hydra</i> with buds. <i>Obelia</i> (colony and medusa). <i>Sertularia</i> , <i>Plumularia</i> , <i>Tubularia</i> , <i>Bougainvillea</i> and <i>Aurelia</i> Larva.
Platyhelminthes	(a) Specimens : <i>Dugesia</i> , <i>Fasciola</i> , <i>Taenia</i> and <i>Echinococcus</i> .
	(b) Slides : Miracidium, Sporocyst, Redia, Cercaria of <i>Fasciola</i> , Scolex and Proglottids of <i>Taenia</i> (mature and gravid).
Aschelminthes	: <i>Ascaris</i> (male and female), <i>Trichinella</i> and <i>Ancylostoma</i> .
Annelida	: <i>Pheretima</i> , <i>Nereis</i> , <i>Heteronereis</i> , <i>Polynoe</i> , <i>Eunice</i> , <i>Aphrodite</i> , <i>Chaetopterus</i> , <i>Arenicola</i> , <i>Tubifex</i> and <i>Pontobdella</i> .
Arthropoda	: <i>Peripatus</i> , <i>Prawn</i> , <i>Lobster</i> , <i>Cancer</i> (Crab), <i>Sacculina</i> , <i>Eupagurus</i> (Hermit crab), <i>Lepas</i> , <i>Balanus</i> , <i>Apis</i> , <i>Lepisma</i> (Silver Fish), <i>Schistocerca</i> (Locust), <i>Poecilocus</i> (Ak Grasshopper), <i>Gryllus</i> (Cricket), <i>Mantis</i> (Praying Mantis) <i>Cicada</i> , <i>Forficula</i> (Earwig) <i>Cimex</i> , <i>Scarabaeus</i> (Dung beetle), <i>Agrian</i> (Dragon fly), <i>Odontotermes</i> (Termite)



queen), *Cimex* (Bed bug), *Cicindela* (Tiger beetle), *Polistes* (Wasp), *Bombyx* (Silk moth), *Julus* (Millipede), *Scolopendra* (Centipede), *Palamnaeus* (Scorpion) *Aranea* (Spider) and *Limulus* (King crab).

Mollusca : *Anodonta*, *Mytilus*, *Ostrea*, *Cardium*, *Pholas*, *Solen* (Razor Fish) *Pecten*, *Haliotis*, *Patella*, *Aplysia*, *Doris*, *Limax*, *Loligo*, *Sepia*, *Octopus*, *Nautilus* shell (Complete and T.S.), *Chiton* and *Dentalium*.

Echinodermata : *Asterias*, *Echinus*, *Ophiothrix* and *Antedon*.

Hemichordata : *Balanoglossus*.

2. Study of the following permanent stained preparations :

L.S. and T.S. *Sycon*, gemmules, spicules and spongin fibres of a sponge.

T.S. *Hydra* (Testis and ovary region).

T.S. *Fasciola* (Different regions).

T.S. *Ascaris* (Male & female).

T.S. *Pheretima* (Pharyngeal and typhlosolar regions); setae, septal nephridia, spermathecae and ovary of *Pheretima*.

Trachea, mouth parts of *Periplaneta*

Radula and osphradium of *Pila*.

T.S. Star fish (Arm).

3. Preparation of the following slides :

Temporary preparation of *Paramecium*, mouth parts of *Periplaneta* (Cockroach), radula of *Pila* & appendages of Prawn.

Preparation of permanent whole mount stained in borax carmine of *Hydra*, *Obelia*, *Sertularia*, *Plumularia* and *Bougainvillea*.

4. Dissections of the following animals :

*Pheretima* : Digestive, reproductive and nervous systems.

*Periplaneta* : Digestive and nervous systems; mouth parts and trachea.

*Pila* : Pallial complex, digestive and nervous systems.

5. ECOLOGY

Study of animal adaptations with the help of specimens, charts and models.

Study of Zoogeographical regions and their fauna.

Study of biotic components of an ecosystem.

Study of different types of nests in birds.

Study & preparation of zoogeographical charts.

#### 6. CELL BIOLOGY

Paper chromatography.

Gel electrophoresis through photographs or through research laboratories.

Familiarity with TEM & SEM.

Study of ultrastructures of different cell organelles through photographs.

- Note :*
1. Candidates will be required to submit their original note books containing record of their laboratory work (Drawing etc.) initialed and dated by their teachers at the time of practical examination.
  2. Students must be taken out for excursion to the Zoological gardens, sea shores, and hill stations to study habitat and ecology of the animals.

#### Guidelines for the conduct of Practical Examination

	Max. Marks	: 50
	Practical Exam.	: 45
	Internal Assessment	: 5
	Time	: 4 Hrs.
1.	Dissect the animal provided so as to expose its system. Draw its labelled sketch and demonstrate it to the Examiner.	7 marks
2.	Make a temporary mount of the material "A". Identify and draw its labelled sketch and show it to the examiner.	3 marks
3.	Make permanent stained preparation of the material "B". Identify and make its labelled diagram and show it to the examiner.	4 marks
4.	Identify the slides (C-F) and give two important reasons for each identification.	6 marks
5.	Identify and classify the specimens (G-J) up to orders. Write a short note on the habitat, special features, feeding habit and economic importance.	10 marks
6.	Identify the type of adaptation/type of nest with a short note	2 marks

7. Mark Zoogeographical region on the given map along with endemic fauna and climate. 2 marks
8. Viva voce 4 marks
9. Practical records, Chart and Project Report of excursion to a place of Zoological Interest. (3+1+3) = 7 marks

**Suggested Readings :**

1. De Robertis, EDP, De Robertis, E.M.F., *Cell and Molecular Biology*, Eighth Edition, W.B. Saunders Co., Philadelphia, 1995.
  2. Powar, C.B., *Cell Biology*, Himalaya Publishing House, Bombay, 1999.
  3. Alberts, B. Bray, D., Lewis, J., Raff, M., Roberts, K. & Watson, J.D., *Molecular Biology of the Cell*, Garland Publ. Inc., New York, 1998.
  4. Kormondy, E.J., *Concepts of Ecology*, Englewood Cliffs, N.J. Prentice Hall Inc., 1975.
  5. Krebs, C.J., *Ecology*, Harper & Row, New York, 1982.
  6. E.P., Odum *Fundamentals of Ecology*, W.B. Saunders Co., Philadelphia, 1995.
  7. Dhami, P.S., & Dhami, J.K., *Invertebrates*, R. Chand & Co., New Delhi, 2001.
  8. Barnes, R.D., *Invertebrates Zoology*, W.B. Saunders Co., Philadelphia.
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## BIOCHEMISTRY

### B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

- Note :*
1. A student who has passed the +2 examination under 10+2+3 system of education of a recognized University/Board/Council or any other examination recognized by the Panjab University as equivalent thereto shall be eligible to offer the subject of Biochemistry at the B.Sc. level, if he/she has passed the +2 examination with Physics, Chemistry, Mathematics/ Biology as his/her subjects.
  2. Only such colleges as have all necessary infrastructure of equipment and staff shall admit students to the subject of Biochemistry. The infrastructure must be approved by the University as per usual practice.

<i>Scheme of Examination</i>	<i>Duration</i>	<i>Marks+internal assessment</i>
Theory Paper- A : Biomolecules	3 hrs.	75 (67 +8)
Theory Paper-B : Enzymology & Bioenergetics	3 hrs.	75 (67 +8)
One Practical examination pertaining to the entire syllabus included in Theory Papers A & B.	3 hrs.	50 (45 +5)
<b>Total marks :</b>		<b>200</b>

### OUTLINES OF TESTS AND SYLLABI

#### Paper- A : BIOMOLECULES

Max. Marks : 75  
(Three periods per week)

#### INSTRUCTIONS FOR PAPER SETTER AND STUDENTS :

1. Total No. of questions will be nine. Q. No. 1 will be of 15 marks while other questions will be of 13 marks each.
2. Q. No. 1 will be compulsory. It will consist of 10 short questions covering the entire syllabus.
3. Besides question No. 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No.1 and at least one question from each of the 4 sections.

**Objectives :**

To learn major classes of Biomolecules & their structures and functional significance.

**SECTION-I**

(Lectures : 13)

***Amino Acids & Proteins :***

- I Introduction to Bio-chemistry. Water as a biological solvent. Dissociation of water. Buffer solution. Henderson Hasselbalch equation.
- II *Amino Acids* : Common structural features. Stereoisomerism and RS system of designating optical isomers. Classification based on the nature of "R" groups. Amino acids present in proteins and non-protein amino acids. Specialized role of amino acids. Physical and Chemical properties of amino acids. Titration of amino acids.
- III *Peptide Bonds* : Rigid and planar nature of a peptide bond. Folding of peptide chains into regular repeating structures ( $\alpha$  helix,  $\beta$  pleated sheets).  $\beta$  turn in polypeptides. Chemical synthesis of polypeptides. Biologically active peptides.
- IV *Proteins* : Levels of protein structure. Determination of primary structure of proteins. Forces stabilising structure and shape of proteins. Native proteins and their conformations. Behaviour of proteins in solutions. Salting in & salting out of proteins. Denaturation of proteins.
- V Structural and functional diversity of proteins, fibrous proteins (keratins, collagen & elastin), globular proteins (hemoglobin, myoglobin) and conjugated proteins.

**SECTION-II**

(Lectures : 13)

**Carbohydrates :**

- I Definition and classification of carbohydrates.
- II Fischer and Haworth structures of carbohydrates. Stereoisomerism, and mutarotation. Anomeric forms of monosaccharides. Derivatives of monosaccharides (glycosides, deoxysugars, amino sugars and other derivatives of biological importance). Oligosaccharides (structure of maltose, lactose, sucrose, cellobiose, trehalose, raffinose).
- III Characteristic reactions of monosaccharides : Reactions with hydrazine, hydrogen cyanide, hydroxylamine; reduction and oxidation of sugars; periodic acid oxidation; action of alkali upon sugars; acylation and methylation of sugars.
- IV Homo-and hetero-polysaccharides (structures of amylose, amylopectin, starch, inulin, pectins, dextrins, glycogen, cellulose, chitin). (GAGs) as components of connective tissue. Polysaccharides of bacterial cell wall.

### SECTION-III

(Lectures : 12)

#### Lipids :

- I Definition and classification of fatty acids (saturated and unsaturated). Essential fatty acids. Important reactions of functional groups present in fatty acids. Characteristics of fatty acids and fats (saponification, iodine, acid, acetyl and peroxide values). Refractive index, m. p., b. p. and their relation to molecular size. Properties of glycerol. Fats as source of energy. Waxes.
- II Structures, characteristics and functions of lipids : Triacylglycerols, phospholipids : lecithins (Phosphatidyl Cholines), lysolecithins, cephalins (Phosphatidyl ethanolamines), Phosphatidyl serines, phosphatidyl inositol, sphingomyelins, plasmalogens), cerebrosides, gangliosides, sulfatides.
- III Lipoproteins—Composition, classification and biological functions. Liposomes.
- IV Terpenes and Steroids—Terpenes of biological significance e.g. carotenes, phytol. Cholesterol and other animal sterols. Colour reactions of sterols. Sterols of yeast and fungi (Mycosterols). Phytosterols. Steroidal hormones. Bile acids.
- V Structure and properties of Eicosanoids - Prostaglandins, Leukotrienes, Thromboxanes, Prostacyclins.
- VI Structure, sources and biochemical functions of fat soluble vitamins.

### SECTION-IV

(Lectures : 12)

#### Nucleic Acid and Porphyrins :

- I *Nucleic Acids* : Structure and properties of purine and pyrimidine bases. Nucleosides and nucleotides. Biologically important nucleotides. Double helical model of DNA and forces responsible for it. Shorthand representation of polynucleotides. Denaturation of DNA. Physical and chemical properties of nucleic acids. Methods for isolation, purification and characterization of nucleic acids. Chemical and enzymatic hydrolysis of nucleic acids. Sequencing of polynucleotides.
- II *Porphyrins* : Porphyrin nucleus and classification of porphyrins. Heme and other metalloporphyrins occurring in nature. Detection of Porphyrins spectrophotometrically and by fluorescence. Chemical nature and physiological significance of bile pigments.

**Suggested Books :**

1. D.L. Nelson, M.M. Cox : *Biochemistry*, Worth Publishers Inc., New York (4<sup>th</sup> Edition, 2005).
2. E.E. Conn & P.K. Stumpf : *Outlines of Bio-Chemistry*, John Wiley & Sons, U.S.A.
3. G. Zubay : *Bio-Chemistry*, Maxwell Macmillan Pub. Com., New York (4<sup>th</sup> Edition, 1998).
4. K. Robert, P.A. Murrar, D.K. Granner and V.W. Rodwell : *Harper's Illustrated Biochemistry*, Prentice Hall Int., London (27<sup>th</sup> Edition, 2006).

**Paper-B : ENZYMOLOGY AND BIOENERGETICS**

Max. Marks : 75  
(Three periods per week)

**INSTRUCTIONS FOR PAPER SETTER AND STUDENTS :**

1. Total No. of questions will be nine. Q. No. 1 will be of 15 marks while other questions will be of 13 marks each.
2. Q. No. 1 will be compulsory. It will consist of 10 short questions covering the entire syllabus.
3. Besides Question No. 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No.1 and at least one question from each of the 4 sections.

**Objectives :**

**To understand the nature of enzymes, their mode of action, purification. Introduction to the factors affecting rate of reaction. Bioenergetics.**

## SECTION-I

(Lectures : 12)

### General Characteristics :

Introduction to enzymes. General characteristics of enzymes. Prosthetic group. Holoenzymes, apoenzyme and cofactors. Coenzymes and their biochemical functions, assay of enzyme activity, Units of enzyme activity. Active sites(s) of enzymes. IUB system of nomenclature and classification of enzymes.

Enzymes as catalysts. Theories of enzymes catalysis : Proximity and orientation effects, acid base catalysis, covalent catalysis. Role of metals in enzyme catalysis.

## SECTION-II

(Lectures : 12)

### Enzyme Purification :

Need for purification. Preliminary fractionation procedures and precipitation techniques, Chromatography methods : Gel filtration—, adsorption—, ion exchange—and affinity chromatography. Types of support materials. Selection of appropriate conditions and elution procedures. Criteria of enzyme purity.

## SECTION-III

(Lectures : 14)

### Enzyme Kinetics :

Factors affecting velocity of enzyme catalysed reactions : Enzyme concentration, pH and temperature. Michaelis –Menten equation. Determination of  $K_m$  and its significance.

Enzyme inhibition. Various types of enzyme inhibitions. Determination of  $K_i$  value. Enzyme inhibitors and their importance. Introduction to multisubstrate enzymes. Allosteric enzymes and enzyme regulation. Isoenzymes and their clinical significance.

## SECTION-IV

(Lectures : 12)

### Bioenergetics :

Biological systems and concept of free energy, Endergonic processes and role of ATP & other high energy compounds. Biological oxidations. Redox potential. Enzymes and co-enzymes involved in oxidations and reductions. Mitochondrial electron transport chain and oxidative phosphorylation. Mechanism of oxidative phosphorylation.



**Books Recommended :**

1. J.R. Whitaker : *Principles of Enzymology for the Food Sciences*, Marcel Dekker, Inc., New York.
2. J.E. Bell and E.T. Bell : *Protein and Enzymes*, Prentice Hall Inc, New Jersey.
3. J.M. Berg, Lubert Stryer : *Bio-chemistry*, W.F. Freeman and Co., New York, 5<sup>th</sup> Edition, 2002.
4. D.L. Nelson & M.M. Cox : *Principles of Bio-chemistry*, Worth Publishers Inc., New York, 4<sup>th</sup> Edition, 2005.
5. E.E. Conn & P.K. Stumpf : *Outlines of Bio-chemistry*, Bruening & Doi, John Wiley & Sons.
6. T. Palmer : *Enzymes*, 2004.

**PRACTICALS :**

Max. Marks : 50  
One practical of 3 hours per week

- I Qualitative tests for :
  - (a) Carbohydrates.
  - (b) Amino acids and proteins.
  - (c) Cholesterol and lipids.
- II Determination of saponification value of fats.
- III Determination of Iodine value of fats.
- IV Estimation of ascorbic acid by dye method.
- V Titration curve for amino acids and determination of pKa value.
- VI Verification of Beer-Lambert Law for nitrophenol or cobalt chloride.
- VII Estimation of :
  - (a) Amino acids by ninhydrin method.
  - (b) Protein by biuret method.
  - (c) Carbohydrate by anthrone method.

- VIII (a) Assay of serum alkaline phosphatase activity.
- (b) Effect of pH on enzyme activity.
- (c) Effect of temperature on enzyme activity and determination of Energy of Activation.
- (d) Effect of substrate concentration on enzyme activity and determination of  $K_m$ .
- IX Inhibition of alkaline phosphatase by EDTA.
-

## INTRODUCTION TO COMPUTER SCIENCE

(Additional/Optional Subject)

B.A./B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

*Note :* The students with no background of Computer knowledge will opt for Module I while those familiar with the use of Computer system at the operating system level and application level, may opt either Module II or Module III.

### SYLLABUS AND COURSES OF READING

#### Module I : FUNDAMENTALS OF INFORMATION TECHNOLOGY

Max. Marks	:	100
Theory	:	65
Internal Assessment	:	10
Practical	:	25

**Course Duration :** 60 hours (for both Theory and Practical)

**Pre-requisite :** None

**Objectives of the Module :** The objective of the module is to familiarize the students with developments in Information Technology and use of computer systems at operating system level and application level.

- Note :*
- (i) The question paper will consist of four sections.
  - (ii) Examiner will set total of **nine** questions comprising **two** questions from each section and **one** compulsory question of short answer type covering whole syllabi.
  - (iii) The students are required to attempt **one** question from each section and the compulsory question.
  - (iv) All questions carry equal marks unless specified.

### SECTION-A

#### 1. Basics of Computers and Number Systems :

Block diagram of a computer, booting process, introduction to the concepts—bit, byte, word, hardware, operating system, system and application software, machine, assembly and high level languages, compilers, assemblers, loaders and linkers.

ASCII and EBCDIC codes, Binary, Octal, Decimal and Hexadecimal number systems and their conversion, Integer and floating point representation, error detection techniques.

(6 hours)

**SECTION-B****2. Operating Systems—DOS, Windows and Unix :**

Features of DOS, Windows and Unix operating systems and their comparison.

Internal and External Commands of DOS, File and directory management commands such as DIR, COPY, TYPE, DEL, DELTREE, UNDELETE, CHKDSK, FORMAT, XCOPY, SCANDISK, creating batch files using REM, ECHO, PAUSE, IF, GOTO, AUTOEXEC. BAT and CONFIG.SYS. files.

Concepts of window, menu, icon, opening, closing and resizing windows, creating folder, using start, control panel, recycle bin and online help, using windows explorer to manage files and directories.

Overview of UNIX structure, general purpose UNIX commands such as date, echo, cal, bc, pwd, passwd; file and directory commands such as ls, mkdir, cp, mv, rm, process management commands such as ps, kill, nohup; communication commands such as news, mesg, wall; working with editor introduction to shell programming. (15 hours)

**SECTION-C****3. Input, Output and Memory :**

Various input devices such as keyboard, mouse, joystick; output devices such as monitor (CGA, EGA, VGA, and SVGA), different types of printers and plotters.

Primary and Secondary memory : RAM, ROM, PROM, EPROM, Cache, extended and expanded memory.

Removable and non-removable secondary memory : Tapes, disks, CDROM, DVD, comparison of these devices based on technology and speed.

Organisation of data on disks : Tracks, sectors, cylinders, heads, access time, seek time and latency time.

Typical configuration of a Pentium Computer. (9 hours)

**SECTION-D****4. Computers and Communication :**

Single-user, multi-user, and client-server systems; distributed and parallel processing systems; Hardware & Software components of computer networks, Network topologies for LAN & WAN, various internet services and their use.

(10 hours)

**5. Installation and using Application Software and Data Management Tools :**

Installing and understanding the features and applications of the following software : MS-Word, MS-Excel, MS-Power-Point; Virus detection, prevention and anti-virus packages.

(20 hours)

**References :**

1. S. K. Basandra : *Computers Today's*, Galgotia Publications.
2. Sanders : *Computers Today's*.
3. P.K. Sinha : *Computer Fundamentals*.
4. V. Rajaraman. : *Fundamentals of Computers*.
5. R.K. Texali : *PC Software Made Simple*, Tata McGraw Hill.
6. Peter Dysen : *Understanding PC Tools*.
7. Peter Dysen : *Understanding Norton Utilities*.
8. Ron Mansfield : *MS Office*, BPB Publications.
9. Curtin : *Information Technology*.
10. E. Balaguruswamy and B. Sushil : *Computer Science Theory and Applications*.
11. Ron Mansfield : *Compact Guide to Windows, Word and Excel*, BPB Publishers.

**Module II : COMPUTER PROGRAMMING THROUGH C & C++**

Max. Marks	: 100
Theory	: 65
Internal Assessment	: 10
Practical	: 25

**Course Duration :** 60 hours ( for both Theory and Practical)

**Pre-requisite :** Computer Fundamentals

**Objectives of the Module :** The objective of the module is to familiarize the students with steps in problem solving on computers and create skill in programming using C & C++. The students should be able to independently develop computer based projects.

- Note :*
- (i) The question paper will consist of four sections.
  - (ii) Examiner will set total of **nine** questions comprising **two** questions from each section and **one** compulsory question of short answer type covering whole syllabi.
  - (iii) The students are required to attempt **one** question from each section and the compulsory question.
  - (iv) All questions carry equal marks unless specified.

**SECTION-A****1. Problem Solving :**

Problem Identification, Analysis, Flow charts, Decision Tables, Pseudo code and algorithms, Program Coding, Program Testing and Execution. (10 hours)

**2. Computer Programming Language ( C Language) :**

Introduction to Structured Programming : Concept of variable and constants, structure of a C program. (5 hours)

**SECTION-B****3. Computer Programming Language (C Language) :**

Various operators, expression and their evaluation using rules of hierarchy. Assignment Statements, Control Structures : Sequencing, alteration and iteration arrays, Manipulating vectors and matrices pointers, String function structures, User defined functions, Input/Output files, Pre-Processors, Macros. (15 hours)

**SECTION-C****4. Object Oriented Programming Language (C++ Language) :**

Introduction to Object Oriented Programming—Objects, Classes, Data abstraction, Data encapsulation, Inheritance (Single, Multiple, Hierarchical, Multilevel, Hybrid) Polymorphism, Dynamic binding, Message Passing. Tokens, expressions, data types, variables, operators, control statements. Arrays, constructors & destructors. Classes, objects, functions & methods. (20 hours)

**SECTION-D****5. Program design and Development :**

File handling, exception handling and templates. Development of a project using C/C++ and their discussion, Program Debugging. (10 hours)

**References :**

1. Yashavant Kanetkar : *Let us C*, BPB Publications.
2. Gottfried, B. : *Theory and Problem of Programming in C*, Schaum Series.
3. P.K. Sinha : *Computer Fundamentals*, BPB Publications.
4. E. Balaguruswamy : *Object Oriented Programming with C++*, Tata McGraw.
5. Robert Laffor : *Object Oriented Programming in C++*, Galgotia Pub.
6. V. Ravichandran : *Programming with C++*, Tata McGraw Hill.

**Module III : RELATIONAL DATA BASE MANAGEMENT SYSTEM**

Max. Marks	:	100
Theory	:	65
Internal Assessment	:	10
Practical	:	25

**Course Duration :** 60 hours (for both Theory and Practical).

**Pre-requisite :** Computer Fundamentals and Problem Solving.

**Objectives of the Module :** The objective of the module is to create skills in development of information system using RDBMS. The students should be able to independently develop computer based projects.

- Note :*
- (i) The question paper will consist of four sections.
  - (ii) Examiner will set total of **nine** questions comprising **two** questions from each section and **one** compulsory question of short answer type covering whole syllabi.
  - (iii) The students are required to attempt **one** question from each section and the compulsory question.
  - (iv) All questions carry equal marks unless specified.

**SECTION-A**

1. **Data Base Concept :**

Data Base Vs file oriented approach, Basic DBMS terminology, Data Independence, General Architecture of a Data Base Management Software, Components of DBMS, Advantages and Disadvantages of DBMS.

(5 hours)

2. **Data Base Design :**

Introduction to Data Models, Entity Relationship Model, Entities, Attributes, E-R Diagrams, Conceptual Design of a relational data base model. Comparison of Network, Hierarchical and Relational Model, Designing data base for commercial application like inventory control, financial management and personal management, storage organization for relations, normalisation.

(10 hours)

**SECTION-B**

3. **Fox-Pro :**

Introduction to Fox-Pro, Fox-Pro under Windows, Harnessing Fox-Pro, Starting Fox-Pro, Data Types, Creating Databases, Adding records, Viewing database, Positioning databases, Saving Databases. Editing–Edit, Browse, Deleting-records, files, modifying database structure, Opening and closing database files, Invoking and Quitting Fox-Pro. Sorting and Indexing. Types of Index, Indexing Commands (Set Index, Set Order, Re-Index, Close Index), Sorting Vs. Indexing.

Querying, Query with Menu-goto, locate, continue, seek, Query with commands—locate, find, seek, Find and Seek vs. Locate and Continue, Set filter commands, view files, queries and reports. Creating query with ROBE—use of AND, OR condition, use data range, Adding sort order to query result, selecting fields for query result, changing output of query, saving query, executing saved query, modifying existing query.

Introduction to report generation—report dialog box, creating selective reports, advanced reports, report generation commands, generating custom columnar report, report using ROBE window. Using functions—if, page no, date, time, month, day, year. Adding pictures, creating and printing & mailing labels, modifying labels.

Fox-Pro Programming, creating command files, memory variables, operators—mathematical, relational, logical, string. Functions—eof, bof, date and time, upper, lower, ctod and dtoc, dtos, space, trim, Itrim, Str. Commands—set talk, skip, return, accept and input, count, sum, average, @, ?, ??, Text.

More on Fox-Pro Programming (Loop construct), Scan and Endscan. Do, while, If, Else, Endif, nested if, case, exit, cancel, wait, zap, use macro, memo field handling, window light bar menu, program code for data entry, deleting records, generating reports, sending report to printer.

(15 hours)

## SECTION-C

### 4. Oracle :

Introduction to SQL : Oracle Data types, Starting SQL \*Plus, Querying database tables, Conditional retrieval of rows, Working with Null Values, Matching a pattern from a table, Ordering the Result of a Query, Aggregate Functions, Grouping the Result of a Query, ROLLUP Operation : Getting Sub Totals, CUBE Operation : Getting Cross Tabs, Command Summary of SQL \*Plus Editor.

Querying Multiple Tables : Collating Information : Equi Joins, Cartesian Joins, Outer Joins; Self Joins; SET Operators : Union, Intersect, Minus; Nested Queries.

Functions : Functions, Column Functions : Arithmetic Functions, Character Functions, Date Functions, General Functions; Group Functions.

Data Manipulation and Control : Data Definition Language (DDL), Creating Tables, Creating a Table with data from another table, Inserting Values into a Table, Updating Column(s) of a table, Deleting Row(s) From a Table, Dropping a Column, Introduction to VIEWS, Manipulating the Base table (s) through VIEWS, Rules of DML Statements on Join Views, Dropping a VIEW, Inline Views, Materialized Views. Database Security and Privileges, GRANT Command, REVOKE Command, Application Privileges Management, Enhancing Performance, Sequences, Maintaining Database Objects, COMMIT and ROLLBACK

(15 hours)



**SECTION-D****5. PL/SQL :**

Introduction to PL/SQL, The advantage of PL/SQL, PL/SQL Block Structure, PL/SQL Architecture, Fundamentals of PL/SQL, PL/SQL Data Types, Variables and Constants, Scope and Visibility of a Variable, Assignments and Expressions, Operator Precedence, Referencing Non-PL/SQL Variables, Built-in-Functions, Conditional and Iterative Control, SQL within PL/SQL, Writing PL/SQL Code, Composite Data types. Cursor Management in PL/SQL, Cursor Manipulation, Implicit Cursor Attributes, Exception Handling in PL/SQL; Predefined Exceptions, User Defined Exceptions. Subprograms in PL/SQL, Advantages of Subprograms, Procedure, Functions, Actual versus Formal Parameters, Argument Modes, Stored Packages, Advantages of Packages, Dropping a Procedure, Dropping a Function, Dropping a Package, Using Stored Function in SQL Statements, Database Trigger, Types of Triggers, Dropping Triggers, Storage for Triggers.

(15 hours)

**References :**

1. Desai, B.C. : *An Introduction to Database Systems*, Galgotia Pub., 1993.
2. Date, C.J. : *Database Systems, Vols. I & II*, Narosa Pub.
3. Naveen Parkash : *Introduction to Database Management*, TMH, 1983.
4. Henry F. Konth Abraham : *Database System Concepts*, McGraw Hill Inc., 1997.
5. Vijay Mukhi : *Mastering Oracle 6.0*, BPB Publication, 1992.
6. R. K. Taxali : *FoxPro 2.5 Made Simple for DOS & Windows*, BPB Publications, 1996.
7. Griver : *FoxPro 2.6 Code Book*, BPB Publication, 1994.
8. Antanowich : *FoxPro 2.5/2.6*, Galgotia, 1996.
9. Siegal : *Mastering FoxPro 2.5*, BPB Publication, 1994.
10. Dan Gookin : *FoxPro 2.6 for Munnies*, Pustak Mahal.
11. James T. Perry, Joseph G. Lateer : *Understanding ORACLE*, BPB Publications.
12. Vijay Mukhi : *Mastering Oracle 6.0*, BPB Publications, 1992.

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## MICROBIOLOGY

### B.Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

- Note :*
1. A student who has passed the + 2 examination under 10+2+3 system of education of a recognized University/Board/Council or any other examination recognized by the Panjab University as equivalent thereto shall be eligible to offer the subject of Microbiology at the B.Sc. level, if he/she has passed the +2 examination with Physics, Chemistry, Mathematics, Biology as his/her subjects.
  2. Only such colleges which have all necessary infrastructure or equipment and staff shall admit students to the subject of Microbiology. The infrastructure must be approved by the University as per usual practice.

<i>Scheme of Examination</i>	<i>Duration</i>	<i>Marks</i>
Theory : MIC 101 : Fundamentals of Microbiology	3 hrs.	75 (67 +8*)
Theory : MIC 102 : Microbial Physiology—Metabolism	3 hrs.	75 (67 +8*)
One Practical pertaining to the entire syllabus included in Theory Papers A & B.	6 hrs.	50 (45 +5*)
<b>Total marks:</b>		<b><u>200</u></b>

*Note :* \* Denotes marks for the Internal Assessment.

### OUTLINES OF TESTS AND SYLLABI

#### MIC 101 : FUNDAMENTALS OF MICROBIOLOGY

*Note :* The question paper will consist of four sections (A-D). There will be **nine** questions, out of which **five** questions have to be attempted. Question I will span the complete syllabus and will be compulsory. Rest of the eight questions will be from different sections of the syllabus. There will be two questions from each of the four sections and one is to be attempted from each section. Each question should be sub-divided into 2-4 sub parts.

#### Objectives :

To provide basic knowledge about the fundamental concepts of Microbiology including history of Microbiology, Microscopic examination of microbes and providing information in frontier areas of genetic engineering, environmental science and agriculture.

#### SECTION-A

1. History, development, scope and applications of Microbiology.
2. Methods of Microbiology isolation of pure cultures, theory and practice of sterilization.

3. Microscopic examination of micro-organism, bright field microscopy, dark field microscopy, phase contrast microscopy, electron microscopy.
4. Staining of microbes, theory of Gram staining.
5. *Nature of Microbial World* : Prokaryotes and eucaryotes, growth pattern in microbes.

### SECTION-B

6. Morphology & fine structure of bacteria, fungi, actinomycete and algae.
7. Organization of cell wall, cell membrane, flagella and capsules in bacteria.
8. Morphogenesis in bacteria, formation of spores and cysts.
9. *Animal Viruses* : Morphology, cultivation and viral disease cycle.
10. *Bacteriophages* : Morphology, multiplication, detection and enumeration.
11. Biotransformation of
  - (a) D-Sorbitol to L-Sorbose.
  - (b) Antibiotics.
  - (c) Steroids.

### SECTION-C

1. Recombinant DNA technology, genetic engineering and gene cloning in micro-organisms.
2. Strategies of genetic engineering. Restriction enzymes, vectors, plasmids.
3. Genetic engineering for human welfare.
  - (a) Production of pharmaceuticals.
  - (b) Insect pest control.
  - (c) Use of Genetically Engineered Micro-organisms (GEMs) for control of pollution.

### SECTION-D

4. Rhizosphere & Rhizoplane micro-organisms, reasons for increased microbial activity in rhizosphere.
5. Biogeochemical Cycling—Carbon cycle, Nitrogen cycle, Phosphorus & Sulphur cycle.
6. Symbiotic & non-symbiotic Nitrogen fixation biofertilisers & biopesticides.
7. Sewage (waste-water) treatment, chemical characteristics, microbiological characteristics, waste water treatment processes.

**Recommended Books :**

1. Fox, S.W., Dose, K. (1994), *Molecular Evolution and the Origin of Life*, University of Chicago Press.
2. Stanier, R.Y., Doudoroff, M., Adelberg, E.A. (1999), *General Microbiology*, Mc Millan Press, London.
3. Pelczar, M.J., Sun Chan E.C., Krieg, N.R. (1986), *Microbiology*, Tata Mc Graw Hill Publication, New Delhi.
4. Davis, (1996), *Fundamental of Microbiology*.
5. Reard, (1995), *Introduction of Microbiology*.
6. Robert, L. (1995), *Soil Microbiology*, John Wiley and Sons.
7. Alexander, M. (2003), *Soil Microbiology*, Wiley, 2003.
8. Waksman, S.A. (2003), *Introduction to Soil Microbiology*, John Wiley, 2003.

**MIC 102 : MICROBIAL PHYSIOLOGY—METABOLISM**

*Note :* The question paper will consist of four sections (A-D). There will be **nine** questions, out of which **five** questions have to be attempted. Question I will span the complete syllabus and will be compulsory. Rest of the eight questions will be from different sections of the syllabus. There will be two questions from each of the four sections and one is to be attempted from each section. Each question should be sub-divided into 2-4 sub parts.

**Objectives :**

The paper provides basic information on complex integrated network of biochemical reactions that make up the metabolism of the micro-organisms including nutrition, growth, and enzymes.

**SECTION-A**

1. *Microbial Nutrition* : Requirements for Growth. Physical requirement (temperature, pH, osmotic pressure), chemical requirements (C, N, S, P, O).
2. *Culture Media* : Chemically defined media, complex media, anaerobic growth media, selective & differential media, and enrichment culture. Cultivation of Aerobes and Anaerobes.
3. *Microbial Growth* : Growth in population, bacterial growth curve, mathematical nature and expression, measurement of growth in bacteria, Factors affecting growth in microorganisms, continuous cultures and synchronous cultures.

**SECTION-B**

4. *Enzymes and their Regulation* : Chemical and physical properties of enzymes.

5. Nomenclature of Enzymes.
6. Mechanism of enzymes action.
7. Inhibition of enzyme action.
8. Regulation of enzymes.

### SECTION-C

#### *Microbial Metabolism :*

1. Respiration and fermentation.
2. Glycolysis, Pentose Phosphate pathway, The Entner Doudoroff pathway, Fermentation.
3. Tricarboxylic acid cycle.
4. Catabolism of lipid, proteins.
5. Glyoxylate cycle.
6. Beta oxidation.

### SECTION-D

#### *Microbial Utilization of Energy & Biosynthesis :*

7. Transport of nutrient by bacteria. Biochemical mechanisms of generation of ATP.
8. *Synthesis of Amino Acids* : Glutamate, lysine, glutamine, serine, arginine family.
9. Structures and biosynthesis of cell wall peptidoglycan.
10. Biosynthesis of Carbohydrates (gluconeogenesis) & Phospholipids.  
Replication of DNA molecules, Transcription & Translation (process of protein synthesis).

#### *Bacterial Genetics :*

11. Conjugation.
12. Transformation.
13. Transduction (generalized transduction, specialized transduction).
14. *The Regulation of Gene Expression* : Lac operon, tryptophan operon.

### Recommended Books :

1. Stanier R.Y., Doudoroff M., Adelberg, E.A. (1999), *General Microbiology*, McMillan Press, London.
2. Pelczar, M.J., Sun Chan, E.C., Krieg, N.R. (1986), *Microbiology*, Tata Mc Graw Hill Publication, New Delhi.

3. Tortora, G.J., Funke, B.R., Case, C.L. (2009), *Microbiology : An Introduction*, Benjamin/Cummings Publishing Company inc.
4. Postgate, J.R. (2000), *Microbes and Man*, Cambridge University Press.
5. Dubey, R.C., Maheshwari, D.K., (2005), *A Text Book of Microbiology*, S. Chand and Company.

### PRACTICALS

Marks : 50 (45 +5)  
(One practical of 3 hrs. per week)

1. Use of microscope in examination of unstained bacteria, fungi, algae, parasites and stained cell preparations including simple staining, Gram's staining, acid fast staining, capsule staining, spore staining using prokaryotic and eukaryotic cells, hanging drop preparation.
  2. Preparation of culture media, spread plates, pour plates, selective media, differential media.
  3. Separation of pure cultures and study the effect of selective nutrients on prokaryotes.
  4. Isolation of Soil Bacteria, Soil Fungi, Soil Actinomycetes.
  5. Selective media for Soil microflora and use of growth factors, Study of Rhizosphere interactions, Quantitative measurements of Soil nutrients and Rhizosphere microflora and preparation of starter cultures of Rhizobia, Azotobacter.
  6. Measurement of Soil Enzymes.
  7. Use of ultraviolet light for its germicidal effect.
  8. The replica plating technique.
  9. Presumptive, confirmed and completed tests for safety of water supplies.
  10. Effect of temperature, Osmotic pressure, energy source etc. on growth of prokaryotes.
  11. Relation of free oxygen to microbial growth, monitoring of dissolved oxygen in various effluents.
  12. Determination of COD in Industrial effluents.
  13. Effects of antimetabolites on Microbial culture (Inhibition by Sulfanilamide).
  14. Determination of Water Activity of various substrates and assay of surface active agents.
  15. Turbidimetric/spectrophotometric monitoring of growth using liquid cultures.
  16. Efficiency of photosynthesis in photoautotrophs.
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## ELECTRONICS

### B. Sc. (GENERAL) FIRST YEAR EXAMINATION, 2013

- Note :*
1. There will be two papers of theory and one Laboratory (practical) courses.
  2. The number of lectures per week will be three for each theory paper.
  3. The number of lectures per week will be six for practicals.
  4. The time duration for each theory paper will be three hours.
  5. The time duration for practical examinations will be four hours.
  6. The use of Non-programmable calculators will be allowed in the examination centre but these will not be provided by the University/College. Mobile phones and pagers are not allowed in the examination Hall.
  7. Distribution of Marks & Total Teaching Hours will be as under :

Paper A :	Analog Electronics	: (67 + 8*) = 75 marks	Total teaching hours : 75
Paper B :	Digital and Non-linear Electronics	: (67 + 8*) = 75 marks	Total teaching hours : 75

\* Internal assessment

Practicals :	:	50 marks	Total teaching hours : 125
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### Each paper will consist of five Units

- |          |   |
|----------|---|
| Unit I   | There will be two questions from this Unit. Each question will have two parts. Only one question is to be attempted. Each question will carry fifteen marks.                      |
| Unit II  | There will be two questions from this Unit. Each question will have two parts. Only one question is to be attempted. Each question will carry fifteen marks.                      |
| Unit III | There will be two questions from this Unit. Each question will have two parts. Only one question is to be attempted. Each question will carry fifteen marks.                      |
| Unit IV  | There will be two questions from this Unit. Each question will have two parts. Only one question is to be attempted. Each question will carry fifteen marks.                      |
| Unit V   | There will be eight questions of small answer type covering the syllabi of all the four Units (I –IV ). Five questions are to be attempted. Each question will carry three marks. |

**Paper A : ANALOG ELECTRONICS****UNIT-I****Junction Diodes :**

Review of p and n type semiconductors, qualitative treatment of rectifying diodes, forward and reverse bias characteristics, switching diodes, photo diode, LED, optical isolators. Zener diodes. Rectifiers (half and full wave), capacitor and inductor filters.

**UNIT-II****Bipolar Junction Transistor :**

Basic working principle (qualitative), characteristics, basic configurations and biasing, operating point. Loadline (a.c. and d.c.) biasing and stabilization of operating point (Qualitative).

**JFET AND MOSFET :**

Basic working principles (qualitative), characteristics. Pinch off voltage and biasing (qualitative).

**Amplifiers :**

Different terms used in amplifiers such as signal source voltage gain, current gain, power gain and Decibel, input and output impedance, class A, B, C and AB operation. Distortion in amplifiers (non-linear, frequency and phase).

**UNIT-III****Feedback in Amplifiers :**

Concept of feedback, types of feedback, effect of negative feedback in amplifier performance (Qualitative).

**Power Amplifiers :**

Input and output considerations, push –pull amplifiers, complementary symmetry and transformer types, idea of thermal run away and heat sink, concept of amplifier efficiency.

**Oscillators :**

Positive feedback, Barkhausen criteria. Hartley oscillator, Wein Bridge oscillator (no derivation of formulae).



## UNIT-IV

### Operational Amplifiers :

Operational amplifiers with black box concept, inverting and non-inverting inputs, virtual ground, parameters such as input impedance, output impedance, open loop gain and band width, specifications of an OP –AMP, qualitative description of OP –AMP as inverting and non-inverting amplifiers summing and difference amplifiers, comparator, differentiator, integrator and instrumentation amplifiers.

### Power Supplies :

Concept of regulation, regulated power supply, three terminals IC based voltage regulation. Study of power supply regulation with respect to variation in load current and line voltage, switched mode power supply (SMPS) –working principle and applications, brief idea of C.V.T. and U.P.S.

### Books Recommended :

1. Mehta, V.K. : *Principles of Electronics.*
2. Chattopadhyay, D. : *Foundations of Electronics.*
3. Milman Halkias : *Electronics, Fundamentals and Applications.*
4. B.L. Theraja : *Basic Electronics Solid State.*

## Paper B : DIGITAL AND NON-LINEAR ELECTRONICS

### UNIT-I

#### Number Systems :

Introduction to decimal, binary and hexadecimal number systems. BCD code, interconversion of decimal, binary and hex numbers, concept of parity, error detection and correction.

#### Binary Arithmetic and Boolean Algebra :

Boolean Axioms, D. Morgan's theorem – verification and applications, simplification of logic expressions using theorems and Karnaugh Map (upto four variables), concept of signed and unsigned numbers, fixed and floating point representation, concept of 1's and 2's complement, addition and subtraction of integer values, half and full adder, half and full subtract.

## UNIT-II

### Logic Gates :

Logic values and variables, positive and negative logic, different logic gates as AND, OR, NOT, NAND, NOR, AND, XOR, definition of universal gates, symbols and truth tables, inverting and non-inverting buffers, tristate buffers, Boolean expressions for truth tables and vice versa.

### Sequential Circuits :

Flip flops (RS, JK, D, T), shift registers, ripple counters, Modulo -N counters, need for DAC (weighed resistance type), ADC (counter ramp type).

## UNIT-III

### Logic Families (Qualitative Treatment Only) :

TTL, CMOS familiar characteristics, parameters like power dissipation, speed, supply requirements logic level, in Fan out, noise immunity.

### Combinational Circuits :

Encoders, decoders, symbols and truth tables of multiplexer demultiplexer.

## UNIT-IV

### Wave Shaping Circuits :

Concept of multivibrators (bistable, mono and astable) and Schmidt Trigger, integration, differentiation using RC circuits, and operational amplifiers, clipping, clamping, operation and application of 555 timer and VCO 565, generation of pulse, square and saw tooth wave.

### Semiconductor Memories :

Idea of different types of SC memories (RAM, ROM, PROM, EPROM, EEPROM), process of data storage and retrieval, organization of memory, concept of PLA and PAL.

### Books Recommended :

1. Malvino and Leach : *Digital Principles and Applications.*
2. Tokheim : *Digital Electronics.*

3. Milman and Halkias : *Electronics Fundamentals and Applications.*
4. M. Morris Mano : *Digital Design.*
5. Theraja, B. L. : *Basic Electronics Solid State.*

### **ELECTRONICS (Practicals)**

#### **Guidelines for Electronics Practical Examination :**

- I The distribution of marks is as following :
 

(i) One full experiment requiring the student to take data, analyse it and draw conclusions.	:	20 marks
(ii) Brief Theory.	:	5 marks
(iii) One exercise based on experiment (to be allotted by the examiner)	:	10 marks
(iv) Viva-Voce	:	10 marks
(v) Record (Practical file)	:	5 marks
- II There will be one session of 4 hours duration. The paper will consist of 8 experiments, out of which an examinee will mark 6 and one of them will be allotted by the examiner.
- III Number of candidates in a group for practical examination should not exceed 12.
- IV In a single group, same experiment will not be allotted to more than three examinees in any group.

#### **List of Experiments :**

1.
  - (i) To familiarize the multimeter
    - (a) To measure AC/DC voltage.
    - (b) To measure resistance.
    - (c) To measure AC/DC current.
    - (d) To test diode, transistor (BJT.FET)
  - (ii) To measure capacitance of a capacitor using capacitance meter.
2.
  - (i) To familiarize with various functional controls of CRO.
  - (ii) To use the CRO for the measurement of frequency, voltage and phase shift.

3. To draw forward and reverse bias characteristics for a PN junction and draw load line.
4. To observe the forms of half wave and full wave rectification using diode.
5. To draw  $V - I$  characteristics of Zener diode and to study Zener diode as a voltage regulator w.r.t. input voltage and load resistance.
6. To draw  $C - B$  characteristics of BJT.
7. To draw  $C - E$  characteristics of BJT.
8. To find the voltage gain at different frequencies and to find the band width and gain band width product of CE transistor amplifiers.
9. To set up a Hartley Oscillation and calculate the capacitance using CRO.
10. To study the output of regulated power supply (using 3 pin voltage regulator), w.r.t. input voltage and load.
11. Verification of truth table of OR, AND, NOT, NAND, NOR, XOR gates.
12. To implement the following arithmetic operations by using gates ICs.  
(i) Half Adder      (ii) Half Subtractor      (iii) Full Adder      (iv) Full Subtractor
13. To verify truth tables of JK, D.T. Master –Slave Flip Flop.
14. Use of 7 – segment LED's and use of 7447 BCD to 7 – segment decoder.
15. To plot output and mutual characteristics of FET.

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***Published by : Prof. A.K. Bhandari, Registrar, Panjab University, Chandigarh.***