SYLLABI

FOR

B.A. & B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATIONS, 2018-2019

(SEMESTER : FIFTH AND SIX)

i.e

Fifth Semester : November/December, 2018
Sixth Semester : April/May, 2019
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<td>1</td>
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<tr>
<td>2</td>
<td>Panjabi (Compulsory) (for B.A. Candidates only)</td>
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<td>History and Culture of Punjab (for B.A. Candidates only)</td>
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<td>Agriculture</td>
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ENGLISH (Compulsory)
(For B.A. Candidates Only)

SEMESTER V

Max. Marks : 50
Written : 45 Marks
Int. Ass. : 05 Marks
Time : 03 Hours

Note:
(i) 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.
(ii) Section A shall deal with the text and Section B with composition and grammar.
(iii) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.

Text Prescribed:

INSIGHTS: A Course in English Literature and Language (by K. Elango, Hyderabad: Orient Blackswan), Panjab University Edition.

Unit I to III (Unit II- Chapter ‘Emotional Intelligence’ deleted)

Section-A (Poetry & Prose)

Q.1. Reference to the context only from Poetry. One out of two given stanzas 5 marks

Q.2. The examiner will set eight short questions from Poetry & Prose Sections of the prescribed text, out of which a student shall be expected to attempt only five selecting, at least, two from each section (to be answered in not more than 60-80 words). These questions may be drawn from each of the units given in the text 10 Marks

Q.3. The examiner shall set four questions (on the pattern of questions for Critical Analysis suggested in the prescribed text) again from Poetry & Prose Sections of the text, out of which a student is expected to attempt only two selecting, at least, one from each section (to be answered in not more than 150-180 words), The questions should be chosen in such a manner that all the units given in the text are covered. 10 Marks

Section-B (Composition & Grammar)

Q.4. Write an essay (in not more than 500 words), choosing one topic out of the given four. A wide range of topics should be given and in this respect ideas may be drawn from the prescribed text. 10 Marks

Q.5. (a) Antonyms –ten out of fifteen . 5 Marks

(b) Correct the sentences- ten out of fifteen. 5 Marks

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ENGLISH (Compulsory)
(For B.A. Candidates Only)

SEMESTER VI

Max. Marks : 50
Written : 45 Marks
Int. Ass. : 05 Marks
Time : 03 Hours

(i) 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.
(ii) Section A shall deal with the text and Section B with composition and grammar.
(iii) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.

Text Prescribed:

INSIGHTS: A Course in English Literature and Language (by K. Elango, Hyderabad: Orient Blackswan), Panjab University Edition.

Unit IV-VI
Section-A (Poetry & Prose)

Q.1. Reference to the context only from Poetry. One out of two given stanzas. 5 marks

Q.2. The examiner will set eight short questions from Poetry & Prose Sections of the prescribed text, out of which a student shall be expected to attempt only five, selecting, at least, two from each section (to be answered in not more than 60-80 words). These questions may be drawn from each of the units given in the text 10 Marks

Q.3. The examiner shall set four questions (on the pattern of questions for Critical Analysis suggested in the prescribed text) again from Poetry & Prose Sections of the text, out of which a student is expected to attempt only two selecting at least, one from each section (to be answered in not more than 150-180 words). The questions should be chosen in such a manner that all the units given in the text are covered. 10 Marks

Section-B (Composition & Grammar)

Q.4. A question on Précis writing shall be set, without any internal choice. For this purpose, the passage chosen should be simple, lucid and coherent and must not exceed 240-250 words. 10 Marks

Q.5 (a) Idioms and Phrases to be used in sentences. ten out of fifteen 5 marks

(b) One word substitution – ten out of fifteen 5 Marks

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भाषापी (संस्कृत)
(भी दे ब्राह्मण दीनधार 2018 दे दिनिनिकाय सही)
(भी दे विक्षिप्तकालिन रूपे)

चम्पूत्तर पनस्त्र

वेंड़ एंट्र: 50
विभाजनी: 45
दिनिनिकाय आर्मेनिस्ट: 5
मन्व: 3 पांडे

पाठचौर

1. संस्कृत पाठपी वाणी विवध ए अभिषेक
   20 अंक
2. शब्द उच्चता
   8 अंक
3. विवधी
   7 अंक
4. विश्वकाल: मिरांदे दे मिरांद
   10 अंक

वेंड़

1. संस्कृत पाठपी वाणी ठाकरा वाणी (मेछ) अभास सिख, पवलीवाल विबंध, पाण्डव पुरीवालिती, चंद्रकांड।
2+2=4 अंक

पुरुष अंके कीम

1. (इ) संस्कृत पाठपी वाणी ठाकरा पानों दौरे पानों मिरांद विवधबंध (दे दिनिन दिव)
   5 अंक
   (प) विवध दे नर दे वेशी राख (दे दिनिन दिव)
   5+5=10 अंक

2. वाणी-संगुण दौरे विवध ठांडे पानों (ठांडे दिनिन मिरांदे दे हंगा त देशे)
   (मेछ पात्र दिनिन दिने ठांडे दिनिन दिव)
   5+1 = 5 अंक

3. शब्दु उच्चता (संपात 250 संपात दिव)
   (रघुवी मुलमन, रघुवी रघुवी अटे रघुवी दे उल्लो इत्यें विवधबंध तल में पंचाद)
   (उप विवधबंध दौरे विवध विवध विवध)
4. विवधी दी भंधी ताते- पंडळत:
   विवधी दी विलासपत, तात दे रंगमा,
5 अंक

विष्णुकाल: मियांदे दे मियांद

(i) रघुवी, रघुवी रघुवी दे विवधबंध रघुवी दी पंचाद दे पंडळत
   6 अंक
   (दे पानों दौरे दौरे दौरे पानों विवध)
(ii) विवधबंध पानों (दौरे पानों दौरे दौरे दौरे पानों)
   2+2=4 अंक

रेत : पेश नैट हज़ेरे विवधबंध में वज़या दे मे पान दे दी में पंचाद में पूंछे सात।

Nguwefguhwbhghwhwhghwh whh
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<th>अंक</th>
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<td>1.</td>
<td>सामान्य भाषा</td>
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<td>गुरुभूषण सिख</td>
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<td>4.</td>
<td>विभागशास्त्र : मिश्रण व दिग्गज</td>
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**वेक्सन**

1. मंगल बुध चतुर्थी, गुरुवार, घर, लंबी दिवसीय पुरुषमात, उट्टरीगांव।

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<th>पुरुषत अनुशीलन</th>
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<tr>
<td>1. (a) सामान्य भाषा भाषा । विभागशास्त्र मिश्रण दिग्गज (a) दिग्गज दिग्गज (a) दिग्गज)</td>
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<td>(a) सामान्य भाषा भाषा । विभागशास्त्र मिश्रण दिग्गज (a) दिग्गज दिग्गज)</td>
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2. सामान्य भाषा मिश्रण हिंदी (हिंदी मिश्रण मातुर्म ट्रेंट लाइ हेड)

3. अनुसंधान ज्ञान पुस्तक दिग्गज करारे : वर्णन ट्रेंट मातुर्म, विभागशास्त्र, रंग 8 अंक

4. गुरुभूषण सिखी से पहचान साउंड- साउंड: गुरुभूषण सिखी से पहचान साउंड- साउंड: मातुर्म, मातुर्म से मिश्रण रंग

5. विभागशास्त्र: मिश्रण वे दिग्गज

(i) वर्णन हिंदी मातुर्म: वर्णन मातुर्म वे वर्णन मातुर्म: मातुर्म, मातुर्म से मिश्रण रंग

(ii) विभागशास्त्र: वर्णन मातुर्म वे मातुर्म वर्णन मातुर्म 2+2=4 अंक

| (a) विभागशास्त्र: मातुर्म, मातुर्म दिग्गज दिग्गज (a) दिग्गज दिग्गज) | 5×1 = 5 अंक |
| (ii) विभागशास्त्र: मातुर्म वे मातुर्म 2+2=4 अंक | 7 अंक |

| (a) विभागशास्त्र: मातुर्म, मातुर्म दिग्गज दिग्गज (a) दिग्गज दिग्गज) | 6 अंक |

| (ii) विभागशास्त्र: मातुर्म वे मातुर्म 2+2=4 अंक | 7 अंक |
कार्यक्रम युक्तियाँ:

1. उद्धरण मिश्र (डा.), ‘वर्णन पंजाबी हिंदीविद्या’, पंजाब मैट्रेक पृष्ठीयविद्या टीममाट खंड वेब्ड, संदीपाई हिंदीविद्या प्राचीन विश्वविद्यालय, 1999.
2. सुमर्गितर मिश्र मैथुन (डा.), पंजाबी विश्वविद्यालय, पंजाबी विश्वविद्यालय अवासी, संदीपाई, 1997
3. संमल, बाबुलसिंह, ‘पंजाबी हिंदीविद्या के दुश्चिन्तामणि’, ब्रह्मांदल, पंजाबी विश्वविद्यालय, राहुल, ब्रह्मांदल, अभिनवसंग्रह, 2012.
4. पंजाबी मैण्डल व्युक्तिवेब्ड प्राचीन, पंजाब मैट्रेक पृष्ठीयविद्या टीममाट खंड वेब्ड, संदीपाई.
5. विश्वविद्यालय मिश्र (डा.), ‘पंजाबी हिंदीविद्या, मिथुन अंदे हिंदी’, वेब्ड पंजाबी विश्वविद्यालय, 2008.
6. यात्रीपुर मंत्री पंजाबी मिश्र (डा.) ‘मिथुन अंदे हिंदीविद्या’, दरार, पंजाबीविद्यालय, पंजाब, 2002.
7. विश्वविद्यालय, वेब्ड, विश्वविद्यालय विश्वविद्यालय, सीधर, पंजाबीविद्यालय, संदीपाई, 1981.

रेट: 1. टीममाट लड्डी उठड़े दे के पीवीएन।
2. विश्वविद्यालय लड्डी 25-30 हिंदीविद्यालय, ग हिंदीविद्यालय, उठड़े दे, विजेता वीर वीर।
3. उठड़े दे 6+3=9 पीवीएन।

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HISTORY AND CULTURE OF PUNJAB
(FOR B.A ONLY)
SEMESTER V

PAPER: HISTORY AND CULTURE OF PUNJAB: COLONIAL PERIOD

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES:

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 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 marks for 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-IV in all. Each question will carry 10 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 or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:
   Map : 6 Marks
   Explanatory Note : 4 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 6 places on map of 1 marks each and write explanatory note on any two of 2 marks each.

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

Paper:
Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives:
To introduce the students to the history of the history of the region and the impact of colonial rule.

Pedagogy:
Lectures, library work and discussions.

UNIT I

1. Early British Administration: Board of Administration 1849-1853; Reforms under John Lawrence
2. Colonial Policy: Agriculture; Trade & Industry
3. Spread of Modern Education

UNIT II

4. Impact of Socio-Religious Reform Movements: Namdharis; Singh Sabha
5. Impact of Socio-Religious Reform Movements: Arya Samaj; Ahmediyas
6. Uprising of 1907: Causes and Consequences
UNIT III

7. Ghadar Movement: Origin and Activities  
8. Jallianwala Bagh: Circumstances and Consequences  
9. Gurudwara Reform Movement: Causes and Consequences

UNIT IV

10. Response to Non Co-operation ; Civil Disobedience  
11. Partition : Circumstances; Impact  
12. Map:, Delhi, Amritsar, Lahore, Lyallpur, Montgomery, Jaito, Nankana Sahib, Khemkaran, Tarn Taran, Jalandhar, Sargodha, Sialkot, Ambala,

Suggested Readings:


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HISTORY AND CULTURE OF PUNJAB
(FOR B.A ONLY)
SEMESTER VI

PAPER: HISTORY AND CULTURE OF PUNJAB: POST INDEPENDENCE PERIOD

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES:

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 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 marks for 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-IV in all. Each question will carry 10 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:

4. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

5. The distribution of marks for the map question would be as under:

<table>
<thead>
<tr>
<th>Map</th>
<th>Explanatory Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Marks</td>
<td>4 Marks</td>
</tr>
</tbody>
</table>

   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 6 places on map of 1 marks each and write explanatory note on any two of 2 marks each.

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

Paper: Max. Marks : 50
       Theory       : 45
       Internal Assessment : 05
       Time          : 3 Hours

Objectives: To introduce the students to the history of the history of the region in the post 1947 period.

Pedagogy: Lectures, library work and discussions.

UNIT 1

1. Migration and its Socio-Economic impact
2. Rehabilitation and Resettlement
3. Demand for Punjabi Suba; Reorganization Act 1966
UNIT II

4. Green Revolution and its impact
5. Development of Education
6. Political and Economic Development post 1966

UNIT III

7. Issues of Boundary; water; Chandigarh
8. Socio-Economic Development in the 1980’s
9. Operation Bluestar and its impact

UNIT IV

10. New Social issues-gender discrimination, drug menace, farmer suicide
11. Development of Punjabi literature :Bhai Vir Singh; Shiv Kumar Batalvi; Amrita Pritam

Suggested Readings:


**Objective:** The main aim of teaching English (Elective) to B.A.III 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 B.A English Third Year (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 for students to develop basic tools of analyzing a variety of literary texts/genres.

**Note:**

(i) There will be two semesters 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/semesters and shall not be included in the same paper/semester. So, **Modern Indian literature: Poems and Short Stories** shall figure in Semester V and **R.K.Narayan’s The Guide** shall be included in Semester VI. Questions on composition and grammar shall, however, be included in Paper B/Semester VI. This is being done to help the students, who shall now find both the papers proportionately divided and so easily manageable.

(ii) Each theory Semester shall be of 90 marks, as 10 marks in each semester shall be reserved for internal Assessment. Each semester shall be further sub-divided into two sections i.e Section I & Section II. The mode of distribution of marks shall, however, vary from paper to paper. There shall be six questions in each semester. 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 paper shall be divided into two sections i.e **section I & II**.

(v) Section I shall deal with the text and Section II with composition and grammar

(vi) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.

(vii) For the successful implementation of this syllabus, it is necessary that we reflect upon objectives of this course. First in our teaching practices and then in designing question paper/s and evaluating answer scripts of the students. The examination shall be held at the end of each semester as is recommended by the university from time to time.
Text Prescribed:

1. Modern Indian Literature: Poems and Short Stories, Edited by the Dept. of,
University of Delhi, OUP, 2007 New Delhi.

Section I

(Literary terms/Concepts: Literatures Indian Languages, Colonialism, Post-colonial, Multicultural Society: Orientalism, Hybridity, Ideology, Gender, Race, Class, Caste, Nation, Importance of Translation in India, Methods of Translation)

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 seven short questions (each to be answered in 60-80 words) based on Modern Indian Literature: Poems and Short stories out of which the students shall be required to attempt only five. 15 marks

Q.3. There will be three long questions, out of which two long questions are to be answered each in about 180-200 words. These questions shall be based on Modern Indian Literature: Poems and Short Stories. 15 marks

Section II

Q.4 Note-making (A passage of about 1000 words is to be given for this Purpose) 15 marks

Q.5. An unseen passage for Comprehension (about 1000 words again) With ten multiple choice questions is to be given. 15 marks

Q.6 Applied Grammar:
(a) 5 Pairs of words to be used in sentences. (altar/alter/compliment/complement etc.) (1x5=5 marks)
(b) First find one word for many and then use it in a sentence. 5 marks
(c ) First change the form of nouns/verbs/adjectives and then make sentences. (1x5=5 marks )

........................
Objective: The main aim of teaching English (Elective) to B.A.III 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 B.A English Third Year (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 for students to develop basic tools of analyzing a variety of literary texts/genres.

Note:
(i) There will be two semesters 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/semesters and shall not be included in the same paper/semester. So, Modern Indian literature: Poems and Short Stories shall figure in Semester V and R.K.Narayan’s The Guide shall be included in Semester VI. Questions on composition and grammar shall, however, be included in Paper B/Semester VI. This is being done to help the students, who shall now find both the papers proportionately divided and so easily manageable.

(ii) Each theory Semester shall be of 90 marks, as 10 marks in each semester shall be reserved for internal Assessment. Each semester shall be further sub-divided into two sections i.e Section I & Section II. The mode of distribution of marks shall, however, vary from paper to paper. There shall be six questions in each semester. 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 paper shall be divided into two sections i.e section I & II.

(v) Section I shall deal with the text and Section II with composition and grammar

(vi) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.

(vii) For the successful implementation of this syllabus, it is necessary that we reflect upon objectives of this course. First in our teaching practices and then in designing question paper/s and evaluating answer scripts of the students. The examination shall be held at the end of each semester as is recommended by the university from time to time.
Text Prescribed:


SECTION I


Q.1 Literary terms/concepts (five out of eight) 15 marks
Q.2 Short question based on the prescribed novel, Five out of Seven (each in 60-80 words). 15 marks
Q.3 Long questions based on the novel three out of five dealing with the incidents, theme(s) Character(s), symbols etc.( each in 180-200 words) 15 marks

SECTION II

Q.4 Essay on any one (out of the given four) topic of international importance (in about 700 words) 20 marks
Q.5 Report-writing (in about 300 words) on an incident/situation, conference/seminar, problem/state of education/poverty/unemployment or similar issues. 10 marks
Q.6 Translation from Hindi/Punjabi into English (Passage of about 400 words)

OR

Paragraph on any one out of the two given topics (for foreign students only) 15 marks

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हिंदी (एचटी)

बी.ए./बी.एच. (जनरल) तृतीय वर्ष (सेमेस्टर-5)

पूर्णांक 90+10=100
समय- 3 घंटे

1. कुर्याक्षेत्र
रामधारी सिंह ‘बिनकर’ प्रकाशक राजपाल एण्ड सन्स, नई दिल्ली।

(क) 6-6 अंकों की दो संदर्भ सहित यथायोग्य करनी होगी।
कुल चार काब्यांश दिए जायेंगे।
(ख) 15 अंकों का एक आलोचनात्मक प्रश्न करना होगा। कुल
dो प्रश्न पूछे जाएंगे।
अंक-27

2. सामाजिक सिद्धांत:
का. काव्य की परिभाषा तथा भेद, महाकाव्य, रंगकाव्य, गीतिकाव्य
की परिभाषा तथा विशेषताएं
खा. गहा विषयां-विवध, संस्कारण, जीवनी तथा आत्मकथा के
स्वरूप और तत्त्व का सामाजिक परिचय।
अंक-30

उपर्युक्त खंडों क जा में से संबंधित 15-15 अंकों के बारे प्रश्न
पूछे जाएंगे जिसमें से केवल दो के उत्तर देने होगे।

3. अलंकार:
केवल विभाजित अलंकार निर्धारित है।
अनुप्रास, यमक, शेष, पकोक्ति, उपभा, रूपक, अभिव्यक्ति,
विरोधभास, उद्भेद, प्रतीय।
6 x 3=18

4. लघूस्हृंगाशी:
प्रथम दो खंडों (कुर्याक्षेत्र एवं सामाजिक सिद्धांत)
में से पाँच-पाँच अंक के तीन प्रश्न करने होंगे,
6 प्रश्न पूछे जाएंगे। (शब्द सीमा - 50 शब्द)
अंक-15

5. आंतरिक मूल्यांकन
अंक-10

सहायक पुस्तकें:
1. हिंदी का आलोचना-साहित्य, विश्वविद्यालय चित्रकेशन, नई दिल्ली
2. काव्य के तत्त्व, आचार्य देवेन्द्रनाथ शर्मा, लोकभारती प्रकाशन, इलाहाबाद
1. विबंध लेखन (केवल साहित्यिक और सामाजिक विषयों पर)
   अंक-20

2. गद्य साहित्य, सम्पादक हैदर शहाबुद्दीन शेख, प्रकाशक-राजपाल एण्ड सस्त्र, नई दिल्ली।
   केवल निम्नलिखित पाठ विद्यार्थियों के लिए हैं।
   अंक-16

3. हिंदी साहित्य का इतिहास
   केवल निम्नलिखित गद्य-विषयों का उद्धवत्त और विकास : उपन्यास, कहानी, नाटक, निबंध, आलामक्या, जीवनी, संस्मरण, देखाचित्र।
   इन गद्य-विषयों में से 12-12 अंकों के कम से कम चार प्रश्न पूछे जाएँगे,
   छात्रों को केवल दो प्रश्नों के उत्तर लिखने होंगे।
   अंक-24

4. छंद-परियोजना-निम्नलिखित छंद निर्धारित हैं।
   अंक-15
   दोहा, सोमर, चौराही, रोहा, कुण्डलिया, सच्चाई, अतिवित्तित, हरिगैतिका, उपेन्द्रवाज, हंदेवाज।
   पाँच छंदों के लगभग उत्तराध्ययन पूर्ण के जिनमें से तीन का उत्तर देना होगा।

5. हिंदी भाषा और उसकी लिपि
   अंक-10
   देवनागरी लिपि : विकास, गुण दोष, सुधार के उपाय 10 अंकों के कुल दो प्रश्न पूछे जाएँगे, जिनमें से केवल एक प्रश्न का उत्तर देना होगा।

6. निगमण पत्र, प्रेस, विश्वास, विश्वास विषयों का प्रारूप तैयार करना।
   अंक-5
   दो प्रश्न पूछे जाएँगे, छात्रों को एक प्रश्न का उत्तर देना होगा।

अंतरिक मूल्यांकन
   अंक-10

सहायक पुस्तकें:

1. हिंदी का आलमक्या-साहित्य, विश्वविद्यालय आयोग, स्वयं कार्य कलेक्टिव, नई दिल्ली
2. काव्य के तत्व, आचार्य देवेंद्रनाथ शर्मा, लोकभारती प्रकाशक, हैदराबाद
प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेज़ी में से कोई एक भाषा होगी।

- ईश्वर, त्याग, कर्म, विधा, अभिधा, सम्मूति, असम्मूति आदि औपनिवेशिक विषयों का अध्ययन कराना।
- आदि काल्याण वाल्यकला के रूप में विभिन्न काल्याण के सौंदर्य का विशेष ध्यान करना।
- संस्कृत के समुद्र शब्दमण्डल द्वारा छात्रों में संस्कृत के प्रति रचना उत्पन्न करना।
- पत्र का अध्ययन समय नौ पक्ष (प्रतिप्रतिपक्ष) प्रति साप्ताहिक करना, जिसमें तीन पीरियड क्लासिफिकेशन के होंगे।
- सभी प्रश्नों में शत-शतांश अथवा नौनिन्दित विकल्प आवश्यक हैं।

UNIT - I

(क) ईशोपिनियद्
1. मन्त्र/मन्त्रांश का अनुवाद एवं व्याख्या 1x10=10अंक
2. समीक्षात्मक प्रश्न / सूक्ति व्याख्या 1x10=10अंक

(ख) वाल्मीकिरामायण (सुन्दरकाण्ड, सम्ग-15, पीता प्रैम गोरखपुर) श्रीक व्याख्या 2x7½=15अंक

UNIT - II

(ग) वायाहारिक संस्कृत शब्दावली: बावे, गोल एवं युद्ध सम्बन्धी (15 में से 10 शब्दों की संस्कृत) 1x10=10अंक
1. उत्तर - अवरोहः 2. चलवा-आरोहः 3. जलतरंग-जलतरंगः
4. हंगी द्वारा-हंगी द्वारा 5. लोल - पत्थः 6. लोलः - लोलः
7. लहरा - मुजः 8. तानपुरा - तानपुराः 9. तुर्ख (गहनाघ) - तुर्खः
10. पाण्डव - पाण्डवः 11. पियाणो - पत्नीवाहम् 12. बांसुरी - मुरली
13. मंजीरा-मञ्जीरम् 14. सांरगी (वायालिन)-सांरगी 15. सितार-बीणा
16. हार्मोनियम-हार्मोनियम् 17. सेंट-क्लुकः 18. तेनिस का खेल-तेनिस-क्रिकेटा
19. नेट-जालम् 20. फुटबॉल-फुटबॉलः 21. बैडमिन्टन-पन्नीडा
22. मैच-क्रिकेटप्रतियोगिता 23. रेफरी-निषिद्धः 24. रेफरी-क्रिकेटप्रतियोगिता
25. वाल्यकोशकः 26. हार्कः खेल-वाल्यकोशकः 27. बिसुल-संज्ञाशंकः
28. कोमलस्वर-मन्त्रः 29. तीमस्वर-तारः 30. मध्यमस्वर- मध्यः, मध्यस्वरः
31. एटमपत्रम-परमाणु अखम्
32. क्र्त-वर्मन्
33. कृपाण-असिः
34. गणनामा-नोमवर:
35. गदना- गदा
36. गोवि-गुलिका
37. ब्रजनी-शिविरम्
38. शीयर गैस-धूऩम्
39. तेप-शतः
40. जल सेनापति-भूमानोक
41. घनल सेनापति- भूमानोक
42. वायुसेनापति-वायुसेनाध्यक्ष:
43. धनु-धनु, कोरण, नामाम, कामम्कम
44. पिस्तील-लघुधुशाणिदः
45. बन्धुक-भूशुरीणिदः
46. बम-आप्रेरणाभम्
47. हांड़ोजन बम-जलपरमाणवक्ष्मम्
48. बाँडु-अपर्णर्मम्
49. लड़ाई का जहाज-युद्धपोतः
50. लड़ाई का बिमान-युद्धबिमानम्

UNIT - III
(घ) विसर्ग सन्धि 5x1=5अंक
(ङ) अन्यथ्रीभाव समास 5x1=5अंक
(च) अलंकार : उपमा, उः प्रेश्ना, रूपक, विभावना, विशेषयोक्ति तथा विरोधाभास 2x7½=15अंक
(तीन में से दो के लक्षण, उदाहरण व स्पष्टीकरण प्रश्नव्य है।)

UNIT - IV
(घ) बैदेक इतिहास (लघु प्रश्न/टिप्पणी) 2x5=10अंक
   (i) वेदों का सामान्य परिचय
   (ii) वेदांग साहित्य का सामान्य परिचय

UNIT - V
(घ) हिंदी में संक्षेप में अनुवाद (10 में से 5 वाक्य) 5x2=10अंक

........................
संस्कृत (इलेक्ट्रिव)

6th Semester

Paper - Sanskrit:

लौकिक काव्य, इतिहास, निष्ठा व व्याख्यान
(आन्तरिक परीक्षा- 10, लिखित परीक्षा- 90)

पूर्णक: 90+10=100 अंक
समय-3 घण्टे

निदेश तथा उद्देश्य-

• प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
• लौकिक काव्य के रचनासीमा से परिचय कराना।
• संस्कृत के समुद्र नदीभंगार से छात्रों में संस्कृत के प्रति प्रेम उत्पन्न करना।
• पत्र का अध्ययन समय नौ पीएम (प्रतिप्रतियार्ध) प्रति समाह होगा, जिसमें तीन पीएम कम्पोजिशन के होंगें।
• सभी प्रश्नों में शात-शतशत अथवा निर्दिष्ट विश्लेषण आवश्यक हैं।

UNIT-I

(क) रचयित्र (प्रथम सर्ग) - कालिदास

i) शेखरों का समारण अनुवाद व व्याख्या

ii) सूक्त-समयोग व्याख्या (तीन में से एक)

UNIT-II

(ख) संस्कृत शब्दावली: समन्वयसुचक एवं प्रभावसुचक शब्द

1. पिता/माता - जनक:- /जननी
2. चाचा, चाची-पितुः, पितुः
3. पितृ, पिले-पिले: पिले (भाभी, जाया)
4. नाना, नानी-मातामहः, मातामही
5. छोटा भाई, बड़ा भाई-अनुजः, अम्रजः
6. ददा, ददी-पितामहः, पितामही
7. पुत्र, पुत्री-पुत्रजः/आत्मजः, पुत्री/आत्मजा
8. जीजा-भगिनीपतिः
9. वंवाई (दामाद)-जामाता
10. देवर, देवरानी-देवर:, याता
11. मामा, मामी-मातुः, मातुः
12. साला, साली-स्वालः (स्वालः), स्वाली (स्वाली)
13. साम, समुर-सङ्कः, संहुः
14. समवी (कुड्डम), समवीन (कुड्डमी) -समवी, समवीनी
15. पोता, पोती-पोत्रः, पोत्री
16. भतीजा, भतीजी-भातुः /भातुः, भातुः /भातुः
17. मातुः, मातुः-भागिनीः, भागिनीः
18. वच्छरा भाई, वच्छरी विपुः-पिपुः, पिपुःपुः
19. भभी-भातुःपता
20. Administration-प्रशासनम्
21. Appeal-निर्देशनम्
22. Approval-अनुमोदनम्
25. Corporation-निगम: 26. Director-निदेशक:
27. Employment-आजीविका, वृक्षि: 28. Initials-आचार्यसम्
29. Judgement-निर्णयः 30. Gazetted Officer-राजपत्रिवित्तिकारी
31. Notification-धिसूचना 32. Procedure-कार्यविधि:
33. Receipt-प्राप्ति: 34. Senior-शिष्यः
35. Subordinate-अधीनस्थः 36. Transfer-स्थानान्तरणम्
37. Vacancy-रिहः 38. Character Certificate-चरित्रमणाणपत्रम्
39. Civic-नागरिकः:

(ii) पंजाबी में प्रयुक्त संस्कृत के तत्सम तथा तद्वे शब्दों की सूची

<table>
<thead>
<tr>
<th>संस्कृत शब्द</th>
<th>पंजाबी शब्द</th>
<th>संस्कृत शब्द</th>
<th>पंजाबी शब्द</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. चिरम्-(विलम्, देरी, दीर्घकाल)</td>
<td>चिर</td>
<td>21. रटितम् (रटा हुआ)</td>
<td>रटत</td>
</tr>
<tr>
<td>2. भेला (समय, अवसर)</td>
<td>भेला</td>
<td>22. लोहितम् (लूत)</td>
<td>लहूः</td>
</tr>
<tr>
<td>3. शाकः (हरी सब्ज़ी)</td>
<td>साग</td>
<td>23. वसितम्, वसिति: (वस्त्री)</td>
<td>वस्त्र, वस्त्रों</td>
</tr>
<tr>
<td>4. कंकरम् (बंबाह, कंकर)</td>
<td>कंकर</td>
<td>24. हुद्रम्म (हुद्रा, दिल)</td>
<td>हिडुः, हिडियाँ</td>
</tr>
<tr>
<td>5. चौक (चौक)</td>
<td>चौक, चौका</td>
<td>25. भाँड़: (सास)</td>
<td>सस्सुः</td>
</tr>
<tr>
<td>6. धैमा (ढो, ढोद्दा)</td>
<td>उड़</td>
<td>26. वर्षः (वड़)</td>
<td>वड़</td>
</tr>
<tr>
<td>7. धावनम् (ढोना)</td>
<td>धावन</td>
<td>27. अध्य (आधार)</td>
<td>अध्य</td>
</tr>
<tr>
<td>8. नासुन (नासुन)</td>
<td>नासु, नासु, नासुं</td>
<td>28. अर्थ (आधार)</td>
<td>अर्थ</td>
</tr>
<tr>
<td>9. निनितम् (बुरा, अपित्र)</td>
<td>निनित</td>
<td>29. उच्चः (ऊँचा)</td>
<td>ऊँचा</td>
</tr>
<tr>
<td>10. नीलम् (एक रंग)</td>
<td>नीलम, लीलम</td>
<td>30. कुदा (कव)</td>
<td>कुद</td>
</tr>
<tr>
<td>11. पम् (पैर)</td>
<td>पम्ब</td>
<td>31. तदा (तब)</td>
<td>तद</td>
</tr>
<tr>
<td>12. नकरम् (नेत्र)</td>
<td>नेपणूः</td>
<td>32. यदा (जब)</td>
<td>यद</td>
</tr>
<tr>
<td>13. पुंछम् (पूछ)</td>
<td>पूछ</td>
<td>33. कृतः (किया)</td>
<td>कृता</td>
</tr>
<tr>
<td>14. वालम् (वचन)</td>
<td>वालम</td>
<td>34. चन्द्र: (चाँद)</td>
<td>चन्द्र</td>
</tr>
<tr>
<td>15. बीजम् (बीज)</td>
<td>बी, बीउँ</td>
<td>35. तम्म (तम)</td>
<td>तम</td>
</tr>
<tr>
<td>16. भयम् (ढर)</td>
<td>में, मड़, मंड</td>
<td>36. निम्बः (नीम)</td>
<td>निम्ब</td>
</tr>
<tr>
<td>17. माषम् (उड़द)</td>
<td>मांड, मांड</td>
<td>37. पिप्पलः (पीप</td>
<td>पिप्पल</td>
</tr>
</tbody>
</table>
UNIT-III

(ग)णितविश्लेषण व संबंधित प्रयोग (प्रथम पुरुष का एकवचन ही प्रश्न तथ्य है)

(i) गणित प्रत्यय केवल भू, पद, हस, गम, कृ, अधिक्र. खाद, चल, नश, द तथा भू धातु से ही प्रश्नत्व है।
(ii) सन प्रत्यय केवल स्वप्न, घा, पद, कृ, गम, भू, मुच, दा, तृ तथा भू धातु से ही प्रश्नत्व है।

(घ)बहुवीहि समास

(ड)अनुवाचन : अनुप्रास, यमक, अर्थास्तरन्यास, श्लेष, अतिशयोंकित व इष्टाल्प
(तीन में से दो के लक्षण, उदाहरण व स्पष्टीकरण प्रश्नत्व है।)

UNIT-IV

(घ)लोकिक संस्कृत साहित्य के निम्नलिखित लेखकों की कृतियों का परिचय
(आस, कालिदास, भवभूति, बाणभर, माघ, भर्तृहरि व दरणी)

UNIT-V

(छ)संस्कृत निबंध (तीन में से एक विषय पर दस पंक्तियाँ में)

विषय – संस्कृतभाषाय महत्त्वम, मम प्रिय: कवि:, मम प्रिय: पुस्तकम, दीपावली, सत्संगति: तथा पर्यावरणसुरक्षा)

..........................
संस्कृति (दिवसीय)
बी.ए. बी.एस. (जनरल) तीसरे वर्ष (सेमेस्टर सिस्टम) योग्यता पंजीकरण

पदभाग

1. पुण्डर्की संस्कृति वर्धन
2. परिशिष्ट सम्बन्ध सामग्री
3. परिशिष्ट माधुर्य के दिवस (अग्नि चाल की 1700 शी: दिव)
4. गद्दी संस्कृति समावेश
5. माधुर्य से तुलना

वेक्स

1. संस्कृत मदन (मिठा) उत्तरावस्था निर्धार, प्रत्यक्षिन विचार, परम्परा पुलिट्रेशियड़ी, चैंडीगढ़
(विश्वविद्यालय बड़ी : संस्कृत विद्यालय, बुध राजस्थान देव, बाल अभाव सेव, बाल अंगिन्द मिश्र, क्रांती वाणिज्य)
2. मूर्तिवाद मात्र वर्ती, मंडल मिश्र में, सराय बुध सप्त, मूर्तिवाद।

पुलिट बड़ी धौं

1. (डी) मध्य मदन, गति प्रमाणित, लिखित प्रमाणित विकारित (दे लिखित प्रश्न) 10 अंक
2. (डी) 'मूर्तिवाद मात्र वर्ती' तत्त्व के निर्देशार्थी अंक, गौरा प्रमाणित विकारित (दे लिखित प्रश्न) 10 अंक
3. (डी) तत्त्व के अनुसार प्रमाण (विकारित प्रमाणित लिखित प्रश्न, लिखित, प्रति दे प्रमाण विकारित, मंडली पुस्तक पुक्के सार) (दे लिखित प्रश्न) 10 अंक
4. गद्दी माधुर्य के दिवस (अग्नि चाल की 1700 शी: दिव) : 5 x 4 = 20
5. गद्दी संस्कृति-समावेश: दीपी संस्कृतविद्या, माधुर्य संस्कृतविद्या (दे पुस्तक दे शिक्षण दिवस वक्ता) 10 अंक
6. माधुर्य से तुलना : तालमंडली, मंडल, गद्दी, लिखात, सौं, सीयूडो (दे पुस्तक दे शिक्षण दिवस वक्ता) 10 अंक

.................................................................
BS/B.Sc. (General) Third Year (Semester System) Syllabus

भौगोलिक (जिल्ला बिजली)

पृष्ठ 22 अक्तूबर 2019 से नियमित रूप से

कक्षा: 100

सहायक: 90

अन्तर्गती: 10

प्रतिशत: 3 घंटे

पदयुक्त

1. पृष्ठ 22 अक्तूबर 2019
2. पृष्ठ 22 अक्तूबर 2019
3. पृष्ठ 22 अक्तूबर 2019
4. पृष्ठ 22 अक्तूबर 2019
5. पृष्ठ 22 अक्तूबर 2019

लेखा

1. संस्कृत मंदिर, (संस्कृत.), विज्ञान, मानवीय, पर्यावरण, नागरिक, संस्कृत जीवनविषय, चंडीगढ़ (विश्वविद्यालय जगत: संस्कृत, मानवीय, नागरिक, विज्ञान, लेखन रत्निक)
2. निष्पादन पुस्तक, (;संस्कृत) वेदस्थल मुद्रित िहरे, पवित्रसाह कित्ते, पृथ्वी लूती, चंडीगढ़।

प्रशिक्षण लेखा विभा

1. (डी) पृष्ठ 22 अक्तूबर 2019
2. (डी) पृष्ठ 22 अक्तूबर 2019
3. (डी) पृष्ठ 22 अक्तूबर 2019
4. (डी) पृष्ठ 22 अक्तूबर 2019
5. (डी) पृष्ठ 22 अक्तूबर 2019
6. (डी) पृष्ठ 22 अक्तूबर 2019

(डी) पृष्ठ 22 अक्तूबर 2019
विषयों के वजह पर निम्नलिखित पुस्तकों का प्रयोग किया जा सकता है:

1. पूर्वांगी माठिउ र डिमिस, एंटी धल्लेल, संदीग्ध।
2. पूर्वांगी माठिउ र डिमिस, एंटी धल्लेल, पूर्वांगी पूर्वांगी धल्लेल, पत्रिका।
3. पटवाबंध मिश्र दे विमान मिश्र बघेल, ‘पूर्वांगी माठिउ ती दुमड्डी दे लिखा’, तत्त्व वृक्ष धन, तत्त्व वृक्ष।
4. प्रीतम मिश्र उपन्यास, पंडित गंगाधर जी मिश्र, हरिकुमार, ती धुहर धुहर, मानस धुहर।
5. मिश्र, धारमनी डिमिस (ढै.), ‘भारत विज्ञानकाल उपमा विज्ञानिक’, नागरिकम चित्रित, पूर्वांगी पूर्वांगी, पत्रिका, 1998।
6. परिवार मिश्र, नागरिकम देव नागरिकम, गुड तरह लेख पूर्वांगी, पूर्वांगी कोटी, पूर्वांगी पूर्वांगी, अभियुक्त, 2002।
7. प्राकीलक, धूम मिश्र (ढै.), तुष विज्ञानकाल कोंग पूर्वांगी तंत्र, भारत विज्ञानकालम, पूर्वांगी पूर्वांगी, पत्रिका, 2002।
8. प्राकीलक,पुष्प पूर्वांगी मिश्र (ढै.) ‘निमांदक उपमा विज्ञानिक’, भारत विज्ञानकालम, पत्रिका, 2002।
9. बनावट, वृंद मिश्र (ढै.), ‘पूर्वांगी उपमा मूंग दे मथुरा’ ,वाक्य मान, दलितवृत्त, अभियुक्त, 2012।

विषयों के लेख में प्रत्येक कपड़े उड़ते हैं 6+6=12 पीटीस्क्रो।

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URDU (ELECTIVE)
SEMESTER-V

Theory 90 Marks
Internal Assessment 10 Marks
Time: 3 Hours

Paper-A

Unit-I

Explanation of prose passage from following lessons: 30 Marks
1.  • Ek khuda parast shahzadi (Meer Amman)
   • Shahzade ke pahle safar ka aaghaaz (Rajab Ali Baig Suroor)
   • Guzra hua zamana (Sir Syed Ahmed Khan)
   • Qatil ki maa (Prem Chand)

Unit-II

2. (i) Explanation of Verses from following ghazals 30 Marks
   • Jo is shor se Meer rota rahega (Meer Taqi Meer)
   • Maqdur nahin uski tajalli ke bayan ka (Sauda)
   • Tohmaten chand apne zimme dhar chale (Khawaja Mir Dard)
   • Dil-e-nadan tujhe hua kya hai (Mirza Asdullah Khan Ghalib)
   • Tamannaon mein uljhaya gaya hun (Shad Azimabadi)
   • Duniya meri bala jane, mahngi ya sasti hai (Fani Badayuni)
   • Na jane ashk se aankhon mein kyon hain aaye hue (Firaq Gorakhpuri)
   • Mauje gul, mauje saba, mauje sehar lagti hai (Jam Nisar Akhtar)

(ii) Explanation of verses from following nazams
   • Daastan shehzade ke ghayab hone ki (Meer Hassan)
   • Aadmi Nama (Nazeer Akbar Abadi)
   • Badli Ka Chand (Josh Malihabadi)
   • Raat aur rail (Asrar-ul Haq Majaz)
   • Kutte (Faiz Ahmed Faiz)

Unit-III

3. Summary of a lesson or a poem from Unit I and II 15 Marks

Unit-IV

4. Question on the basis of the following forms of prose and poetry 15 Marks

Books Prescribed:
Shaoore Adab: Intikhab Nasar-o-nazam, Maktaba Jamia, New Delhi

...............
URDU (ELECTIVE)
SEMESTER-VI

Theory: 90 Marks
Internal Assessment: 10 Marks
Time: 3 Hours

Paper-B

Short story and literary history of Urdu literature

Unit-I

1. Urdu adab ki ibtida aur irtiqa
2. Fort William College Ki adabi khidmaat

Unit-II

Contribution of Urdu Poetry with special reference to:
- Asadullah Khan Ghalib
- Brij Narayan Chakbast
- Allama Iqbal
- Faiz Ahmad Faiz

Unit-III

Contribution of Urdu prose with special reference to:
- Sir Syed Ahmed Khan
- Altaf Husain Hali
- Quratulain Haider
- Ismat Chughtai

Unit-IV

Urdu Afsane Inshaiye
- Bhola
- Hajj e Akbar
- Manzoor
- Election

Book Prescribed:
Tarikh-e-Adab Urdu by, Dr. Ram Babu Saxena
Afsane Inshaiye aur drame, compiled by Mohammad Qasim Siddiqui,
Education Book House Aligarh

Books Recommended:
Tarikh-e-Adab Urdu, by Dr. Aijaz Hussain

-----------------
There will be two Paper Setters/Examiner.

PAPER-A : PROSE

<table>
<thead>
<tr>
<th>Mark</th>
<th>Question</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Translation of text pieces into English,Hindi, Urdu, Panjabi or Persian.</td>
<td>20</td>
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<tr>
<td>2</td>
<td>Explanation of text pieces into English,Hindi, Urdu, Panjabi or Persian</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Summary or central idea of the text prescribed as in Dastanha-ye- Kuath</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Simple direct questions on the life works of the authors</td>
<td>20</td>
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<tr>
<td>5</td>
<td>Short notes.</td>
<td>10</td>
</tr>
</tbody>
</table>

Total:- 90 marks

Books prescribed:

Nisabe Jadide Farsi (Published By Jayyad Ballimaran, Delhi) Only following portion from Prose Section.

(i) Intekhab Sarzamin-e-Hindi-Ali Asghar Hikmat,P.33-60
(ii) Dastanha-ye-Kutah:-
    (a) Azzan-e- Maghrib by Saeed Nafisi.
    (b) Khukushi By Mohd. Hijazi.
PERSIAN (ELECTIVE)
SEMESTER-VI

Paper-B POETRY
Marks 90
Time 3 Hours
Internal Assessment 10

1. Translation of text pieces into English, Hindi, Urdu, Panjabi Or Persian. 20 Marks
2. Explanation of text pieces into English, Hindi, Urdu, Panjabi or Persian 20 Marks
3. Central idea of the poem 20 Marks
4. Simple direct questions on the life works of the Poets 20 Marks
5. Short notes. 10 Marks

Total: 90 Marks

Books Prescribed:

Nisabe Jadide Farsi(Published by Jayyad Ballimaran, Delhi). Only following portions form poetry section:-

Az Gzalliyat-e-Hafiz:
Agar Aan Turke Shirazi Be Dast Aarad Dile Maara.
Saaqi Benur Badah Bar Afrooz Jam-e-Maa.
Doosh Deedam Keh Malayek Dare Maiykhaneh Zadand.

Gazalliyat-e-Khdsrow:
Jan Ze Tan Burdi-o-Dar Jaani Hunooz.
Madeh Pandam Ke Man Dar Seeneh Saudayee Digar Daram.

Masanaviy-e-Maulana Rum:
Deed Musa Yek Shabani Rah Be Rah.
Wahi Aamad Suy-e-Musa Az Khusa

Wassayad-e-Urfi
Dar Waf-e-Kashmir

.....................
INTRODUCTION TO FRENCH DRAMA, POETRY AND PROSE

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

I Literary Master Pieces, Drama, *Ma Vie n’est plus un roman*, Michel Déon 25 Marks

Questions on character sketches and Critical appreciation of the drama to be asked and answered in French.

II Selected Reading-Poetry 25 Marks

Questions, explanations of stanzas of poems and central ideas, critical appreciation and summaries of the poems to be asked and answered in French.


(a) General questions to be based on the prescribed text.(4 questions of 5 marks each) 20 Marks

(b) Questions on French civilization in the form of fill in the blanks, multiple choice and short answers of 1-2 sentences. 20 Marks

I Courses of Reading :

**Drama :** *Ma Vie n’est plus un roman*, Michel Déon de L’Académie française, Editions Gallimard, 1987

II Poetry :

1. Pierre de Ronsard
   *Quand vous serez bien vieille*
   [https://www.poetica.fr/poeme-90/pierre-ronsard](https://www.poetica.fr/poeme-90/pierre-ronsard)

2. Jean de la Fontaine
   *Recueil : Livre I, Fable n° 1*
   *La Cigale et la Fourmi*
   [www.lesfables.fr](http://www.lesfables.fr)
3. **Arthur RIMBAUD**  
   Recueil : Poésies  
   *Le dormeur du val*  
   [http://poesie.webnet.fr/lesgrandsclassiques/poemes](http://poesie.webnet.fr/lesgrandsclassiques/poemes)

4. **Raymond RADIGUET**  
   Recueil : *Poèmes divers*  
   *Sur la mort d'une rose*  
   [http://poesie.webnet.fr/lesgrandsclassiques/poemes](http://poesie.webnet.fr/lesgrandsclassiques/poemes)

5. **Guillaume APOLLINAIRE**  
   Recueil : *Alcools*  
   *La blanche neige*  
   [https://www.poetica.fr/poeme-782/guillaume-apollinaire](https://www.poetica.fr/poeme-782/guillaume-apollinaire)

**Text Books for Reference :**

1. French Poetry for students by A.W. Bains.

   **CHOICE TO BE GIVEN IN ALL QUESTIONS**

**Note for Private Candidates:** -The theory paper would be marked proportionately out of 100 as there is no internal assessment.

…………………. 
FRENCH (ELECTIVE)

SEMESTER-6th

FRENCH POETRY, APPLIED GRAMMAR, CREATIVE WRITING AND VIVA-VOCE

Max. Marks : 100
Theory : 60 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

1. Summary, explanation and analysis of prescribed poems 20 Marks
2. A composition on a topic within the textbook of about 200-300 words 15 Marks

4. Viva-Voce:
1. Dictation of an unseen passage of about 100 words. 10 Marks
2. Conversation (general) 10 Marks
3. Reading (Unseen passage) 10 Marks

Courses of Reading:

Poetry: The following five poems are to be studied:

1. Alfred De MUSSET
   Recueil : Premières poésies
   Sonnet : Que j’aime le premier frisson d’hiver
   http://poesie.webnet.fr/lesgrandsclassiques/poemes

2. Victor HUGO
   Recueil : Les quatre vents de l’esprit
   Cent mille hommes, criblés d’obus et de mitraille
   http://poesie.webnet.fr/lesgrandsclassiques/poemes

3. Alphonse de LAMARTINE
   Recueil : Méditations poétiques
   L’Automne
   http://poesie.webnet.fr/lesgrandsclassiques/poemes

4. Théophile GAUTIER
   Premier sourire du printemps
   http://poesie.webnet.fr/lesgrandsclassiques/poemes/theophile_gautier
5. Jean–Baptiste CLEMENT  
*Le temps des cerises*

http://poesie.webnet.fr/lesgrandsclassiques/poemes

Comprehension, explanation, literary appreciation and criticism of the poems to be studied.

Note:  
1. The latest syllabus should be strictly followed.  
2. Choice should be given in questions.

**Text Books for Reference:**


**Courses of Reading:**

Version Originale-3 (Units 8-9) Version Originale-4 (Unit 1-4)  

N.B.:  
1. The latest syllabus to be followed strictly and the question paper should be of B.A.III level.  
2. Choice in questions must be given.  
3. Eight periods of one hour weekly – Six hours for text and two hours for composition.  
4. The composition and the unseen passages should be based on the vocabulary and grammar covered till B.A. III.  
5. The paper will be set and answered in French (except Translation).

**Note for Private Candidates:** - The theory paper would be marked proportionately out of 70 as there is no internal assessment.
GERMAN (Elective)
Semester - V

Summary

Max. Marks : 100 marks (Total)
Paper – A (Theory) : 90 marks
Internal Assessment: 10 marks

Paper A - Theory : 90 marks

Time: 3 hours

Note: Use of dictionary is allowed

i. Explanation and interpretation of any two poems or three stanzas from the prescribed book "German Verse" (Kulkarni & Chapekar):
   i. Hyperions Schicksalslied (Hölderlin)
   ii. Der Karussel (Rilke)
   iii. Des Schiffers Traum (Arndt)
   iv. Der Zauberlehrling (Goethe)
   v. Ganymed (Goethe)
   vi. Einkehr (Uhland)

ii. Characterization / Literary questions (2) on the prescribed drama "Andorra" (Max Frisch):

iii. Translation of unseen text/s from German into English:

5.2 Internal Assessment

- Continuous Evaluation
- Attendance

10 marks (Total)

Note:
1. The mode of evaluation for internal assessment is to be followed as per University guidelines.
2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in Paper B)

Prescribed Textbook:

i. "German Verse" (Kulkarni & Chapekar)
ii. "Andorra" (Max Frisch)
GERMAN (Elective)

Semester - VI

Summary

Max. Marks: 100 marks (Total)
End-semester Exam Paper-B (Theory) : 60 marks
Oral (viva-voce) examination : 30 marks
Internal Assessment : 10 marks

Paper B - Theory : 60 marks (Total)

Time : 3 hours
Note: Use of dictionary is allowed
i. Translation of unseen text/s from German into English : 20 marks
ii. Translation of unseen text/s from English into German : 10 marks
iii. Characterization / Literary questions (2 out of 3) on the prescribed novel "Der Verdacht" (Dürrenmatt) : 30 marks

Oral (viva-voce) Examination : 30 marks (Total)

i. Conversation in German
ii. Reading of a simple unseen text and answering questions there-on.

Internal Assessment : 10 marks (Total)

- Continuous Evaluation
- Attendance

Note:
1. The mode of evaluation for internal assessment is to be followed as per University guidelines.
2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in Paper B)

Prescribed Textbooks:

i. “Deutsche Texte zum Übersetzen”, Max Hueber Verlag.
ii. "Der Verdacht" (Dürrenmatt)

.....................
Russian (Elective)
SEMESTER -V

Paper –Option (i) (General Translation & Grammar): Written

Maximum Time : 3 hrs.                                           Maximum Marks: 100
Theory : 90 Marks                                                Internal Assessment : 10 Marks
(For regular students)

1. Translation from simple Russian into English/Hindi/Punjabi. (about 120 words) 35 Marks
2. Translation from simple English/Hindi/Punjabi into Russian (about 100 words) 35 Marks
3. Applied grammar: 4 questions out of 6 (5 marks each) Cases(Nouns, Pronouns, Cases (Nouns, Pronouns, Adjectives, numerals (Singular and plural), Verb aspects, Direct and indirect narration, Verbal-adverbs, Participles, Gerund, Verbs of Motion (with and without prefixes).

Note: Use of dictionaries is allowed.

OR

Paper: Option(ii) (Scientific & technical Translation & Grammar): written

Maximum Time : 3 hrs.                                           Maximum Marks: 100
Theory : 90 Marks                                                Internal Assessment : 10 Marks
(For regular Assessment students)

1. Translation from simple Russian (Scientific & technical material) into English/Hindi/Punjabi. (about 120 words) 35 Marks
2. Translation from simple English/Hindi/Punjabi into Russian (about 100 words) 35 Marks
3. Applied grammar: 4 questions out of 6 (5 marks each) Cases (Nouns, Pronouns, Adjectives, numerals (Singular and plural), Verb aspects, Direct and indirect narration, Verbal-adverbs, Participles, Gerund, Verbs of Motion (with and without prefixes).

Note: Use of dictionaries is allowed.

Extra material to be provided by the department.
RUSSIAN (ELECTIVE)
SEMESTER -VI

Paper : Written (Literature)
Maximum Time : 3 hrs.

Maximum Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
(For regular students)

1. Biographies of Russian writers from prescribed text books 20 marks
   Biographies 2 out of 4 (10 marks each)
   A.S.Pushkin
   N.V.Gogol
   A.P.Chekhov
   M.Gorky
   Leo Tolstoy
   Chigiz Aitmatov
   Konstantin Paustovsky

2. Literary works 20 marks
   (2 Question out of 4 (10 marks each) on the following works:)
   Tolstii I Tonki: A.P. Chekhov
   ‘Belaya Raduga’ Konstantin Paustovsky (page 76) Dorogi
   ‘Goluboi Zeleony’ Yuri Kazakov: (page 20-29) do
   Posle Bala Leo Tolstoy

3. 10 marks
   a/ Reference to the context (Poetry):
      a) Nyane A.S.Pushkin
      b) V Sibri A.S.Pushkin
      c) Parus M.V.Lermontov

      Poetry paragraph from the text studied (1 out of 2)

   b/ Reference to the context (Prose):
      Tolstii I Tonki: A.P. Chekhov
      ‘Belaya Raduga’ Konstantin Paustovsky (page 76) Dorogi
      ‘Goluboi Zeleony’ Yuri Kazakov: (page 20-29) do
      Posle Bala Leo Tolstoy

      Prose paragraph from the text studied (1 out of 2)
iii) Oral/Practical

Practical (Dissertation: Independent translation of about 2500 words from Russian literary, socio-political, popular science texts into English/Hindi/Punjabi)

OR

Verbal Narration in Russian on any two of the following topics:
1. Biography of any Indian/Russian personality
2. Native state
3. My favorite Russian Literary work.
4. Russia
5. India
6. Sport
7. India-Russia commercial/Trade Relation.

General Conversation

Books Recommended for additional reading

N.S. Burlakov & C.N. Chakravarti: A Cherstomathy of Russian Literature. 1970
Dictionaries: English-Russian dictionary.
Russian-English dictionary
B.I. Balin and R.M. Bakaya: An Introductory Russian course for students of Science and technology, Asia publishing house, Delhi (For Scientific & technical Translation group)

Note: Extra materials to be provided by the department.
FOLLOWING SUBJECTS ARE KEPT IN ABYEYANCE:-

1. ARABIC (ELECTIVE)
2. BENGALI (ELECTIVE)
3. TAMIL (ELECTIVE)
4. KANNADA (ELECTIVE)
5. MALAYALAM (ELECTIVE)
6. TELUGU (ELECTIVE)

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PHYSICAL EDUCATION

B.A. /B.Sc. (GENERAL) FIFTH SEMESTER EXAMINATION (2018-19)

Max. Marks : 65
Theory : 60 marks
Internal Assessment : 05 marks

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS:

(i) There shall be nine questions in all, spread over five units.

(ii) 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.

(iii) 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.

(iv) All questions/units will carry equal marks.

(v) 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 Unit-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

Play:

– Meaning and Definition of Play.
– Various theories of play and their significance in Physical Education and Sports.

Recreation:

– Meaning, definition, characteristics, aim, objectives and types of recreation and recreational activities.
– Significance of recreation in the modern society.
– Recreation providing agencies.

UNIT-III 12 Marks

Competitions:

– Meaning, importance and conduct of intramural and extramural competitions.
– Meaning and types of tournament and their merits and demerits.
– Draw of fixtures of various tournaments.
Camps:
- Meaning, aim and objectives of the camp.
- Advantages of camping/outdoor education.
- Types and agencies promoting camping.
- Organization of camps and factors affecting its organization.
- Educative values of a camp.

Athletic Meet:
- Organization of an athletic meet.
- Importance/significance of an athletic meet.

UNIT-IV 12 Marks

Posture:
- Meaning, types and importance of a good posture.
- Causes, preventive and remedial measures of a poor posture.

Postural Deformities:
- Postural deformities (Kyphosis, lordosis, scoliosis and flat foot), their causes, preventive and remedial measures.

Physical Activities and their effects on various physical parameters and vice versa:
- Physical activities/training and their effects on aging, body composition, and obesity.
- General problems of obesity.
- Health related risk factors of obesity.
- Obesity and physical activity.
- Causes, preventive and remedial measures of obesity.

UNIT-V 12 Marks

Massage:
- Brief history of massage.
- Meaning and definition of massage.
- Principles/guidelines for massage.
- Types of massage and their benefits.
- Effects of massage on skin, blood circulation, nervous system and muscles.

Basics of Cricket:
- History of the game
- Basic fundamentals
- Equipment and specifications
- Marking / layout of field
- Rules and regulations (number of players, duration of game, number of officials required and general rules of play)
- Major tournaments and Arjuna awardees of the game.
References:

PRACTICAL

Max. Marks : 35 Marks
Practical : 30 Marks
Internal assessment : 5 Marks

ATHLETICS

(a) History of athletics
(b) List of track and field events
(c) Marking of standard track, width of lanes and starting points for various races.

6. THROWS:
Throws (Shot-put or Discuss Throw or Javelin Throw) and one event of the choice of the student.

(a) Shot-put (The holding the stance, the glide, the delivery and the reverse or the recovery).

OR

Discuss Throw (The handhold, the initial stance, the preliminary swings, turn the delivery and the reverse or the recovery).

OR

Javelin Throw (The grip, the carry, the run way approach, the last five strides, the delivery, the reverse or the recovery).

(b) Measurements of equipment and the throwing circles or the approach run, the arc and the throwing area/the sectors.

2. PHYSICAL FITNESS TESTS: More emphasis shall be given on variety of physical exercises for the development of Flexibility and strength components of physical fitness.

Test 1- Flexibility: Sit and reach test

Test 2- Strength: Medicine Ball Throw.

Division of Practical Marks: Marks for each activity shall be divided as under:

Athletics and Physical fitness 15 marks, Participation and achievement in sports/games 5 marks, viva voce/ practical file 10 marks and internal assessment 5 marks based on overall performance of a student during the current semester 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 practical) 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 and practical papers shall consist of 65 and 35 marks each.

5. As per the Panjab University Calendar, Chapter XIX (Page 324) Volume III, 1990, the maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass Course is 24 periods per week, which includes theory as well as practical.

6. The choice of games by the students shall be confined to games approved by the Association of Indian Universities.

7. A student is required to prepare a practical notebook on athletics with complete marking of standard track and starting points for various races and an event (long jump) mentioned 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.

   (iv) The date of Physical Fitness Test must be mentioned in the prospectus of the College.

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 groundmen, 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 Supporting personnel:**
   
   For the introduction/to continue with this subject, a college must fulfil the following mandatory requirements:

   (i) A track atleast of 200 mtrs., it should, however, preferable be raised to 400 mtrs. 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 to sixth semester.

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 an Assistant Professor in Physical Education for B.A. Pass course is 24 periods per week which includes theory as well as practical.

(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 teachers 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) THAT VIOLATES THE ABOVE INSTRUCTIONS.
PHYSICAL EDUCATION

B.A. / B.Sc. (GENERAL) SIXTH SEMESTER EXAMINATION (2018-19)

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

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 Unit-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

Nervous System:

– Meaning of Nervous System.
– Main organs of Nervous System and their functions.
– Reflex action and Reciprocal Innervations.
– Functional classification of Nervous System.

Excretory System:

– Meaning of Excretory System.
– Main organs of Excretory System and their structure and functions.

Endocrine System:

– Meaning of Endocrine System.
– Meaning of Glands, their location and functions/Harmones produced by them.
UNIT-III
12 Marks

Sports Training,

– Meaning, definition, aim, objective, characteristics and principles of sports training.

General Physiological concept:

– Physiological concepts such as vital capacity, second wind, stitch in the side and its causes.
– Definition of oxygen debt/excess post exercise oxygen consumption (EPOC) and its implication.
– Meaning definition and types of fatigue.
– Muscular contractions such as isotonic, isometric, eccentric and isokinetic.
– Meaning of Blood pressure, Hypertension: Its causes, effects and treatment, exercise and Hypertension.

Effects of Physical Exercise / Training on body systems:

– Effects of Physical exercise/Training on muscular, respiratory and circulatory systems of the body.

UNIT-IV
12 Marks

Carrier aspects in Physical Education:

– Carrier options in Physical Education.
– Different avenues in Physical Education.
– Self assessment for carrier choices.
– Courses and institutions available for Physical Education profession.

UNIT-V
12 Marks

Coach:

– Coaching, coaching philosophy, definition of a coach.
– Qualification and characteristics of a coach.
– Responsibilities of a coach.

Basics of Table Tennis:

– History of the game
– Basic fundamentals
– Equipment and specifications
– Marking / layout of T.T Table
– Rules and regulations (number of players, duration of game, number of officials required and general rules of play)
– Major tournaments and Arjuna awardees of the game
References:


PRACTICAL

Max Marks : 35
Practical : 30
Internal assessment : 5

GAMES
(Badminton or Hockey and any other one game of the choice of the student).

Badminton:
(a) Measurement (Badminton Court, Net, Racket and Shuttle cock) for singles and doubles.
(b) Number of players and officials.
(c) Holding the racket and shuttle cock.
(d) Types of Service: High and Low.
(e) Types of Strokes: fore hand, back hand, over head.
(f) Shots: Smash, Lob shot, net shot, dive shot.
(g) Rules and regulations of the game.

Hockey:
(a) Measurements (Hockey ground, goalpost, hockey stick, ball and flags) for men and women.
(b) Number and position of players and officials.
(c) Fundamental skills (grip, hitting, stopping dribbling, push, scoop and flick).
(d) Rules and regulations of the game.

Division of Practical Marks: Marks for each activity shall be divided as under:
Game 10 marks, participation and achievement in sports/games 5 marks, Physical fitness 5 marks, viva voce/practical file 10 marks and internal assessment 5 marks based on overall performance of a student during the current semester which will be assessed by the teacher concerned.

Note:
1. 12 periods per week (6 periods each for theory and practical) shall be allotted to a class.
2. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.
3. The theory and practical papers shall consist of 65 and 35 marks each.
4. As per the Panjab University Calendar, Chapter XIX (Page 324) Volume III, 1990, the maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass Course is 24 periods per week, which includes theory as well as practical.
5. The choice of games by the students shall be confined to games approved by the Association of Indian Universities.
6. A student is required to prepare a practical notebook of a game given in the syllabus and any one game of choice.
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.

   (iv) The date of Physical Fitness Test must be mentioned in the prospectus of the College.

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 groundmen, 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 Supporting 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 mtrs., it should however, preferable be raised to 400 mtrs. 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/ Assistant Professors 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 to sixth semester.

   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 an Assistant Professor in Physical Education for B.A. Pass course is 24 periods per week which includes theory as well as practical.

   (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 teacher 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) THAT VIOLATES THE ABOVE INSTRUCTIONS.
EDUCATION
B.A. / B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2018-19
SEMESTER – V

Paper- : INDIAN EDUCATION

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 unit 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. The students are required to attempt 6 short answer type 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 for answer (300-350 words for units I, II, III, IV and 75 words for each short answer question in unit V).

GENERAL INSTRUCTIONS FOR THE CANDIDATE:

The students will be required to attempt one question each from Unit I, II, III and IV. Unit V will be compulsory. The students are required to attempt 6 short answer type questions out of 8 in Unit V. The words limit will be 300-350 words for unit I, II, III and IV and 75 words for each short answer question in unit V.

Objectives:

1. To enable the students to know about History of Indian Education.
2. To enable the students to understand the problems of pre-primary Education.
3. To make the students familiar with the concept of Universalization of Elementary Education and its problems.
4. To make the students familiar with the constitutional provisions of Education and role of different agencies in Education.

Course Contents :

UNIT-I : Education in the ancient and medieval period of Indian History.

UNIT-II : Current status and problems of pre-primary education. Public schools and their future.
UNIT-III : Importance of Elementary Education. Universalization of Elementary Education. Problems of Elementary Education and Role of the State in Elementary Education. Sarav Sikhiya Abhiyan – Concept, Objectives & Implementation.


Books Recommended:


7. Govt. of India : *Seventh Five Year Plan*, New Delhi.


EDUCATION
B.A. / B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2018-19
SEMESTER –VI

PAPER : MODERN INDIAN EDUCATION

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 Unit 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. The students are required to attempt 6 short answer type 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 for answer (300-350 words for units I, II, III, IV and 75 words for each short answer question in unit V).

INSTRUCTIONS FOR THE CANDIDATE :

The students will be required to attempt one question each from Unit I, II, III and IV. Unit V will be compulsory. Students are required to attempt 6 short answer type questions out of 8 in unit V. The words limit will be 300-350 words for unit I, II, III and IV and 75 words for each short answer question in unit V.

Objectives :

1. To make the students familiar with the structure of Secondary Education in India.
2. To enable the students to know about different policies of education.
3. To make the students familiar with the problems of education for 21st century.
4. To enable the students to know about the need and importance of vocationalisation of education.
5. To enable the students to know about Adult, Continuing and Environmental Education.

Course Contents :


RMSA(Rashtriya Madhmik Shiksha Abhiyan) – Concept Objectives and Implementation.

Education in the Twelveth Five Year Plan.

Problems and Prospects of Education for the 21st century.


Aims, Objectives and Problems of Secondary Education.

Role of different Agencies – NCERT, NCTE AND DIET.

UNIT-IV: Adult, Continuing and Distance Education.

Environmental Education, ICT in Education.

Books Recommended:


9. Govt. of India : Seventh Five Year Plan, New Delhi.


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ADULT EDUCATION

B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019

Max. Marks : 100
Theory : 40 marks
Internal Assessment : 10 marks
Time : 3 hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER AND FOR THE CANDIDATE:

The question paper will consist of five Units: I, II, III, IV and V. Units II, III, IV and V will have two questions from the respective units of the syllabus and will carry 8 marks each. The students are requested to attempt one question from each Unit i.e. (II, III, IV and V). Unit I will consist of eight short answer type questions which will cover the entire syllabus and is compulsory and carrying one mark for each question.

OBJECTIVES OF THE COURSE :

The objectives of the paper are :

1. To expose students to the concept, importance and scope of continuing education.
2. To acquaint students with the basis of life skills education, its concept, meaning and its various forms.
3. To expose students with life long learning and its future perspectives.
4. To equip students with role of universities in adult and continuing education programs.
5. To explain students extension as third dimension.

ADULT EDUCATION
SEMESTER-V

THEORY :

UNIT-I

Adult and Continuing Education:
(a) Adult Literacy in reference to National Literacy Mission 1985, its objectives.
(b) Continuing Education : Concept, Importance, Scope and Objectives
UNIT-II

Saakhshar Bharat Mission 2009.
(a) Saakhshar Bharat Mission 2009, its targets and specific objectives.
(b) Flexi Approach to Saakhshar Bharat Mission 2009 and Continuing Education.

UNIT-III

Life Long Learning
(a) Life Long Learning - Concept, Needs, Scope, Strategies.
(b) Its Implications and Future Perspectives.

UNIT-IV

Extension Education
(a) Extension Education – The Third Dimension.
(b) Its Major Thrust Areas, Programs and Activities.

PRACTICAL/FIELD WORK

1. Organisation of Two Awareness Generating Programs and Report Writing.

The break up of 50 marks allotted to practical is as under:

<table>
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<tr>
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<td>External</td>
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<tr>
<td>i) Viva- Voice</td>
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<tr>
<td>ii) Written Questions Based on the Project</td>
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<tr>
<td>iii) Project Report</td>
<td>10 marks</td>
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</table>
ADULT EDUCATION
SEMESTER-VI

UNIT-I

Adult and Continuing Education:
(a) Different types of Programmes in Continuing Education
(b) Role of Universities in Adult & Continuing Education.

UNIT-II

Life Skills
(a) Life skill Education – its meaning and Concept.
(b) NCERT CORE LIFE SKILLS
   Problem-Solving, Decision-Making, Empathy, Creative-Thinking, Critical-Thinking, Stress
   Management, Time Management, Emotional Security, Communication Skills, Recreation Skills

UNIT-III

(a) National Policy on Skill and Entrepreneurial Development 2015, its objectives and targets.
(b) Its Policy Framework, Governance and Financing.

UNIT-IV

Extension Education
(a) Swachh Bharat Mission-Objectives, Targets.
(b) Women Empowerment Challenges and Issues, Its Need and Importance.

PRACTICAL/FIELD WORK


The break up of 50 marks allotted to practical is as under:

<table>
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<tr>
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<th>External</th>
<th>Internal</th>
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<tbody>
<tr>
<td>i) Viva-Voice</td>
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<tr>
<td>ii) Written Questions</td>
<td>20 marks</td>
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</tr>
<tr>
<td>iii) Project Report</td>
<td>10 marks</td>
<td>5</td>
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Books Recommended

1. Singh, Madan: Companion to Adult Educators
   National Literacy Mission
   Director of Adult Education
   Ministry of Human Resource
   Development,
   Dept. of Adult Education, New
   Delhi, 1999
2. Suriakanthi, A. : Perspectives of Continuing
   Education, Dept. of Adult,
   Continuing Education &
   Extension,
   Gandhi Gram Rural University,
   Gandhi Gram, 2007
3. Parthasarathy, K. : Facets of Adult and Continuing
   Education, School of Education,
   Centre for Adult, Continuing
   Education & Extension,
   Bharathidasan University
   Trichirappatti, 2006
   Development, School of Education,
   Centre for Adult, Continuing
   Education and Extension,
   Bharathidasan University,
   Trichirappatti, 2007
5. Alan Rogers : Teaching Adults, Sterling Publishers
   Pvt. Ltd., New Delhi, 1989
6. Mohanty J. : Adult & Non formal Education,
   Deep Publications, New Delhi, 1993
7. U.G.C. Guidelines. (X and XI Plan) : University Grants Commission,
   for Adult, Continuing Education and Extension New Delhi
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. There should not be more than eight students in a batch for practical examination.
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. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
7. 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 ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 02 marks each.
8. There would be upto ten students in one section in practical class

Paper-A: THEORY (3 Hours duration)  : 45 marks
(Duration 45 minutes 06 practical+ 02 Theory periods per week)

Paper-B: Practical (20 minutes duration)  : 45 marks

(i) Viva  : 35 marks
(ii) Harmonium  : 05 marks
(iii) Tabla  : 05 marks

Internal Assessment (Theory + Practical) (05 +05)  : 10 marks

Total : 100 marks

Paper-A : THEORY (Duration 45 minutes 02 Theory per week)

UNIT-I

1. Explain the following Gayan Shaillies:- Tappa, Dharupad, Tarana.
2. Special features of time Theory of Indian Ragas
3. Raganga Paddhti

UNIT-II

Detailed study of the following:-
1. Manch- Pradarshan
2. Professions in Music
3. Lok Sangeet of Punjab
UNIT-III

Contribution in detail and life sketches in brief of the following: -
1. Pt. Kumar Gandharv
2. Smt. Gangu Bai Hangal
3. Ustad Bade Gulam Ali Khan Sahib

UNIT-IV

Description and Notation of the prescribed Raga:-
1. To write notation of Vilambit / Drut khyal in the prescribed Ragas with Alaps and Taans - Vrindavani Sarang, Asavari
2. To write notations of Talas in Ekgun & Dugun of - Jhumra, Sultala
3. To write the description of Ragas - Non-detailed Ragas: Des, Jaunpuri

NOTE: Both the questions from this part must contain one notation of Raga along with the notation of Talas/ description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Drut Khayal with Alaps & Tanas in each of the following Ragas - Vrindavani Sarang & Asavari
2. One Vilambit Khayals in any two of the prescribed Ragas in the course with extempore –alaps and taanas.
3. Ability to sing one Dharupad in proper style.
4. Ability to sing notations (in swaras) of Drut Khayals in each of the prescribed Ragas.
5. Ability to play Jhaptal on Tabla.
6. Ability to recite the following Talas in Thah, Dugun by hand - Jhumra, Sultala
7. Ability to sing any two Drut Khayals of your course on Harmonium.
8. Knowledge of non-detailed Ragas:
   Ability to sing their Arohas, Avrohas and Pakad with the help of Tanpura - Des, Jaunpuri.
9. Tuning of Tanpura.

Books Recommended:

3. Folk Instruments of Punjab : Prof. Anil Narula.
8. Sangeet Kala Ka Itihas : Panna Lal Madan
MUSIC (Vocal)
SEMESTER-VI

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. There should not be more than eight students in a batch for practical examination.

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. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.

7. 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 ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

8. There would be upto ten students in one section in practical class

Paper-A: THEORY (3 Hours duration)
(Duration 45 minutes 06 practical+ 02 Theory periods per week)

Paper-B: Practical (20 minutes duration)

(iv) Viva  :  35 marks
(v) Harmonium  :  05 marks
(vi) Tabla  :  05 marks

Internal Assessment (Theory + Practical) (05 +05)  :  10 marks

Total  :  100 marks

Paper-A: THEORY (Duration 45 minutes 02 Theory per week)

UNIT –I

1. General History of Indian Music i.e. from Bharat to Sharangdev
2. Explain the following Gayan Shaillies: - Dhamar, Bhajan, Shabad, Thumri
3. Varieties of Tana

UNIT –II

Contribution in detail and life sketches in brief of the following great masters:-

1. Ustad Vilayat Hussain Khan
2. Pt. Dalip Chandra Bedi
3. Pt. V. N. Patvardhan
UNIT-III

Detailed study of the following:-
1. Role of Akashwani and Doordarshan towards the popularisation of Indian Classical Music
2. Role of Electronic mediums (Basic Instruments) i.e Electronic, Tabla, Tanpura
3. Sansthagat Sangeet Shikshan Pranali

UNIT-IV

Description and Notations of the prescribed Ragas and Talas :-
1. To write in notation of Vilambit gat / drut khyal in the prescribed Ragas with Alap & Taans:--
   Madhuwanti & Darbari- kanada.
2. To write in notations of talas:--Deepchandi, Dhamar (Single + Double)
3. To write the description of Ragas:-- Non detailed Ragas: Multani, Adana

NOTE: - Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/ description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 02 marks each.

Paper-B : PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Drut Khayal with Alaps & Tanas in each of the following Ragas: Madhuwanti & Darbari Kanhada
2. One Vilambit Khayals in any two of the prescribed Ragas in the course with extempore –alaps and taanas.
3. Ability to sing one Dhamar in proper style.
4. One Tarana in any of the detailed Ragas prescribed in the course.
5. Ability to sing notations (in swaras) of Drut Khayals in each of the prescribed Ragas.
6. Ability to play Chartala on Tabla.
7. Ability to recite the following Talas in Thah, Dugun by hand: Deepchandi & Dhamar
8. Ability to sing any two Drut Khayals of your course on Harmonium.
9. Knowledge of non-detailed Ragas :
   Ability to sing their Arohas, Avrohas and Pakad with the help of Tanpura : Multani & Adana
10. Tuning of Tanpura.

Books Recommended:

8. *Sangeet Kala Ka Itihas* : Panna Lal Madan
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. There would be up to ten students in one section in practical class.
3. **There should not be more than eight students in a batch for practical examination.**
4. Harmonium can be used while singing Alankars.
5. 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 ninth question of unit V is compulsory & it consists of *13 short answer questions* (covering entire syllabus i.e. theory and practical) out of which students have to attempt *09 questions of 01 marks each*.
6. 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, Santoor.
7. **While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.**
8. The candidate can take vocal music or Tabla along with instrumental music.

**Paper-A: THEORY** (Instrumental) (3 hrs. duration) : 45 marks

(Duration 45 minutes 06 practical + 02 Theory periods per week)

**Paper-B : PRACTICAL** (20 minutes duration) : 45 marks

(i) Viva : 35 marks

(ii) Gayan : 05 marks

(iii) Tabla : 05 marks

Internal Assessment (Theory + Practical) : 05+05 = 10 marks

**Total: 100 marks**

**Paper-A: THEORY** (Duration 45 minutes 02 theory periods per week)

**UNIT-I**

1. Explain & define the different Vadan Shaillies (Styles) of your own instrument.
2. Historical development of Indian Musical Scale.
3. Varieties of Tana / Tora

**UNIT-II**

1. Importance of Laya and Tala in Music
2. Folk Instruments of Punjab.
UNIT-III

Brief life sketches and their contributions:-
1. Ustad Bismillah Khan
2. Ustad Hafiz Ali Khan
3. Pt. Nikhil Banerji

UNIT-IV

Notations and Description of ragas and Talas:- Multani, Jai Jaiwanti

1. To write one Maseetkhani Gat with Todas
2. To write Razakhani Gat with Todas of ragas Multani, Jaijaiwanti
3. To write single and double of Tala :- Deepchandi, Tilwada
4. Non-detailed raga:- Madhuwanti, Chhayanat

NOTE: -Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/Description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Razakhani Drut Gat with Alaps and Toras & Jhalas in each of the following Ragas : Multani, Jaijaiwanti
2. One Maseet Khani (Vilambit) Gats with Alap-Jod and Toras in any of the prescribed ragas.
3. Knowledge of the following non-detailed ragas:-Madhuwanti, Chhayanat
4. Ability to demonstrate by hands in Ekgun and Dugun layakaries of the following talas : Deepchandi, Tilwada.
5. Ability to play Dhamar on Tabla.
6. One Dhn.
7. Ability to play techniques of your Instruments: Meend, Kan, Krintan,Ghaseet.
8. Ability to sing shudh, komal and tivra swaras with the help of harmonium.

Books Recommended:

1. Sangeet Kala Ka Itihas : Dr. Panna Lal Madan
2. Sangeet Shastra Vigyan : Dr. Panna Lal Madan
4. Folk Instruments of Punjab : Prof. Anil Narula (Published by Punjabi University, Patiala).
7. Sangeet Granth atey Bharti Sangeet Da Itihas : Chander Kanta, Khosla

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MUSIC (Instrumental)
SEMESTER-VI

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. There would be up to ten students in one section in practical class.
3. There should not be more than eight students in a batch for practical examination.
4. Harmonium can be used while singing Alankars.
5. 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 ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 9 questions of 01 marks each.
6. 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, Santoor.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. The candidate can take vocal music or Tabla along with instrumental music.

Paper-A: THEORY (Instrumental) (3 hrs. duration) : 45 marks
(Duration 45 minutes 06 practical + 02 Theory periods per week)

Paper-B : PRACTICAL (20 minutes duration) : 45 marks

(i) Viva : 35 marks
(ii) Gayan : 05 marks
(iii) Tabla : 05 marks

Internal Assessment (Theory + Practical) : 05+05 = 10 marks

Total: 100 marks

Paper-A: THEORY (Duration 45 minutes 02 theory periods per week)

UNIT-I
1. General History of Indian Music i.e. from Bharata to Sharangdeva
2. Notational System, origin and development
3. Knowledge of Uttari and Dakshani Sangeet Paddhati

UNIT-II
1. The life Sketches and contributions of the following great musicians :-
   (i) Dr. Lal Mani Mishra
   (ii) Dr. Panna Lal Ghosh
   (iii) Smt. Sharan Rani
UNIT-III

Essays:
(i) Chitrpat Sangeet Mein Vadyon Ki Bhoomika.
(ii) Role of the Akashvani and Doordarshan in popularizing Instrumental Music.
(iii) Manch Pradarshan

UNIT-IV

Notation and Description of the prescribed Ragas and Talas:-
1. Ragas: Mian-Ki-Todi, Mian Malhar.
2. Talas: Sultal, Adachartal
3. Non detail Raga: Gujri -Todi, Bahar
   - To write one maseetkhnai Gat with todas in any prescribed rag
   - To write a Razakhani Gat with Todas
   - To write single and double of prescribed Talas
   - To write the description of detailed and non detailed raga

NOTE: - Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/ description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Razakhani Drut Gat with Alaps and Toras & Jhalas in each of the following Ragas: Mian-Ki-Todi, Mian Malhar
2. One Maseet Khani (Vilambit) Gats with Alap-Jod and Toras in any of the prescribed ragas.
3. Knowledge of the following non-detailed ragas: Gujri -Todi, Bahar
4. Ability to demonstrate by hands in Ekgun and Dugun layakaries of the following talas: Adachautal, Sultal.
5. Ability to play Tilwada on Tabla.
6. One Sitarkhani gat with toras in any prescribed ragas.
7. Ability to play techniques of your Instruments: Meend, Kan, Krintan, ghaseet.
8. Ability to sing shudh, komal and tivra swaras with the help of harmonium.

Books Recommended:

1. Sangeet Kala Ka Itihas : Dr. Panna Lal Madan
2. Sangeet Shastra Vigyan : Dr. Panna Lal Madan
4. Folk Instruments of Punjab : Prof. Anil Narula (Published by Punjabi University, Patiala).
7. Sangeet Granth atey Bharti Sangeet Da Itihas : Chander Kanta, Khosla

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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 of Semester-V. The question paper will be divided into five units. First four units contain 02 questions each, out of which the candidates are to attempt one question from each unit, unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.
3. Harmonium/ Sarangi will be allowed to play Nagma/Lehra. No electronic Lehra machine will be allowed for practical examination.
4. Practical Paper shall be set from the syllabus for Paper-B (Practical).

Paper-A: THEORY (3 Hours duration) : 45 marks
Paper-B: PRACTICAL (20 minute’s duration) : 45 marks

(i) Viva : 30 marks
(ii) Harmonium : 05 marks
(iii) Tabla (Tuning) : 05 marks
(iv) Padhant on Hand : 05 marks

Internal Assessment (Theory & Practical) (5+5) : 10 marks

Total : 100 marks

Paper-A Theory

UNIT-I

1. Gun- Dosh of Tabla Vadak.
2. Various development of Tabla in 19th and 20th Century.
3. Comparative study of Pt. V.N. Bhatkhande and Pt. V.D. Pulaskar Taal notation system

UNIT-II

1. Elementary knowledge of the following (not more than 100 words)
   Kriya, Kaal Palta, Laggi, Baant, Peshkaar
2. Use of Taals in accompaniment with Gayan and Vadan shailies
3. Study of Farrukhabad and Punjab Gharana

UNIT-III

1. Life sketches and contribution of the following:-
   a. Pt. Ram Sahai
   b. Pt. Anokhe Lal Mishra
   c. Pt. Bhairav Sahai
   d.
UNIT-IV
1. Teentaal, Jhaptaal, Rupak, Aada-Chartaal, Tilvara, Punjabi taal
2. To write description of Taal of your syllabus
3. To write the notation of Taal in Single, Double, Tigun, Chaugun, Aad and Kuaad

UNIT-V
1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL
1. Playing of Talas prescribed in the course:- Ada Chautal, Tilwara and Punjabi Tala
2. Playing proper Badhat of Ada-Chautal, Teentala
3. Playing all the prescribed Talas with Vocal and Instrumental performances as well as solo items.
4. Tuning of Tabla/Pakhawaj
5. Practical knowledge of the following in the prescribed Talas:
   (i) Ada chartala:- simple Paran, Mukhra, Mohra, Uthan
   (ii) Rupak /Teevra:- Peshkar, Quaida, Palta, Rela, Paran.

Books Recommended:
1. Tala Parichya Part I, II &III : G.C. Srivastav
2. Bhartiya Taalon ka Shastriya Vivechan : Arun Kumar Sen
3. Taal Maartand : B.S. Sharma
4. Bhartiya Sangeet Vadya : L.M. Mishra
5. Harmare Sangeet Ratna : Sangeet Karyalay, Hathras
6. Tala Vadya Shastra : Manohar Bhalchand Marathe

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MUSIC (Tabla)
SEMESTER-VI

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 of Semester-VI. The question paper will be divided into five units. First four units contain 02 questions each, out of which the candidates are to attempt one question from each unit, unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.
3. Harmonium/ Sarangi will be allowed to play Nagma/Lehra. No electronic Lehra machine will be allowed for practical examination.
4. Practical Paper shall be set from the syllabus for Paper-B (Practical).

Paper-A: THEORY (3 Hours duration) : 45 marks

Paper-B: PRACTICAL (20 minute’s duration) : 45 marks

i) Viva : 30 marks
ii) Harmonium : 05 marks
iii) Tabla (Tuning) : 05 marks
iv) Padhant on Hand : 05 marks

Internal Assessment (Theory & Practical) (5+5) : 10 marks

Total : 100 marks

Paper-A Theory

UNIT-I

1. Detailed study of the following:-
   a. Manch Pardarshan
   b. Profession in music (Tabla)
   c. Comparative study of North Indian and Karnatka Taal system

UNIT-II

1. Elementary knowledge of the following (not more than 100 words)
   Gat, Quida, Laggi, Baaj, Ladi, Farmaishi, Chhakardar, Paran
2. Role of electronic instrument in the context of rhythm.
3. Study of Lucknow and Banaras Gharana.

UNIT-III

1. Life sketches and contributions of the following:-
   a. Pt. Viroo Mishra
   b. Pt. Kishan Maharaj
   c. Ustad Zakir Hussan
UNIT-IV

1. Dhamar, Aada-chautaal, Jhaptaal
2. To write description of Taal of the syllabus
3. To write the notation of Taal in Single, Double, Tigun, Chaugun, Aad, Kuaad, Biaad Layakaris

UNIT-V

1. The Ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL

1. Playing of Talas prescribed in the course:- Dhamar, Ada Chartala and Jhaptala
2. Playing proper Badhat of Dhamar:- Ada Chartala and Jhaptala
3. Playing all the prescribed Talas with Vocal and Instrumental performance as well as solo item.
4. Tuning of Tabla/Pakhawaj
5. Practical knowledge of the following in the prescribed Talas:
   (i)  Dhamar:-Chakardar Paran, Farmaishi Paran, Tukra
   (ii) Tilwara:-Vilambit, Theka with accompaniment in Vocal

Books Recommended:

1. Tala Parichya Part I, II &III : G.C. Srivastav
2. Bhartiya Taalon ka Shastriya Vivechan : Arun Kumar Sen
3. Taal Maartand : B.S. Sharma
4. Bhartiya Sangeet Vadya : L.M. Mishra
5. Harmare Sangeet Ratna : Sangeet Karyalay, Hathras
6. Tala Vadya Shastra : Manohar Bhalchand Marathe
7. Taal Prasson : Chhote Lal Mishra
8. Avanaddha Vadhyay : M.P. Sharma

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INDIAN CLASSICAL DANCE
SEMMESTER –V

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. There would be up to ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance music along with vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. 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 ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

Paper-A: THEORY (3 hours duration) : 45 Marks

(Duration 45 minutes, 02 Theory periods per week)

PAPER-A THEORY

Unit –I

1. Definition the following terms:
   Kataksh, Ang, Upang, Pratyanga, Hela.
3. Technique of Indian Ballet.

Unit-II

1. Dance and Nature
2. Brief study of Natya Shastra
3. Brief study of Natak Bheda

Unit-III

1. Essential characteristics of Mohini Attam.
2. Brief note on Bhave.
3. Brief note on Folk Dances of Rajasthan.

Unit-IV

1. Description of Teen Tala anad Sawari and Dhamar
2. Notation of Theka, Bol Tatkar, thaat, Amad, Chakardar, Tora, Tihai and Premelu and Nagma in Teen Taal.
3. Notation of Theka, Bol, Tatkar, Tihai, Amad, Paran, Chakardar, Paran, Tukra, Kavit and Nagma in Sawari Tala.
4. Notation of Theka, Bol -Tatkar and Tihai in Dhamar.
Unit – V

1. The ninth question of unit v is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

PAPER-B  PRACTICAL (Duration 45 minutes 06 periods per week)

Unit - I

1. Swari Tala
   b) Theka
   c) Bol Tatkar
   d) Tukra - 2
   e) Amad - 1
   f) Chakardar Paran - 1
   g) Tihai - 1
   h) Paran - 1
   i) Nagma - 1
   j) Kavit - 1

   Teen Taal:

2. Teen Tala (Matra 16)
   a) Theka
   b) Bol Tatkar
   c) Thaat - 1
   d) Amad - 1
   e) Chakardar Tora - 1
   f) Tihai - 1
   g) Premula - 1
   h) Nagma - 1

3. Dhamar Taal:
   I Tatkar
   II Tihai

4. a) Knowledge of Folk Dance of Rajasthani practically
   b) Play Theka of Sawari on Tabla
   c) Gat Nikas of Ghungat and Matki
   d) All the practical work on Hand

.........................
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. There would be up to ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance music along with vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. 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 ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

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

**(Duration 45 minutes, 02 Theory periods per week)**

**Paper-A Theory**

**Unit- I**

1. History of Kathak Dance.
2. Brief study of Nayika Bheda.

**Unit-II**

1. Essential characteristics of Odissi.
2. Loka Dharmi and Natya Dharmi.
3. Life sketch of Achhan Maharaj Ji.

**Unit III**

1. Brief study of Abhinaya Darpan.
2. Dance and Fine Arts.
3. History of Stage.

**Unit IV**

1. Description of Dhamar with Theka, Two Toras, Tihai, Amad and Pakshiparan.
2. Notation of Theka, Amad, Tihai, Tora, Kavit and Chatusjati paran in Teen Taal.
3. Notation of Theka, Paran, Chakardar Paran, Tisarjati Paran, Kavit in Sawari Taal.
4. Nagma, Bol Tatkar in Dhamar, Teen Taal and Sawari.
Unit –V

1. The ninth question of unit v is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B Practical (Duration 45 minutes, 06 periods per week)

1. Dhamar (Matra 14)
   a) Bol Tatkar
   b) Theka
   c) Toras-
   d) Tihai-1
   e) Pakshiparan
   f) Amad

2. Swari Tala (Matra 15)
   a) Theka
   b) Bol Tatkar
   c) Paran-1
   d) Chakardar Paran-1
   e) Tisarjati Paran-1
   f) Kavit-1

3. Teen Tala (Matra 16)
   a) Theka
   b) Bol Tatkar
   c) Amad -1
   d) Tihai -1
   e) Tora - 2
   f) Kavit -1
   g) Chatusjati paran

4. a) Knowledge of Sammi Dance practically
   b) Play Theka of Dhamar on Tabla
   c) Gat Nikas of Murli and Ghungat
   d) All the practical work on Hand
   e) Gat Bhava (Panghat ki Chhed Chhaad).
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FINE ARTS

B.A./B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019

SEMESTER V

THEORY

Paper A : History of Art

Max. Marks : 54
Max. Time : 3 hrs

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.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

1. Each paper carries 54 marks.
2. The paper-setter is required to set nine questions in all. The candidate is to attempt five questions as per the instructions given in the question-paper.
3. The first question shall be of short-answer type containing nine questions spread over the whole syllabus. Each question is to be answered in about 25-30 words. It shall carry 18 marks and shall be a compulsory question.
4. Eight questions are to be set from the entire syllabus consisting of four 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 four questions in all out of eight questions. Each question would be of nine marks.

Unit I : History of Indian Painting

- Rajasthani Painting – Chavand Raagmala from Mewar, Raag-Raagini from Bundi and Nayika from Kishangarh
- Pahari Painting – Ramayana from Basohli, Gita-Govinda from Kangra

Unit II : History of Indian Sculpture

- Mahabalipuram – Maheshasuramardini
- Elephanta – Ardhanarishwara
- Chola Bronzes – Nataraja and Parvati Images

Unit III : History of Western Art

- Beginning of Modern Painting – Manet
- Impressionism – Monet
- Neo Impressionism-Seurat
- Post Impressionism-Van Gogh
Unit IV : Definition of Key terms, General Concepts and Techniques

- Form and Content, Art and Religion, Art and Society, Tradition, Modernity

Pedagogy:

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitions and art galleries are a part of study.

Suggested Readings

THEORY

Paper A : History of Art  
Max. Marks : 54  
Max. Time : 3hrs

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.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

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3. The first question shall be of short-answer type containing nine questions spread over the whole syllabus. Each question is to be answered in about 25-30 words. It shall carry 18 marks and shall be a compulsory question.
4. Eight questions are to be set from the entire syllabus consisting of four 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 four questions in all out of eight questions. Each question would be of nine marks.

Unit I : History of Indian Painting
- Company Painting
- Folk Style – Kalighat and Maithili

Unit II : History of Indian Sculpture
- Khajuraho – Mother and Child
- Konark – Musician Figures
- Sravanbelgola – Bahubali

Unit III : History of Western Art
- Expressionism – Edvard Munch
- Fauvism-Matisse
- Cubism-Picasso

Unit IV : Definition of Key terms, General Concepts and Techniques
- Beauty, Rasa and Bhava, Gestures, Postures and Movements, Stained Glass, Cire-perdue (lost-wax casting)
Pedagogy:

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitions and art galleries are a part of study.

Suggested Readings

HISTORY OF ART

B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019

SEMESTER - V

History of Indian Painting (from ca. 1800 to the present times) and Sculpture
(from ca. 600 to 1300 A.D.)

Max.Marks: 100
Time: 3 Hr

NOTE 1: The paper carries 100 marks.

NOTE 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.

NOTE 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.

NOTE 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 be attempting 4 questions in all out of 8 questions. Each question would be of 18 marks.

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.

History of Indian Painting

Unit-I
- Company painting.
- Early oil painters - Raja Ravi Verma.
- Bengal School with special reference to Abanindranath Tagore

Unit-II

History of Indian Sculpture

Unit-III
- Sculptures of Pala and Sena Period - Bengal, Bihar, Orissa

Unit-IV
- Pratihara Sculpture of Central and Western India.
- Chola Sculpture in Stone & Bronze
Pedagogy

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

Suggested Readings

- Appasamy, Jaya : Abanindranath Tagore and the Art of his Times, Lalit Kala Akademi, New Delhi, 1968.
- Lalit Kala Monographs, Lalit Kala Akademi, Delhi.
- Journals and Periodicals : Lalit Kala Contemporary, Roopa-lekha, Marg.
- Parimoo, Ratan : The Paintings of the Three Tagores, Maharaja Sayajirao University, Baroda, 1973.
- Aggarwala, V.S. : Heritage of Indian Art, Publications Division, Ministry of Information & Broadcasting, Govt. of India, New Delhi, 1976.
HISTORY OF ART
SEMESTER-VI

History of European Painting and Sculpture (from ca. 1850 A.D. onwards), and Theory and Principles of Art Appreciation.

Max.Marks: 100
Time: 3 Hrs

NOTE 1: The paper carries 100 marks.

NOTE 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.

NOTE 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.

NOTE 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 be attempting 4 questions in all out of 8 questions. Each question would be of 18 marks.

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 European Painting and Sculpture

Unit-I
• Impressionism - Monet, Degas, Renoir.
• Post-impressionism - Van Gogh, Cezanne, Gauguin.

Unit-II
• Cubism - Picasso, Braque
• Expressionism - Munch, Nolde.
• Abstract Art - Kandinsky
• Abstract Expressionism - Jackson Pollock.

Theory and Principles of Art Appreciation

Unit-III
• Function of Art.
• A brief study of Indian and Western approaches to Art.

Unit-IV
Explanation of the term
• Form, Content, Abstraction, Modernity, Contemporaneity, Pointillism, Collage, Lithograph, Etching and Ready-made with the help of relevant examples.
Pedagogy
The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

Suggested Readings

- Aggarwala, V.S. : Heritage of Indian Art, Publications Division, Ministry of Information & Broadcasting, Govt. of India, New Delhi, 1976.
ANCIENT INDIAN HISTORY, CULTURE AND ARCHAEOLOGY
SEMESTER V

Paper-V (VOCATIONAL) : EXCAVATIONS, MONUMENTS AND SCULPTURES IN STONE AND BRONZE

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

Objectives :
The primary objective of this paper is to prepare the students to become professional archaeologists through the study of various excavated archaeological sites, monuments and antiquities such as stone and bronze sculptures. The study of this paper is also designed for preparing students to take higher and advanced study in the subject.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

1. The paper setter is required to set 9 questions in all. All questions shall carry equal marks.
2. The first question shall be 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 question shall be of 2 marks to be answered in 25-30 words each. OR A question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.
3. The map question shall have the following topics :
   (a) Location of important archaeological sites mentioned in Unit I.
   (b) Location of important monuments mentioned in Unit II.
   (c) Location/Provenance of important sculptures mentioned in Units III and IV.
4. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. Each unit shall have two questions 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.
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:
Excavations : (Note: Instructions will be confined only to the location of the site and important results obtained), Kalibangan, Lothal Mitathal, Sugh, Sanghol, Inamgaon, Atranjikhera, Sisupalgarh, Nagarjunkonda.

UNIT-II:

UNIT-III:
UNIT-IV:

Bronze: Sultanganj Buddha, Nalanda Image of Balarama and Buddha, Kurkihar Avalokitesvara, Indra and Padmapani from Nepal, Tanjore (Chola), Nataraja, Balakrishna Kaliyadamana and Somaskanda Murti.

Pedagogy of the Course Work:

It is expected to familiarize students with brief outline of the topics with the help of visual aids like slides and transparencies. Field work trips to museums and sites may also be undertaken.

Essential Readings:

ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY
SEMESTER VI

Paper-VI: EPIGRAPHY AND NUMISMATICS

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

Objectives:
This course makes the students aware of major scripts of Ancient India and their origin and development upto 6th century A.D. Antiquity and art treasure laws are also taught. It also provides knowledge about the origin and antiquity of Punchmarked coins; tribal coins; Yaudheyas, Kunindas, Agra, Audumbaras and Malavas; Kushana and Gupta coins.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:
1. The paper setter is required to set 9 questions in all. All questions shall carry equal marks.
2. The first question shall be 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 question shall be of 2 marks to be answered in 25-30 words each. OR A question on map. The question on map shall consist of the location of the sites of important inscriptions of Asoka.
3. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. Each unit shall have two questions and the candidate shall be given internal choice i.e. the candidate will attempt one question from each unit. Each question shall carry 18 marks.
4. 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.

UNIT-I:
(a) Epigraphy: Major scripts of Ancient India.
(b) Their origin and development up to 6th century A.D.

UNIT-II:
Rock and pillar edicts of Asoka.

UNIT-III:
(a) Origin and Antiquity of Punchmarked coins.
(b) Origin and date of Tribal coins: Yaudheyas, Kunindas, Agra, Audumbaras and Malavas.
UNIT-IV:

(a) Kushana Coins.
(b) Gupta Coins.

Pedagogy of the Course Work:

The students are to be taught with the help of slides, photographs and maps. In addition to it, special lectures, workshops, seminars, written assignments, class discussions, and term papers, should be included in the teaching work.

Essential Readings:

DEFENCE & STRATEGIC STUDIES

SEMESTER –V

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENT

1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The 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 containing 2 questions each. The candidate will be required to attempt one question from each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

Paper - NATIONAL SECURITY: CONCEPTIONAL ASPECTS

M. Marks: 70
Time: 3 hours

Objective:
This paper deals with the conceptual aspects of national security and the role of economy & military organizations in furthering national pursuits.

SECTION -I


SECTION -II

3. Collective Security Arrangements: Security Relevance of UN in the modern context, Role of NATO in the Post Cold War era.

SECTION -III

4. Regional groupings: SAARC, ASEAN and BIMSTEC (Aims and Objectives of the three Alliances to be discussed).

SECTION -IV

Books Recommended


Paper: PRACTICAL

Max. Marks: 20
Time: 1 hrs

Note:

1. There will be 3 hours of teaching per week for practical. 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:10

1. There will be three questions in all carrying 5 marks each and candidates will be required to attempt any two questions.
2. Examiners are required to set the question paper at least half an hour before the examination.

Course Contents for Practical

1. Relief features and their representation on Map.
2. Degree of Slopes, Gradients and Inter-visibility of Points.
3. Study of Field Craft with reference to the following:
   (a) Ground
   (b) Cover
   (c) Camouflage
   (d) Observation

SECTION-B

Marks: 10

1. Practical Record = 5 marks
2. Viva-Voce = 5 marks

(Students be asked to prepare on current topics of general interest)
INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENT

1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The 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 containing 2 questions each. The candidate will be required to attempt one question from each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

Paper: NATIONAL SECURITY OF INDIA

M. Marks: 70
Time : 3 hours

Objective - This paper covers the various factors related to National Security in India.

SECTION -I

1. India's Security Problems since 1947:
   (a) Geo-political effects of Partition: Boundaries and Frontiers.
   (b) Integration of States: J & K, Junagarh, Hyderabad and Goa.
   (c) An overview of India’s Security problems related to Pakistan and China.

SECTION -II

2. Indian Ocean and India's Maritime Security.

SECTION -III

4. Internal Dimensions of India's National Security with particular reference to Insurgency, Terrorism and Low Intensity Conflict.
5. Disaster Management in India and the role of Civil Defence.

SECTION -IV

7. Planning and Production for National Defence with particular reference to India’s Defence Production and DRDO.
8. Higher Defence Organization in India
Books Recommended

11. Panikkar, K.M.
   (i) Defence Problems of India.
   (ii) Role of Defence Production, Radiant, University of Michigan, 1984.
19. Subrahmanyam, K.
   (i) Indian Security Perspectives, ABC Publishing House, New Delhi, 1982
   (ii) Planning for Defence.

Paper: PRACTICAL

Max. Marks: 20
Time: 1 hrs

Note:
1. There will be 3 hours of teaching per week for practical. 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: 10

1. There will be three questions in all carrying 5 marks each and candidates will be required to attempt any two questions.

2. Examiners are required to set the question paper at least half an hour before the examination.

Course Contents for Practical

1. Tactical Formations: Section and Platoon.
2. Application of Fire: Fire Control, Fire Control Orders and Sequence of Fire Control Orders.

SECTION-B Marks: 10

1. Practical Record = 5 marks

2. Viva-Voce = 5 marks

(Students be asked to prepare on current topics of general interest)
HISTORY
SEMESTER- V

PAPER: HISTORY OF PUNJAB 1849-1966

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES:
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-IV in all. Each question will carry 18 marks.

1. 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.

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

Explanation:

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

<table>
<thead>
<tr>
<th>Map</th>
<th>10 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanatory Note</td>
<td>08 Marks</td>
</tr>
</tbody>
</table>

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 5 places on map of 2 marks each and write explanatory note on any four of 2 marks each.

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

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

Objectives:
To introduce the students to the impact of the colonial period on the region

Pedagogy:
Lectures, library work and discussions.

UNIT-I:
1. British Administration: new structure; formation and achievements of Board of Administration
2. British Agrarian Policy; commercialisation of agriculture
3. Developments in Irrigation; transport and communication

UNIT-II:
4. Growth of Modern Education
5. Socio-Religious Reform- main ideas of Namdharis; Singh Sabha; Arya Samaj; Ad Dharam Movement.
6. Political awakening: agitation of 1907; Ghadar Movement
UNIT-III:

7. Growth of Political consciousness: Jallian wala bagh; Gurudwara Reform Movement
8. Circumstance leading to partition.
9. Rehabilitation and resettlement

UNIT –IV:

10. Punjabi Suba Movement and Reorganisation Act 1966
11. Agricultural development: Green Revolution; Land reforms

Reading List:


N.B. : The required detail and depth would conform to the treatment of the subject in the above survey. It would also form the basis for one to two sentence answer questions.


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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-IV in all. Each question will carry 18 marks.

1. 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.

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

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:
   
<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Explanatory Note</td>
<td>08 Marks</td>
</tr>
</tbody>
</table>

   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 5 places on map of 2 marks each and write explanatory note on any four of 2 marks each.

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

Paper: World History 1761 - 1956

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

Objectives: To introduce the students to the modern period in World history.

Pedagogy: Lectures, library work and discussions.

UNIT-I:

1. The American Revolution; causes and consequences
2. The French Revolution-causes and impact; Continental System of Napoleon
3. Congress of Vienna 1815-motives, provisions, significance
UNIT-II:

4. The Industrial Era-causes of origin, new inventions, impact on society
5. Unification of Italy and Germany
6. New Imperialism 1871-1914

UNIT-III:

7. World War I: Division of Europe into two blocks, causes, Paris Peace Conference
8. Russian Revolution 1917- causes and impact

UNIT-IV:

10. Meiji restoration and modernization in Japan
11. World War II; causes and consequences

Suggested Readings

POLITICAL SCIENCE
SEMESTER - V

COMPARATIVE POLITICAL SYSTEMS (UK AND USA)

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

Objectives: The purpose of this paper is to serve as an introduction to the field of comparative politics. It provides a broad overview of the field of comparative politics and examines some key approaches. The major part of the paper is devoted to understanding and analyzing the origins and working of two political systems, the UK and the USA. The student will not only become familiar with the working of these two political systems but also understand how the concepts of comparative politics can be used to understand real world politics.

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

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 10-20 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.

Unit-I: Theoretical Framework
   (i) Meaning, Nature and Scope of Comparative Government and Politics
   (ii) Comparative Method.

Unit-II: U.K.
   (i) The British Political System - Salient Features and Conventions.
   (ii) Executive
      (a) Monarchy:- Difference b/w King and Crown, Powers of Crown, Nominal and Real position Justification of Monarchy
      (b) Features of Parliamentary/ Cabinet Government
      (c) Prime Minster:- Composition, Powers, Position and Role
   Legislature
      (a) House of Lords:- Composition, Powers, Criticism & Utility
      (b) House of Commons:- Composition, Powers, Mutual relations between House of Lords and House of Commons
   (iii) Judiciary
      (a) Organisation of Courts in U.K.
      (b) Rule of Law.
Unit-III : U.S.A.

(i) The Constitutional framework of U.S.
   (i) Salient features
   (ii) Separation of Powers & Checks & Balances

(ii) Executive
   (i) Elections of U.S. President
   (ii) Composition, Powers & Position of U.S. President.

Legislature/Congress
   (i) House of Representative- Composition, Power, House of Representative is the weakest chamber
   (ii) Senate – Composition, Powers, Most Powerful Second Chamber, Mutual relations b/w House of Representative & Senate

Judiciary
   (i) Supreme Court - Organisation, Composition, Powers & its Role.
   (ii) Power of Judicial review

Unit-IV

(i) Political Parties and Interest/Pressure Groups of U.K- Nature & Role.
(ii) Political Parties and Interest/ Pressure Groups of U.S.A. - Nature & Role.

Books Recommended :


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POLITICAL SCIENCE

SEMESTER-VI

INTERNATIONAL POLITICS : THEORY AND PRACTICE

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

Objectives: This paper provides students with an overview of the broad theories and concepts used to understand international politics. It also examines key issues in contemporary global history from an international politics perspective.

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

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 10-20 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.

Unit-I
2. Realist and Idealist approaches to International Politics.

Unit-II

Unit-III
1. Bipolar, Unipolar and Multi-Polar World.

Unit-IV
1. Regional Organisations : SAARC and EU.
Books Recommended:

ECONOMICS OF DEVELOPMENT

Course Objective: The primary course objective is to introduce the students to the basic features, determinants, and theories and strategies of development of underdeveloped economies. It also introduces students to the theory of how control and direction of economic activity by a central public authority can be used as an alternative to market by the underdeveloped economies.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 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. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. 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 will carry 18 marks.

(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


Unit-II


Unit-III

Unit-IV


Books Recommended:


Supplementary Readings:

INDIAN ECONOMY

Max. Marks: 100 marks
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 CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. 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 will carry 18 marks.

(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


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 in the era of Globalisation. Major Large Scale Industries: Iron & Steel, Cotton Textile, Petroleum & I.T.

Unit-III

Principal Features of Indian Tax Structure. Division of Financial Recourses between Centre and the States. Direction and Composition of Exports and Imports and Changes there in since Economic Reforms; Balance of Payment problems; Critical Evaluation of the Role of MNCs in India.
Planning: Importance, 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 and Poverty; Introduction to Consumer Education and Consumer Protection (elementary ideas).

**Books Recommended:**

7. Singh, Chander Gupt : Bharti Arth Shastar (Punjabi University, Patiala).

**Supplementary Readings:**

SOCIOLOGY
B.A./B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019
SEMESTER - V

SOCIETY IN INDIA

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. 1 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.

(ii) On an average, 15 hours are to be devoted to 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

The objective of this paper is to present a comprehensive view of Indian Society. The students are exposed to the tribal, rural and urban societies and are presented with the social structure and social institutions to understand these segments of Indian Society. Through this paper, the students are also introduced to the problems of the underprivileged in Indian Society.

Course Content

Unit-I

*Tribal Society*: Meaning, Characteristics; Classification of tribes.


Unit-II

*Rural Society*: Meaning; Characteristics.

*Institutional Features* : Family, Marriage; Economy and Polity (Village Panchayat); Changing Trends.

Unit-III

*Urban Society*: Meaning and characteristics, Concepts of urbanization and urbanism;

Institutional features; Urban family - features and changes; Economy; Voluntary associations; Slums.
Unit-IV

Under-privileged Sections—Women, Physically Disabled, Scheduled Castes and Scheduled Tribes: Measures to improve their status.

Essential Readings:


Further Readings:


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SOCIOMETRY
B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019
SEMESTER -VI

DISORGANISATION AND EMERGING PROBLEMS

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. 1 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.

(ii) On an average, 15 hours are to be devoted to 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 exposes the students to social disorganization, its levels and current problems. It helps students to understand social realities and also equips them to utilize their knowledge in various theoretical and practical exercises.

Course Content

Unit-I


Unit-II

Personal Problems: Problems of Adolescence; Alcoholism; Drug Addiction, Suicide.

Unit-III

Familial Problems: Domestic Violence, Violence against Children; Female Headed Households; Problems of Working Women.

Unit-IV

Societal Problems : Poverty; Corruption; Problems of the Aged, Cyber Crime
Essential Readings:


Further Readings:

Objective of the Paper:
The objective of the paper is to give the student an understanding of the concept, significance and evolution of local government in India. It would also acquaint them with the pattern and working of divisional and district administration. The key areas covered are the types, structure, functions, finances and personnel of rural and urban local governments. It would also include the concept of state control over local bodies, provincialisation and rural-urban relationship with reference to Punjab.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

- 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.

- 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 and Significance of Local Government
Evolution of Local Government since 1882
Role of Deputy Commissioner; Divisional Commissioner
Rural and Urban Development: Dimensions and Issues

Unit-II

The 73rd Constitutional Amendment – Provisions and its Impact
Gram Sabha – Composition Functions and Powers
Panchayati Raj Institutions in Punjab – Structure, Functions, Sources of Finances and Personnel

Unit-III

The 74th Constitutional Amendment – Provisions and its Impact
Urban Local Bodies – Structure, Functions and Sources of Finance
Mayor – Position, Functions and Powers
Municipal Commissioner – Position, Functions and Powers
Unit-IV

State Control over Local Bodies
State Finance Commission: Composition, Functions and Role
Provincialisation of Municipal Services
Rural- Urban Relationship – Challenges and Remedies

Essential Readings:

Further Readings
Government of India, Second Administrative Reforms Commission, 6th Report – Local Governance

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PUBLIC ADMINISTRATION

SEMESTER - VI

PAPER: DEVELOPMENT ADMINISTRATION (WITH SPECIAL REFERENCE TO PUNJAB)

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

Objective of the Paper:

The objective of the paper is to give the student an in-depth understanding about the concept & significance of development administration, features of developed & developing countries, planning machinery at Centre & State level and the emergence of India as a welfare state. The paper would also give an understanding about the concept, forms, role and problems of public enterprises as well as the working of select Union Ministries and agencies in Welfare and Development Administration.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

- 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.

- 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

Development: Meaning, Features and Aspects
Development Administration: Meaning, Nature, Scope and Significance
Features of Developed and Developing Countries

Unit-II

India as a Welfare State.
Planning: Meaning, Objectives and Significance
Planning Machinery in India at National, State and Local

Unit-III

Public Enterprises: Concept and Forms
Role of Public Enterprises in Economic Development
Managerial Problems of Public Enterprises
Public Enterprise Reforms since 1991; Concept of Privatisation
Unit-IV

Administration of Rural Development at the local level
Education and Development; Role of State Administration in Primary and Secondary Education
Health and Development; Role of the Ministry of Health and Family Welfare
Role of Voluntary Sector in Development

Essential Readings


Website of Ministry of Health and Family Welfare: mohfw.gov.in/
Website of Planning Commission: planningcommission.nic.in/data/ngo/npvol07.pdf

Further Readings


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Aims and Objectives:
This paper discusses the main epistemological and metaphysical issues as discussed in the various Indian Philosophical Systems.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

1. 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 and each to be answered in about 25 to 30 words. The candidate is 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.

Unit–I

1. Salient features of Indian Epistemology and Metaphysics.

2. Concept of Prama and Pramana according to Nyaya
   i) Pratyaksa
   ii) Anumana
   iii) Sabda
   iv) Upamana
   v) Arthapatti
   vi) Anuplabdhi

Unit–II

3. Materialism (Swabhava vada) of Charvakas.


5. Aryasatyas, Pratityasamutpada of Buddhism.

Unit–III


7. Advaita Vedanta : Sankara on Brahman and Maya.
Unit - IV

8. Samkhya: Theory of Causation (Satkaryavada)
9. Vaisesika: Nature and kinds of Padartha (Categories)

Essential Readings:


Suggested Readings:


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PHILOSOPHY

SEMESTER – VI

PAPER : WESTERN EPISTEMOLOGY AND METAPHYSICS

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

Aims and Objectives:
This paper aims at exposing the students to main epistemological and metaphysical theories and problems of western philosophy. It also deals with basic themes of existentialism, logical positivism and analytical philosophy.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

The syllabus has been divided into four units.

1. 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 and each to be answered in about 25 to 30 words. The candidate is 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 candidates 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.

Unit-I

2. Materialism : Mechanical and Dialectical.
3. Idealism : Objective (Plato), Subjective (Berkeley).

Unit-II

1. Nature of Knowledge : Knowing subject, Act of knowing and object of Knowledge.
2. Theories of Truth : Coherence, Correspondence and Pragmatic

Unit-III

3. Theories of Knowledge :
   (a) Rationalism.
   (b) Empiricism.
   (c) Transcendentalism of Kant.
Unit-IV

4. Universal and Particulars: Concept of Being (Parmenides) and Becoming (Heraclites).
5. Substance (Spinoza) Causality (Hume).

Essential Readings:


Suggested Readings:

Objectives:
(I) The course will enable the students to get an introductory knowledge about Clinical Psychology with emphasis on the dynamics of some of the behavioural disorders and therapies. Students will also have some knowledge about stress and coping; and will get acquainted with elementary inferential statistics.

(II) Pedagogy of the Course Work:
80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

PAPER: CLINICAL PSYCHOLOGY

<table>
<thead>
<tr>
<th>Theory</th>
<th>70 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Assessment</td>
<td>10 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
The syllabus has been divided into four units.

(a) 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.

(b) The practical will be of 20 marks.

UNIT-I: Nature and Criteria of abnormality, Viewpoints Regarding Abnormality: Historical, Psychodynamic, Behavioural, Cognitive, Humanistic and Interpersonal;

UNIT-II: Causes of Abnormal Behaviour: Biological, Psychological and Sociocultural Causes.

UNIT-III: Stress: Concept of Stress; Types of Stressors; Etiology of Stress; Coping Strategies: Problem Focussed and Emotion Focussed, Effects of Stress.


Note: The use of non-programmable calculators and statistical tables is allowed in the examination.
PSYCHOLOGY PRACTICALS

Four practicals have to be performed out of the following:

1. The use of Biofeedback.
2. Presumptive Stressful Life Event Scale.
3. Adjustment Inventory.
4. Mental Health Inventory.
5. Sentence Completion Test.

Suggested Readings:

Objectives:

(I) This course will enable the students to get an introductory knowledge about Clinical psychology with emphasis on the dynamics of some of the behavioural disorders and therapies. Students will also have some knowledge about stress and coping; and will get acquainted with elementary inferential statistics.

(II) Pedagogy of the Course Work:

80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

PAPER: BEHAVIOURAL DISORDERS

Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

The syllabus has been divided into four units.

(a) 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.

(b) The practical will be of 20 marks.

UNIT-I : Anxiety Based Disorders viz. Phobia; OCD; Panic; Generalized Anxiety Disorder. Conversion Disorders, Dissociative Disorders : Types, Symptoms and Etiology.

UNIT-II : Mood Disorders : Types, Symptoms and Etiology.


PSYCHOLOGY PRACTICALS

Four practicals have to be performed out of the following:

1. Clinical Interview.
2. TAT.
3. Depression Inventory (Beck).
4. State Trait Anxiety Inventory
5. Self Efficacy
6. Aggression Scale
Books Recommended:

Suggested Readings:


Reference Books


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GEOGRAPHY
SEMESTER-V

Paper-IX: WORLD REGIONAL GEOGRAPHY - I
Max. Marks : 70
Theory : 60
Internal Assessment : 10
Time : 3 Hours

Objectives:
To provide an understanding of the concept of world regions with respect to Land, People, Polity and Economy; the physical and human resource base and their interface with economic development; development problems and prospects.

Course Content:
Study of the following regions of the world in terms of constituent countries: strategic location, salient physical, demographic and economic features, cultural patterns, resource base, economic development, problems, prospects and issues related to Regional Groupings (European Union, North Atlantic Treaty Organization, North American Free Trade Agreement and Commonwealth of Independent States).

UNIT-I
(i) Anglo America (20 lectures)

UNIT-II
(ii) Latin America (20 lectures)

UNIT-III
(iii) Europe (20 lectures)

UNIT-IV
(iv) Russia & Commonwealth of Independent States (30 lectures)
(v) Oceania

Note:
1. Questions will be put on region(s) as a whole and not on individual country. The questions should focus on regional perspective.
2. A map based compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts in about 30 words each. Each part will carry 2 marks (Total 20 marks).
3. The whole syllabus will be divided into 4 units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. Each question will carry 10 marks. (Total 40 marks) These will be in addition to the compulsory question.
4. Special credit will be given to suitable use of maps and diagrams. Use of unmarked stencils and colours will be allowed.
5. Six hours theory classes in a week are compulsory.
6. Internal assessment will be based on (i) class tests, (5marks) (ii) academic activities, seminar, Project, Assignment (3 Marks) and (iii) attendance (2marks).
7. For USOL, reappear/improvement candidate(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 7 in the question paper.

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**Essential Readings:**


**Further Readings:**


**Pedagogy:**

Teacher should involve maximum use of detailed maps of the countries and continents. Students should be encouraged to use atlas in classrooms. Video shows about culture, physiography and economy of these countries may be arranged if possible.
Paper - X: MAP PROJECTIONS

Max. Marks: 30
Time: 3 hours

Distribution of Marks:

(i) Written paper of three hours covering entire syllabus shall be held for students of USOL. 20 marks
For others it shall be at respective colleges.

(ii) Practical Record relating to Map Projections and Viva voce on Practical Record relating to Map Projections. 10 marks

Objective:

• To provide an analytical understanding of use of common map projections.

Course Content:

Unit- I
Map Projections:
General introduction, classification of projections, general principles of identification and choice of projections. (6 lectures)

Unit- II
Construction, properties and limitations of following projections
Cylindrical: Simple, Equal area, Mercator’s (4 lectures, 6 lab. sessions)

Unit- III
Construction, properties and limitations of following projections
Conical: One Standard Parallel, Two Standard Parallel, Bonne’s, Polyconic and International (4 lectures, 6 lab. sessions)

Unit- IV
Construction, properties and limitations of following projections
Zenithals: Gnomonic, Stereographic, Orthographic, Equidistant and Equal Area (Polar cases only)
Conventional: Sinusoidal and Molleweide’s (normal cases only) (7 lectures, 7 lab. sessions)

Note:

1. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should not exceed 25 words. Each part will carry 1 mark (Total 4 Marks).

2. Practical exam 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. Evaluation of Practical Record and Field Report 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.

4. There will be no viva-voce examination for the candidates appearing through the 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).
5. For the students of USOL there will be an internal assessment of 10 marks in lieu of the viva-voce examination in practical record and field report. The marks obtained by the candidate will be added to the marks awarded by the internal and external examiners evaluating the Practical Record.

6. A fresh practical note book shall be prepared by failed/improvement candidates.

7. For Practical classes, the number of students in one group shall not exceed fifteen.

8. There will be 3 hours of teaching per week for this paper.

9. For USOL, reappear/improvement candidate(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 9 in the question paper.

### Books Recommended

#### Essential Readings


#### Essential Readings


### Pedagogy:

Basic fundamentals of map projections are introduced by demonstration of construction exercises in class.
GEOGRAPHY
SEMESTER-VI

Paper-XI: WORLD REGIONAL GEOGRAPHY- II

Max. Marks : 70
Theory : 60
Internal Assessment : 10
Time : 3 hours

Objectives:
To provide an understanding of the concept of world regions with respect to Land, People, Polity and Economy; the physical and human resource base and their interface with economic development; development problems and prospects.

Course Content:
Study of the following regions of the world in terms of constituent countries: strategic location, salient physical, demographic and economic features, cultural patterns, resource base, economic development, problems, prospects and issues related to regional groupings (South Asian Association of Regional Cooperation, Association of South East Asian Nations, Organization of Petroleum Exporting Countries and Organization of African Unity).

UNIT-I
(i) East Asia (20 lectures)

UNIT-II
(ii) South East Asia (iii) South Asia. (30 lectures)

UNIT-III
(iv) Middle East and North Africa (20 lectures)

UNIT-IV
(v) Africa South of Sahara (20 lectures)

Note:
1. Questions will be put on region(s) as a whole and not on individual country. The questions should focus on regional perspective.
2. A map based compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts in about 30 words. Each part will carry 2 marks (Total 20 marks).
3. The whole syllabus will be divided into 4 units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. Each question will carry 10 marks. (Total 40 marks) These will be in addition to the compulsory question.
4. Special credit will be given to suitable use of maps and diagrams. Use of unmarked stencils and colours will be allowed.
5. Six hours theory classes in a week are compulsory.
6. Internal assessment will be based on (i) class tests, (5marks) (ii) academic activities, seminar, Project, Assignment (3 marks) and (iii) attendance (2 marks).
7. For USOL, reappear/improvement candidate(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 7 in the question paper.)
Essential Readings:

Further Readings:

Pedagogy:
Teacher should involve maximum use of detailed maps of the countries and continents. Students should be encouraged to use atlas in classrooms. Video shows about culture, physiography and economy of these countries may be arranged if possible.
Paper - XII: FIELD SURVEY BASED REPORT

Max. Marks: 30
Time : 3 hours

• To acquaint the students with the importance of field work as one of the methodologies in geography.
• To familiarise the students about pre-field work and post-field work i.e. data processing and analysis and writing of field work report.

Distribution of Marks
i) Viva-Voce : 10 Marks ii) Field Report: 20 Marks

Fieldwork (Theory):
(i) Role of fieldwork in Geography.
(ii) Scale of study and fieldwork methodology.
(iii) Methods of collecting primary data : Observation, Interview and Questionnaire and Measurement.
(iv) Methods of field study of: a farm, a village, and a town. (20 lectures)

Note: The teachers should familiarize the students in the class before collection of primary data for preparation of field work.

Fieldwork (Practical):
A field report of minimum 20 pages will be prepared based on primary data on problems such as (a) local market survey, (b) service area of school/ or hospital; (c) traffic flow, and (d) socio-economic characteristics of student’s village/ mohalla/ sector.

(25 lab. Sessions)

Note:
1. There will be no written paper for USOL and college students.
2. Practical exam 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 the Geography in the college.
3. Evaluation of Field Report will be done at the time of viva-voce examination. There will be no laboratory exercise at that time.
4. There will be no viva-voce examination for the candidates appearing through the USOL. They will be required to submit their Field Report with the University School of Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Field Report will be evaluated by two examiners (including at least one from the USOL).
5. For the students of USOL there will be an internal assessment of 10 marks in lieu of the viva-voce examination in field report. The marks obtained by the candidate will be added to the marks awarded by the internal and external examiners evaluating the Field Report.
6. All students are required to submit a practical record based on theoretical component listed as fieldwork (theory).
7. A fresh field report shall be prepared by failed/improvement candidates.
8. For Practical classes, the number of students in one group shall not exceed fifteen.
9. There will be 3 hours of teaching per week for this paper.
10. For USOL, reappear/improvement candidate(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 10 in the question paper.
Books Recommended

Essential Readings

Further Readings

Pedagogy:

The students need to be trained to collect primary data, its processing and cartographic representation through taking up field exercises.

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Course Objectives:
The paper is designed to acquaint the students with the Economic Thought of Mahatma Gandhi.

Pedagogy of the Course Work

90% Lectures (including expert lectures)
10% Unit Tests, Snap Tests, assignments, attendance and classroom 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 and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks 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 candidates shall attempt one question from each unit-4 in all. All questions 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 - Bases of Gandhian Economic Thought
1. Indian Influences on Gandhi’s Economic Thought
2. Western Influences on Gandhi’s Economic Thought
3. Fundamental Principles of Gandhi’s Economic Thought

UNIT-II - Critique of Mechanization
4. Gandhi’s Views on Machinery
5. Labour-Capital Relations
6. Theory of Trusteeship
7. Gandhi & Role of Corporate Social Responsibility

UNIT-III - Essence of Gandhian Economy
8. Doctrine of Swadeshi
9. Bread Labour
10. Concept of Wantlessness
11. Concept of Sarvodaya

UNIT-IV - Gandhi and Contemporary Ideologies
12. Gandhi’s Views on Communism
13. Gandhi on Capitalism
14. Gandhian Socialism
15. Relevance of Gandhi’s views in Globalized World
ESSENTIAL READINGS:


FURTHER READINGS


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GANDHIAN STUDIES

SEMESTER-VI

Peace and Conflict Resolution

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

Course Objectives:
The paper is designed to acquaint the students with the understanding of the concept of Peace and different methods of Conflict Resolution

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 and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks 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 candidates shall attempt one question from each unit-4 in all. All questions 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-Understanding Peace
1. Meaning & basic components of Peace
2. Approaches to Peace
3. Obstacles to Peace
4. Gandhi’s approach to Peace

UNIT-II- Peace Movements
1. Social Movements-Environment, Women, Dalit
2. NGOs
3. Civil Right movements in United States

UNIT-III-Understanding Conflict
1. Concept of Conflict
2. Causes of Conflicts
3. Types of Conflicts

UNIT-IV- Methods and Agencies of Conflict Resolution
1. Pacific methods of Conflict Resolution
2. Peace making
ESSENTIAL READINGS:

22. Kulkarni, V.B. : Conflict in Indian Society (Bombay: Bhartiya Vidyabhavan), 1987
FURTHER READINGS:


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A. **Objectives**:  
The course will introduce the students to the basic structure of media organizations and the regulatory framework and laws of the journalistic profession.

B. **Pedagogy of the Course Work**:  
- 80% Lectures (including expert lectures)  
- 20% assignments, discussion and seminars.

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

There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 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**
Types of ownership patterns: Sole Proprietorship, Partnership, Joint Stock Company, Conglomerate, Chain, Trust/Societies/Associations, Cross Media Ownership

**Unit II**
Basic principles of Management given by Henry Fayol and their applications in media organizations, Organisational structure of Large Daily Newspaper, Radio Station and TV Station.

**Unit III**
Freedom of speech and expression [Article 19(1)(a) and 19(2)] Press Council of India guidelines for Ethical conduct.

**Unit IV**
Brief overview of: Right to Information Act, Copyright Act, Law of Defamation, Law of Obscenity, Contempt of Court, Contempt of Legislature

**PRACTICALS**

1. Case study of any one type of ownership pattern of Indian media organizations.  
Max. Marks : 20
ESSENTIAL READING

ADDITIONAL READING
6. Mehta, Vinod, (1999), *Mr. Editor, How Close are you to the PM*, Konark Publishers, N.D.
JOURNALISM & MASS COMMUNICATION

SEMESTER- VI

ADVERTISING & PUBLIC RELATIONS

Max. Marks: 100

Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours
Practical : 20 marks

A. Objectives:
The course will make students conversant with strategic communication by imparting training in writing advertising copy and press releases amongst other tools.

B. Pedagogy of the Course Work:
80 % lectures (including expert lectures).
20 % assignments, discussion and seminars

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 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 & types of advertising; Place of Advertising in marketing mix; Advertising agency - structure and functions

Unit-II
Concept & definition of advertising copy; Elements of a typical advertisement; Basic principles of writing advertising copy;

Unit –III
Concepts & types of Public in PR; Brief introduction to Public Relations in Public & Private Sector; PR Agency: Structure & Functions

Unit – IV
Brief introduction to PR tools & Media Relations

PRACTICALS

Max. Marks : 20

1 Portfolio of five self-designed advertisements 10 marks
2 Prepare a file of PR tools used by anyone organization 10 marks
Books Recommended

ESSENTIAL READING

2. David Ogilvy, The Unpublished David Ogilvy
4. Subroto Sengupta, Cases in Advertising and Communication Marketing
5. Subroto Sengupta, (1990), Positioning (New Delhi, Tata-Mcgraw Hill
16. Rajendra, Lok Sampark (Haryana Hindi Granth Academy, Chandigarh)
17. Dilgir, H.S., Lok Sampark-Sanchar Atay Sandhan (Kala Darpan Prakashan Chandigarh)

ADDITIONAL READING


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POLICE ADMINISTRATION
SEMESTER - V

Organisational Behaviour With Special Reference to Police Administration

(A) Course Objectives:
The objective of this course is to familiarize the students with the concept, nature and significance of organizational behavior with special reference to police administration. The course also aims to discuss the foundations and models of organisational behavior. In particular, the students would be taught the concepts such as motivation, morale, leadership, communication, decision-making, and transactional analysis. Further, the inputs regarding the concept and rationale of organizational change and organizational development would be imparted to the students.

(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:
   i. Internal Test-5%;
   ii. Academic activities (Seminar, Project, Assignment)-3%
   iii. Attendance-2%

(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. The candidate is required to attempt any 9 short answer type questions carrying 2 marks each (9x2 = 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 (4x18 = 72 marks).

(D) Course Content:
Unit-I

Unit-II
Motivation: Concept; and Theories – Maslow’s Need Hierarchy and McGregor’s Theory X & Y. Morale: Concept; and Factors to Build-up Morale in India Police. Leadership: Concept, Theories – Trait and Situational; and Qualities.

Unit-III
Communication: Concept, Process, Types and Barriers. Communication Modes in Indian Police. Decision-Making: Concept; Types; and Simon’s Rational Comprehensive Theory. Transactional Analysis: Meaning; and Types of Transactions.

Unit-IV
Organizational Change: Concept; Rationale; and Resistance to Change. Organisational Development: Concept and Rationale.
Essential Readings:


Further Readings

Law and Police Administration

(A) Course Objectives:
The police system in India has to work within the ambit of legal framework laid down by the Constitution and by the enacted laws. The major responsibility of the police is to ensure the implementation of such laws. The course has been designed to impart knowledge to the students on the laws governing the ‘prevention and detection of crime’ which is laid down as the primary duty in the Indian Police Act 1861. The endeavour of the course is to familiarize the students with the main provisions of the Indian Penal Code 1860, the offences under it and the offences affecting the human body. In addition, meaning and definition of terms covered under Section 2 relevant to the police administration along with the powers of the police officer have been discussed.

(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:
   i. Internal Test-5%;
   ii. Academic activities (Seminar, Project, Assignment)-3%;
   iii. Attendance-2%

(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. The candidate is required to attempt any 9 short answer type questions carrying 2 marks (9x2 = 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 (4x18 = 72 marks).

(D) Course Content:

Unit-I
THE INDIAN PENAL CODE 1860: MAIN PROVISIONS
(i) Jurisdiction (Sections 1-5)
(ii) General Explanations (Sections 6-52-A)
(iii) Punishments (Sections 53, 53A, 54, 55, 60, 63, 73)
(iv) Joint & Constructive Liability Section 34 & Section149

Unit-II
Offences under the Indian Penal Code 1860
(i) Abetment (Section 107 & 108)
(ii) Criminal Conspiracy (Sections 120-A, 120-B)
(iii) Offences against the State (Sections 121, 121-A, 124-A)
(iv) Offences Against Public Tranquility (Sections 141-147)
Unit-III

Offences Affecting Human Body
- Culpable Homicide (Section 299) & Murder (Section 300)
- Causing death by rash and negligent act (Section 304A)
- Dowry Death (Section 304B)
- Hurt (Section 319), Grievous Hurt (Section 320)
- Wrongful Restraint and Wrongful Confinement (Sections 339, 340)
- Assault (Section 351)
- Sexual Harassment (Sections 354 A, 354 B, 354 C & 354 D)
- Kidnapping and Abduction (Sections 359-362)
- Rape (Sections 375, 376 A to D)

Unit-IV

Classification of offences in CRPC:
- Bailable and non-bailable offence;
- Cognizable and non-cognizable offence;
- Compoundable offences;
- Summons Case;
- Warrant Case;

Role of Police Officer:
- Lodging of First Information Report (Section 154) & Effects of Refusal to lodge FIR
- Police investigation
- Arrest (Section 41) & Rights of Arrested Persons
- Search (Section 165)

Essential Readings:
5. The Indian Penal Code : Bare Act with Short Notes, Universal Law Publishing Co. Pvt. Ltd., Delhi, 2008.

Further Readings
1. Lal, Rattan and Dhiraj Lal : Indian Penal Code
WOMEN’S STUDIES

B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019

SEMESTER - V

PAPER: NATIONAL AND INTERNATIONAL INITIATIVES FOR WOMEN

Max. Marks : 100
Theory : 90 Marks
Int. Ass : 10 Marks
Time : 3 Hrs.

Objective: This course aims to conscientise the students about the efforts made by national and international organizations, both governmental and non-governmental, towards women’s empowerment and increased participation in social, economic and political life. The course exposes the student particularly to the U.N. initiatives in empowering women, putting an end to age old discrimination against them.

Course Contents

Unit I – Constitution of India and Women’s Rights:
  a) Fundamental rights and women’s rights: de jure and de facto position
  b) Directive Principles of State Policy and women’s rights with special reference to Articles 39, 42, 43 and 44
  c) Factors inhibiting effective implementation of Constitutional provisions

Unit II – Women and Law in India:
  a) Dowry Prohibition Act, 1961 (as amended in 1984 & 1986);
  b) Protection of Women from Domestic Violence Act, 2005,
  c) Women’s Rights in Property as Coparcener (as per 2005 Amendment of Hindu Succession Act, 1956)

Unit III – UN Conferences on Women:
  a) Mexico (1975)
  b) Copenhagen (1980)
  c) Nairobi (1985)
  d) Beijing (1995)
  e) Beijing +5 (2000)
  f) Beijing + 10 (2005)

Unit IV – UN Conventions for Women and Children:
  a) Convention on the Political Rights of Women 1952
  b) Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) 1979

INSTRUCTIONS FOR THE PAPER-SETTER 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 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18marks). 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.
Essential Readings:


Further Readings:


Readings in Hindi:


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WOMEN'S STUDIES

SEMESTER-VI

PAPER: WOMEN'S DEVELOPMENT AND EMPOWERMENT IN INDIA

Max. Marks: 100
Theory: 90 Marks
Int. Ass: 10 Marks
Time: 3 Hrs.

Objectives: This paper focuses on the issues related to the process of development and its impact on women, particularly in the context of a developing nation like India. The attempt is to equip the student to understand the major aspects of critique of development through a gender lens in its global and local contexts.

Course Contents

Unit I – Concept of Development
- Changing concept from Growth to Development;
- Human Centric Development;
- Why is gender a development issue?
- Indices of development: Human Development Index (HDI), Gender Development Index (GDI), Gender Empowerment Measure (GEM)

Unit II – Strategies for Women’s Development
- Women in Development (WID), Women and Development (WAD) and Gender and Development (GAD),
- Empowerment and Sustainable Development;
- Microcredit

Unit III - Policy Initiatives
- Changing approaches from welfare to development to empowerment with special reference to Five Year Plans (First to Eleventh Plan)
- National Policy for Empowerment of Women

Unit IV – Implementation Machinery
- Social Welfare Boards,
- National Commission for Women (NCW),
- Ministry of Women and Child Development (MOWCD),
- National Institute of Public Cooperation and Child Development (NIPCCD)

INSTRUCTIONS FOR THE PAPER-SETTER 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 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18marks). 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.
ESSENTIAL READINGS


Govt. of India, Five Year Plans (1st to 11th), Planning Commission, New Delhi.


South Asia Human Development Reports 2000 and 2004, Mahbub ul Haq Human Development Centre.


Further Readings


Jain, Devaki : Development as if Women Mattered, Monograph, ISS, New Delhi, 1983.


U.K, Kushwah, K.J, (eds),

Readings in Hindi:


Sarawat, Sawapnal : Mahila Vikas AK Paridrashay, Nayanprakashan, New Delhi,
HUMAN RIGHTS & DUTIES
B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019
SEMESTER-V

PAPER: HUMAN RIGHTS RESPONSES TO SELECT PROBLEMS
INTERNATIONAL AND NATIONAL PERSPECTIVE

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

Objective: The paper deals with a few select problems that have been addressed internationally through the UN Conventions to ensure protection of human rights. The objective is to regard to problems such as racial discrimination; custodial violence; and socially vulnerable groups including women, children, Specially-Abled and Internally Displaced Persons.

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. 1 will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students shall be required to attempt 9 short answer type questions out of 12 i.e. 9 x 2 = 18 marks. (ii) In addition to it, Question Nos. II to IX will consist of long answer of long answer (easy) type questions i.e. two questions from each unit with internal choice carrying 18 marks of each i.e. 4 x 18 = 72 marks.

UNIT-I

Racial Discrimination: International Convention and Related Mechanism
(b) International Convention on Elimination of All Forms of Racial Discrimination 1965.
(c) Refugees and the Refugee Convention, 1951

UNIT-II

Custodial Violence and Safeguards:
(a) Custodial Violence a
   (i) Torture and Death in Police Custody
   (ii) Fake Encounters and Enforced Disappearances
   (iii) Human Indignity against Women and Children

(b) Convention against Torture and Other Cruel and Human of Degrading Treatment or Punishment, 1984.

UNIT-III

Social Vulnerability and Protection –I: Women and Children
(a) Understanding Discrimination and Violence against Women and Children
UNIT- IV

Social Vulnerability and Protection- II: Aged, Specially-Abled and Internally Displaced Persons.

(a) Problems of Aged and specially – Abled Persons.
(c) International Mechanism for the Rights of the Aged.
(d) Internally Displaced Persons and Related Mechanism.

References:

Essential Readings:


Further Reading:

HUMAN RIGHTS & DUTIES
SEMESTER-VI

PAPER: REGIONAL HUMAN RIGHTS INSTRUMENTS, STANDARDS AND MECHANISM

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

Objective: The paper deals with key features of regional human rights standards and mechanisms. The objectives of the paper are twofold. Firstly, it is familiarize the students that regional initiatives complement the international initiatives in promoting and protecting human rights. Secondly, it is to train students to locate countries of the specific region on an outline map of the world.

INSTRUCTIONS FOR THE PAPER SETTER AND THE CANDIDATES: Note: (i) for the written appear, the students will be required to attempt five questions in all. Questions No. I will be compulsory comprising of 12 short answers type questions of 2 marks each and will cover the entire syllabus. The students shall be required to attempt 9 short answer type questions out of 12 i.e. 9x2 = 18 marks. (ii) In addition to it, Questions 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. 4x18=72 marks per Unit where students will be asked to located countries that are party to the Regional Conventions or have either ratified specific Conventions or have not ratified the given Conventions on the attached world outline map.

UNIT-I

Europe:
(b) European Social Charter (ESC), 1961 (Revised 1996)

UNIT-II

Americas:
(a) American Convention on Human Rights (ACHR), 1969.
(b) Inter-American Convention to Prevent and Punish Torture, 1985

UNIT-III

Africa and Arab
(a) African charter on Human and Peoples’ Rights (Banjul Charter), 1981
(b) Convention Regarding the Specific aspects of Refugee Problem in Africa
(c) Arab Charter on Human Rights, 2004
UNIT-IV

South and South-East Asia

(a) SARC Conventions: (i) Conventions on Regional Arrangements for the Promotion of Child Welfare in South Asia and Convention on Preventing and Combating the Trafficking in Women and Children for Prostitution
(b) ASEAN Charter on Rights, 2007.

REFERENCES:

Essential Readings:


Further Readings:

RELIGIOUS & SIKH STUDIES

SEMESTER- V

Max. Marks: 100
Written : 90 marks
Internal : 10 marks

PAPER- V, RELIGIOUS REFORM MOVEMENTS IN MODERN INDIA

Objectives:
The course is designed for the students who want to pursue semester bases graduate degree programme with religious Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course. As one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness about the origin, features and purpose of different religions.

INSTRUCTIONS FOR PAPER-SETTER AND CANDIDATES:
Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. 1 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 answer type questions out of twelve. Question No. 1 would carry 18 marks (9X2). In addition to it, Question No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4 X 18).

Course Contents:
Unit I. Brahmo Samaj and Arya Samaj: Leaders, Principles and Contribution
Unit II. Namdharis and Singh Sabha Movement: Leaders, Principles and Contribution
Unit III. Anjumans and Ahmadiyahs: Leaders, Principles and Contribution
Unit IV Swami Vivekanand; Sir Syed Ahmad Khan and Bhai Kahn Singh Nabha

Essential Readings
• उत्तर सिंह, तुलसी पीयूष विश्वविद्यालय पुस्तकां, पवश्चिमस्त विश्व, पवश्चिमी बृहत्तंबरमिती पाठ्यक्रम
• डॉ. महमद आज़म, (मंच फेयर) पंजाब एनार्निट विश्वविद्यालय, त्रिसंग भूलान पॉकेट, पवश्चिमस्त विश्व, पवश्चिमी बृहत्तंबरमिती पाठ्यक्रम
• Farquhar, J.N., Modern Religious Movements in India

**Further Reading**

• Shan Muhammad, *Sir Syed Ahmad Khan: A Political Biography*, Meenakshi Prakshan.
RELIGIOUS & SIKH STUDIES

SEMESTER- VI

Max. Marks: 100
Written : 90 marks
Internal : 10 marks

PAPER-VI SEMITIC RELIGIONS

Objectives:
The course is designed for the students who want to pursue semester based graduate degree programme with religious Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course. As one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness about the origin, features and purpose of different religions.

INSTRUCTIONS FOR PAPER-SETTER AND CANDIDATES:

Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. 1 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 answer type questions out of twelve. Question No. 1 would carry 18 marks (9X2).

In addition to it, Question No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4 X 18).

Course Contents:

Unit I   Islam: origin and development in India
Unit II  Sufi Tradition: origin and development in India
Unit III Christianity: origin and development in India
Unit IV Sects within Christianity: Catholics and Protestants

Essential Readings

Further Readings

COMPUTER SCIENCE
SEMESTER-V

SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>FIFTH SEMESTER</th>
<th>Exam .</th>
<th>Ext.</th>
<th>Int.</th>
<th>Max.</th>
<th>Marks</th>
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<tr>
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Paper Code: CS09

Paper Title: Project Management

Objective: The student will come to know how a project needs to established, organized, coordinated, controlled and evaluated.

Note: (i) The syllabus of this paper has been divided into four units.
(ii) Examiner will set total nine questions comprising two questions from each unit and one compulsory question of short answer type covering whole syllabi.
(iii) The students are required to attempt one question from each unit and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.

UNIT I

1. Concepts of Project Management:
Concept of a project, Characteristic features of a project, Categories of project, Project life cycle phases, Project Management Concepts, Tools and Techniques for Project Management, Introduction of Computerised project management systems, Roles and Responsibilities of a Project Manager.

2. Establishing the Project:
Feasibility Report: Raw material survey, Demand study, Technical study, Location study; Financing Arrangements, Preparation of Cost Estimates, Finalisation of Project Implementation Schedule, Evaluation of the Project Profitability, Fixing the zero date.

UNIT II

3. Organizing human resource:
Delegation, Project organization: Matrix, Tax force and Totally projectized organization;

4. Organizing the Project:
UNIT III

5. Project Directions, Coordination and Control:
Project Direction, Communications in a Project, Project Coordination, Project Control, Scope/Progress Control, Performance Control, Schedule Control, and Cost Control.

6. Project Management Performance:
Performance Indicators, Performance Improvement, Project Management Environment.

UNIT IV

7. Report Writing - I:
Characteristics of Reports, Importance of Reports, Types of Reports, Structure and layout of Reports: front matter, main body, back matter; Preparatory Steps to Writing Reports: Evaluation of material, Note making, Organising material, Principle of organisation, Making outline

8. Report Writing- II:
Elements of Style; Use of Illustrations: types; Writing the Report: Rough draft, Process of writing, Order of writing, Final draft, Check list for reports; Specimen Reports: technical report;

REFERENCES

Paper Code: CS10

Paper Title: Relational Database Management System

Objectives: This course will enable the student to get well versed with the SQL and PL/SQL concepts.

Note: (i) The syllabus of this paper has been divided into four units.
(ii) Examiner will set total nine questions comprising two questions from each unit and one compulsory question of short answer type covering whole syllabi.
(iii) The students are required to attempt one question from each unit and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.

UNIT I

1. Interactive SQL : SQL commands; Data Definition Language Commands; Data Manipulation Language Commands; Data types, Insertion of data into the tables; Viewing of data from the tables; Conditional viewing of data; Deletion operations; Updating the contents of the table; Modifying the structure of the table; Renaming table; Destroying tables.
2. **Data Constraints**: Types of Data Constraints; Column Level Constraints; Table Level Constraints; Null value concepts; The UNIQUE Constraint; The PRIMARY Constraint; The FOREIGN key Constraint; The CHECK Constraint; Viewing the User Constraint.

**UNIT – II**

3. **SQL Operators and Functions**: Arithmetic operators, Logical operators, Range searching, Pattern matching; Using DUAL, SYSDATE; SQL Functions: Group, Scalar, Aggregate, Numeric, String and Date Functions.


**UNIT III**

5. **Indexes**: Creation, Types, Dropping an index; Introduction to Views, Manipulating the Base table(s) through views, Rules of DML Statements on Join Views, Dropping a View, Inline Views, Materialized Views.

6. **Sequences**: Creation, Reference and Alteration; Database Security and Privileges: Grant Command, Revoke Command, Application Privileges Management, COMMIT and ROLLBACK.

**UNIT IV**


**References:**
1. Ivan Bayross: SQL, PL/SQL the programming language of oracle, BPB publications.

**Paper – PCS05**: Practical Based on Paper CS10 – Relational Database Management System.
COMPUTER SCIENCE
SEMESTER-VI

SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>FIFTH SEMESTER</th>
<th>Exam. Hrs</th>
<th>Ext.</th>
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<td>Paper –CS12</td>
<td>Theory-B</td>
<td>Web Programming</td>
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<td>Practical-C</td>
<td>Practical Based on Paper – CS12</td>
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Paper Code: CS11

Paper Title: E-Commerce

Objective: To develop an understanding of concepts of E-Commerce

Note: (i) The syllabus of this paper has been divided into four units.
     (ii) Examiner will set total nine questions comprising two questions from each unit
         and one compulsory question of short answer type covering whole syllabi.
     (iii)The students are required to attempt one question from each unit and the entire
         Compulsory question.
     (iv) All questions carry equal marks, unless specified.

UNIT I


UNIT II

3. Website designing and hosting: Life cycle of website building, Website content and traffic management, Working of ISPs, Choosing an ISP, Choosing and registering a domain name.

4. Implementation and Maintenance of E-Commerce: Implementation strategies, Maintenance strategies, Legal and Ethical issues in E-commerce.

UNIT III

5. Payment Systems: From Barter to money, Requirements of Internet-based payments, Electronic payment media: Credit cards, Debit cards, Smart cards, e-wallets, Issues and implications of payment systems, Latest trends in payment systems.
6. **Marketing on the Internet**: Internet marketing techniques and cycles, Attracting and Tracking customers, Pros and cons of online marketing.

**UNIT IV**

7. **Firewalls and Network Security**: Types of firewall, Gateways, Proxy Servers and its advantages and disadvantages; Transaction Security: Types of transaction, Requirements for transaction, Encryption: asymmetric and symmetric encryption; Digital signatures, Digital certificates, Implementation and management issues.

**REFERENCES**:

2. Elias M. Awad, 2006 : Electronic Commerce from vision to fulfillment, PHI.

**Paper Code: CS12**

**Paper Title: Web Programming**

**Objectives**: This course will enable the student to build and publish web sites using **HTML**, **CSS**, **JavaScript** and **PHP**.

**Note**: 
(i) The syllabus of this paper has been divided into four units.
(ii) Examiner will set total nine questions comprising two questions from each unit and one compulsory question of short answer type covering whole syllabi.
(iii) The students are required to attempt one question from each unit and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.

**UNIT - I**

1. **Basic Terminology**: Web Server; Web Browser, Understanding Communication between a Browser and Web Server, Webpage, Website, Static Website, Dynamic Website, Internet, Intranet, Extranet, WWW, URL.

2. **HTML**: HTML Program Structure, Paragraph Breaks, Line Breaks; Emphasizing Text: Heading Styles, Drawing Lines; Text Styles :Bold, Italics, Underline; Other Text Effects: Centering of text and images etc; Lists: Unordered List, Ordered Lists, Definition lists; Adding Graphics to HTML Documents using the Border, Width, Height and Align; Tables: Caption Tag, Width, Border, Cell padding, Cell spacing, BGCOLOR, COLSPAN and ROWSPAN Attributes.

**UNIT - II**


4. **DHTML**: Introduction to Cascading Style Sheets (CSS), Style tag, Link tag, Types of CSS: In-Line, Internal, External; Forms: Attributes of Form element: Input element, Text Element, Password, Button, Submit Button, Reset Button, Checkbox, Radio, TextArea, Select and Option.
UNIT - III
5. **JavaScript:** Introduction and Features of JavaScript, Writing JavaScript into HTML, Tokens, Data Types, Variables, Operators, Control Constructs, Strings Arrays, Functions, Document Object Model, Core Language Objects, Client Side Objects, Event Handling, Applications related to client side form validation, Built-In Objects in JavaScript: String Object, Math Object, Date Object;

UNIT - IV
6. **Introduction to PHP:** PHP Installation and Configuration; Naming files, Comments, Variables, Operators, Arrays, Flow Control Structures, More language basics; User-defined functions; Input validation, Working with Mathematical, String, Date and Time functions

REFERENCES
1. Bayross, Ivan: Web enabled commercial applications development using HTML, Javascript, DHTML and PHP by BPB, Latest reprint
2. Wanger & Wyke: JavaScript Unleashed, Pearson Education, New Delhi
3. Thomas Powell: HTML & CSS: The Complete Reference
6. Kelvin Tetroi: Programming PHP, O'Reilly Media

ENVIRONMENT CONSERVATION (ELECTIVE)

SEMESTER-V

Paper: Biodiversity and Conservation

<table>
<thead>
<tr>
<th>Theory hours</th>
<th>Practical Hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
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<td>10</td>
<td>20</td>
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The number of hours for theory and Practical per week shall be 6 hours and 4 hours, respectively.

Note: The practical will include survey and its project reports carrying 5 marks (Internal Assessment) and 20 marks will be allotted to Laboratory practicals.

Instructions for paper setters:

There will be 9 questions in all, two each from section I to IV. All questions will carry equal marks (13 marks each). Question NO. I will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from section I to IV and the first compulsory questions.

Paper : Biodiversity and Conservation

Section-I


Section-II


Section-III

Environmental Ethics: Role of religion in Environment Protection. Role of Indian tradition in environment conservation, Sustainable agriculture.
 Different possible measures to make aware localities about environmental hazards and its remedies. Public Interest Litigation(PIL).

Section-IV

Cultivation Practices: Role of tree & plants in conservation; use of medicinal plants; cultivation methods (Aloe vera, Calotropis (AK), Mentha, Ocimum, Neem, Ricinus, Jatropa, Accacia, Khair (Katha).

Practical
Collection of local flora and fauna.
Study of vegetation of local area/college campus.
Collection of ten pests.
Identification of weeds.
Study of vegetation density by quadrat method
Plantation of medicinal plants.
Adaptation features of plants and animals.
Assignments/project as assigned by the teacher. 

------------------------
ENVIRONMENT CONSERVATION (ELECTIVE)

SEMESTER -VI

Paper: Public Awareness and Environment Issues

<table>
<thead>
<tr>
<th>Theory hours</th>
<th>Practical Hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
<th>Practical marks</th>
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<td>05</td>
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</table>

The number of hours for theory and Practical per week shall be 6 hours and 4 hours, respectively.

Note: The practical will include survey and its project reports carrying 5 marks (Internal Assessment) and 20 marks will be allotted to Laboratory practicals.

Instructions for paper setters:

There will be 9 questions in all, two each from section I to IV. All questions will carry equal marks (13 marks each). Question No. I will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from section I to IV and the first compulsory questions.

Paper: Public Awareness and Environment Issues

Section-I

Current Environment Issues: Climate Change, Global Warming, Population Explosion, Rain water harvesting, rehabilitation of mining areas, impact of green revolution on environment with special reference to Punjab, Tehri Dam, Narmada Project, Bhopa Gas Tragedy, River Cleaning Project of Sant B.S. Seechewal (Punjab).

Section-II

Environmental Protection: Role of Non-Governmental Organizations (NGOs) in environmental protection (Chipko movement, For a Living Ganga by WWF, Transformation DTC fleet to CNG driven transport, Earth Hour, Green Peace (Nitrate Pollution in Punjab), KVM, Jaito). Role of individual in environment protection. Role of environmental education.

Section-III

Environmental Agencies: Role of International & National Agencies: UNEP, UNDP, WWF, MOEF, CPCB, in environment conservation and management.
A brief account on Ramsar convention, CITES (Convention on International Trade in Endangered Species), UNFCC, Montreal Protocol, Kyoto Protocol, Copenhagen Summit.

Section-IV

RS and GIS: Definition, Application in Environment.
Biostat: Mean mode, median, standard deviation, correlation, Regression.
Practical

Public/Mass awareness programmes in different villages and their reports.
Survey report on different diseases based theory.
Visit to a dam to study its construction and working.
To visit any NGO working for environment.
To study various indoor pollutants in houses like LPG, AC, Paints, Polish, Cosmetics, Detergents, Shampoo, Hair dyes.
To study the different tools of stat in data interpretation.
Assignments/project as assigned by the teacher.

Books Recommended:

Singh, Oraon & Prasad. : Medicinal Plants, APH Publications, 2009
HOME SCIENCE

B.A./B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2018-19

SEMESTER- V

Scheme of Examination

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Paper</th>
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<tbody>
<tr>
<td>1</td>
<td>Food, Nutrition and Child Development</td>
</tr>
</tbody>
</table>

**Theory**

- **No. of Papers**: 1
- **Time in hrs.**: 3
- **Marks**: 40
- **Int. Ass.**: 10

**Practical**

- **No. of Papers**: 1
- **Time in hrs.**: 3
- **Marks**: 40
- **Int. Ass.**: 10

Total: 100

**Note**: 1. Each Practical group will have 12-15 students.

**FOOD, NUTRITION AND CHILD DEVELOPMENT (Theory)**

- **Max. Marks**: 50
- **Theory**: 40
- **Int. Ass.**: 10
- **Periods**: 6 Hours/8 periods per 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 sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

**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**

I. Importance and Functions of Food:
   (a) Physiological; (b) Psychological; (c) Social

II. Food Constituents: Carbohydrates, Proteins and Fats—Functions, sources, requirements and deficiency.

III. Methods of Cooking: Boiling, Steaming, Frying, Baking, Roasting and Microwave cooking.

**SECTION B**

IV. Functions, recommended allowances, deficiency, excess and food sources of the following nutrients:
   (a) Vitamins—A, B₁, B₂, B₃, Vit. C, Vit. D.
   (b) Minerals—Calcium, Phosphorous, Iron, Sodium, Iodine.
V. Balanced Diet
   (a) Concept
   (b) Classification of food based on the five/seven food groups.

SECTION C

VI. Pregnancy
   1. Signs and symptoms of pregnancy.
   2. Discomforts and Complications.
   3. Care during pregnancy
   4. Preparation for delivery
   5. Post natal care- Importance of breast feeding, bottle feeding, weaning and different types of weaning foods

VII. Methods of family planning

SECTION D

VIII Definition and importance of Child Development.
   (a) Differences between growth and development;
   (b) Principles of development.

IX Developmental tasks at various stages of development

PRACTICAL

<table>
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<tr>
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<th>Max. Marks</th>
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<tbody>
<tr>
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<tr>
<td>Int. Ass.</td>
<td>10</td>
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<tr>
<td>Teaching Periods</td>
<td>6 Periods/Week</td>
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I. Preparation of following dishes using various methods of cooking
   a. Soups- stimulating and nourishing (any two)
   b. Snacks- savory and sweet (two each)
   c. Salads- decorative and nutritious (two each)
   d. Bakery items (any two)
   e. Preparation with cereal pulse combination (any two)
   f. Desserts (any two)

II. Hot and cold beverages (at least two each).

III. Preparation of low cost nutritious recipes (at least two)

IV. Recipes- enhancing nutritive value (at least two)
V. Project

- Survey of Food Labels in order to study their nutritional facts
  
  OR

- Survey of eating habits of five students

Reports to be submitted

List of Equipments for a practical group of 12-15 students:

1. Gas Burners 15
2. Cooking Range 01
3. Ovens 05
4. Mixers and Grinders 05
5. Weighing Scales (for food) 05
6. Gas Lighters 15
7. Dustbin-Small 15-Big-1
8. Vegetable Racks 02
9. Plate Racks 15
10. Storage Jars and Containers 25
11. Refrigerator 01
12. Icing Sets 05

Cooking Utensils

1. Pressure Cooker 15
2. Patila with Lid 30
3. Kadahai 15
4. Parat 15
5. Tawa 15
6. Chakla-Belna 15
7. Grinding Stone 15
8. Saucepans 15
9. Karchhi 15
10. Palta 15
11. Poni 15
12. Soup Strainers 15
13. Sieves 15
14. Enamel Bowls 15
15. Baking Trays and Tins 15
16. Cookie Trays 15
17. Serving Trays 15
18. Cutting Knives 15
19. Peelers 15
20. Jelly Moulds 15

**Crockery and Cutlery**

1. Full Plates 30
2. Half Plates 30
3. Quarter Plates 30
4. Cups & Saucers 30
5. Soup Bowls 30
6. Glasses 36
7. Katoris (Vegetables Bowls) 30
8. Dongas 30
9. Forks 30
10. Table Knives 30
11. Table Spoons 48
12. Tea Spoons 48
13. Serving Spoons 24
14. Tea Sets 05
15. Dinner Sets 05
16. Borosil Bowls 15
17. Casseroles 15

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HOME SCIENCE

B.A./B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2018-19
SEMESTER- VI

Scheme of Examination

<table>
<thead>
<tr>
<th>Theory</th>
<th>Practical</th>
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<tbody>
<tr>
<td>Sr. No.</td>
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</tr>
<tr>
<td>1.</td>
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Note: 1. Each Practical group will have 12-15 students.

FOOD, NUTRITION AND CHILD DEVELOPMENT (Theory)

Max. Marks : 50
Theory : 40
Int. Ass. : 10
Periods : 6 Hours/8 periods per 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 sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

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

I Food Preservation:
   (a) Definition, Importance & Principles.
   (b) Causes of food spoilage.
   (c) Household methods of food preservation—sun drying, use of salt, oil, spices, sugar & chemical preservatives.

II Meal Planning
   (a) Definition
   (b) Importance
   (c) Principles of meal planning (physiological, psychological and economical)
SECTION-B

III. Therapeutic Diets & Modification of Normal Diet:
   (a) Principles of therapeutic diets.
   (b) Concept of soft, bland, liquid diets with examples.

IV. Therapeutic diets in the following conditions with principles involved:
   (a) Fever
   (b) Diarrhoea
   (c) High blood pressure/ Hypertension
   (d) Diabetes Mellitus.

SECTION-C

VI. Emotional Development of the child from infancy up to 6 years
   (a) Characteristics of children’s emotions.
   (b) Common childhood emotions—Fear, angers, jealousy, curiosity love and affection.

VII. Language Development.
   (a) Stages of language development.
   (b) Factors affecting language development

SECTION-D

VIII. Play
   (a) Significance of play.
   (b) Types of play.
   (c) Play materials/equipment required for various age groups.

IX. Common behavioural problems and their remedies—Bed wetting, thumb sucking, nail biting, temper tantrums.

PRACTICAL

Max. Marks : 50
Practical : 40
Int. Ass. : 10
Teaching Periods : 6 Periods/week

I Planning & Preparation of diets for the following:
   (a) Pre-Schooler;
   (b) School going/packed lunch;
   (c) Adolescent;
   (d) Pregnant and lactating woman.
II Cooking and serving of the following: Soft, liquid, fluid diets (two each)

III Preservation—preparation of pickle, jam, chutney and squash (one each)

IV Project
- Safety measures of play equipment
  OR
- Visit to a nursery school
  OR
- Preparation of any one play item

Reports to be submitted

- List of Equipments for a practical group of 15 students: SAME AS OF SEMESTER V

Reference Books:

7. *Diet and Nutrition*, Huma Zaidi
12. *Child Psychology*, Dr. Nisha Sharma
B.A./B.SC.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS

MATHEMATICS

SEMESTER V

Paper I : ANALYSIS - I

Max. Marks : 30
Time : 3 hrs.

Note:

1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Countable and uncountable sets.
Riemann integral, Integrability of continuous and monotonic functions, Properties of integrable functions, The fundamental theorem of integral calculus, Mean value theorems of integral calculus.
Beta and Gamma functions.

Unit-II

Improper integrals and their convergence, Comparison tests, Absolute and conditional convergence, Abel’s and Dirichlet’s tests, Frullani’s integral.
Integral as a function of a parameter. Continuity, derivability and integrability of an integral of a function of a parameter.

References:

Paper II: MODERN ALGEBRA

Max. Marks : 30
Time : 3 hrs.

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Groups, Subgroups, Lagrange’s Theorem, Normal subgroups and Quotient Groups, Homomorphisms, Isomorphism Theorems, Conjugate elements, Class equation, Permutation Groups, Alternating groups, Simplicity of $A_n$, $n \geq 5$ (without proof).

Unit-II

Rings, Integral domains, Subrings and Ideals, Characteristic of a ring, Quotient Rings, Prime and Maximal Ideals, Homomorphisms, Isomorphism Theorems, Polynomial rings.

References:

Paper III:  PROBABILITY THEORY

Max. Marks : 30
Time : 3 hrs.

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

SECTION A

Review of notion of Probability, conditional Probability and independence, Bayes’ Theorem.
Random Variables: Concept, probability density function, cumulative distribution function, discrete and continuous random variables, expectations, mean, variance, moment generating function, skewness and kurtosis.
Discrete Random Variables: Bernoulli random variable, binomial random variable, negative binomial random variable, geometric random variable, Poisson random variable.

SECTION B

Continuous Random Variables: Uniform random variable, exponential random variable, Beta random variable, Gamma random variable, Chi-square random variable, normal random variable.
Bivariate Random Variables: Joint distribution, joint and conditional distributions, Conditional Expectations, Independent random variables, the correlation coefficient, Bivariate normal distribution.

References


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MATHEMATICS
SEMMESTER VI

Paper I : ANALYSIS - II

Max. Marks : 30
Time : 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Double and triple integrals: Double Integral over A Rectangle, Repeated Integrals in $\mathbb{R}^2$, Double Integrals over Bounded Non-rectangular Regions, Area of Bounded Regions in Plane, Double Integrals as Volumes, Change of Variables in Double Integrals, Change to Polar Coordinates, Area in Polar Coordinates, Triple Integral in Rectangular Coordinates, Triple Integrals over General Regions in $\mathbb{R}^3$, Repeated Integrals in $\mathbb{R}^3$, Volume of a Region in $\mathbb{R}^3$, Change of Variables in a Triple Integral to Cylindrical and Spherical Coordinates.


Unit-II

Sequences and series of functions: Pointwise and uniform convergence, Cauchy criterion for uniform convergence, Weierstrass M-test, Abel’s and Dirichlet’s tests for uniform convergence, uniform convergence and continuity, uniform convergence and Riemann integration, uniform convergence and differentiation, Weierstrass approximation theorem (Statement only), Abel’s and Taylor’s theorems for power series.

Fourier series: Fourier expansion of piecewise monotonic functions, Fourier Series for Odd and Even Function, Half Range Series, Fourier Series in the Intervals $[0, 2\pi]$, $[-1, 1]$ and $[a, b]$.

References:


**Paper II : LINEAR ALGEBRA**

*Max. Marks : 30*

*Time : 3 hrs.*

**Note:**

1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

**Unit-I**

Vector Space : Definition and Examples of Vector Spaces, Subspaces, Algebra of subspaces, Linear span, Linear dependence and independence of vectors, Basis and dimension of a vector space, Basis and dimension of subspace, Direct sums and complements.
Linear transformations, Rank and Nullity of a linear transformation, Vector space of linear transformations

**Unit-II**

Linear transformations and matrices, Change of basis.

**References :**

4. I.N. Herstein, Topics in Algebra (Delhi Vikas).
5. V.Bist and V. Sahai, Linear Algebra (Narosa, Delhi).
Paper III: NUMERICAL ANALYSIS

Max. Marks: 30
Time: 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

SECTION A

Interpolation: Lagrange and Hermite Interpolation, Divided Differences, Difference Schemes, Interpolation Formulas using Difference.
Numerical Differentiation.
Numerical Quadrature: Newton-Cote’s Formulas, Gauss Quadrature Formulas, Chebychev’s Formulas.

SECTION B

Linear Equations: Direct Methods for Solving Systems of Linear Equations (Gauss Elimination, LU Decomposition, Cholesky Decomposition), Iterative Methods (Jacobi, Gauss-Seidel, Relaxation Methods).

References

B.A./B.Sc.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS

STATISTICS
SEMESTER - V

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. A candidate shall offer these subjects in B.A./B.Sc. Third year only if he/she had taken up the corresponding subject in B.A./B.Sc First and Second years.
3. There are two papers with codes 301 and 302 in the subject of Statistics in B.A./B.Sc., Semester -V. These are to be taught simultaneously throughout the Semester.
4. For theory, 8 lectures (of 45 minutes each) per week and for practical 4 lectures (of 45 minutes each) per week, amounting to 12 lecturers per week for theory and practical, shall be allotted for the teaching.

Paper 301: DEMOGRAPHY AND ECONOMIC STATISTICS

Maximum Marks : 75
Theory : 65
Internal Assessment : 10
Time allowed : 3 hours

Objective: The objective of this course is to acquaint students with the basis concepts of Microeconomic theory and the analysis of Statistical concepts used in the context of economic set up. They will also be exposed to the basic concepts in Demography.

Notes:
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 Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

UNIT - I
Sources of demographic data-census, vital statistical registers, adhoc surveys and hospital records. Measurement of mortality - crude death rate, specific death rates, standardized death rate, infant mortality rate and cause of death rate, complete life Table and its description. Measurement of fertility - crude birth rate, general fertility rate, total fertility rate, gross reproduction rate and net reproduction rate.

Economic time series, its different components, illustrations, additive and multiplicative models, determination of trend, growth curves (exponential and modified exponential), analysis of seasonal fluctuations, construction of seasonal indices.

UNIT - II
Index numbers, definition. Methods to construct price, quantity and value index numbers. Problems involved in the construction of index numbers, use of averages, simple aggregative and weighted average methods. Laspeyre’s, Paasche’s, Edgeworth - Marshall and Fisher’s index numbers. Time and factor reversal tests of index numbers. Chain Base index numbers, Cost of living index number, interpretation and applications of index numbers.

Static laws of demand and supply, price elasticity of demand, Pareto distribution, log normal distribution and their properties.
References:

   Das Gupta, B. (2005)


Additional References:


PAPER 302 : PRACTICAL (SEMESTER-V)

Mark : 25
Time : 3 Hours

(Viva voce: 5 marks; record of the year: 5 marks; Final Exam: 15 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 5 marks, in three hours duration.


2. Construction of Index Numbers by Laspeyre’s, Paasche’s, Edgeworth-Marshall’s and Fisher’s methods.

3. Determination of trend, construction of seasonal indices in a time series.
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. A candidate shall offer these subjects in B.A./B.Sc. Third year only if he/she had taken up the corresponding subject in B.A./B.Sc. First and Second years.
3. There are two papers with codes 303 and 304 in the subject of Statistics in B.A./B.Sc., Semester -VI. These are to be taught simultaneously throughout the Semester.
4. For theory, 8 lectures (of 45 minutes each) per week and for practical 4 lectures (of 45 minutes each) per week, amounting to 12 lecturers per week for theory and practical, shall be allotted for the teaching.

Paper 303: STATISTICAL QUALITY CONTROL AND COMPUTATIONAL TECHNIQUES

| Maximum Marks | 75 |
| Theory        | 65 |
| Internal Assessment | 10 |
| Time allowed | 3 hours |

Objective: This course teaches the applications of Statistics to maintain quality in Engineering or industrial set up. Linear programming with applications in the management and administration of military, government, commercial, and industrial systems, is used to maximize the utility of limited resources. The objective is to acquaint the students with different techniques for optimization.

Notes:
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 Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

UNIT - I

Importance of Statistical methods in industrial research and practice, meaning of quality, quality assurance and process control. General theory of control charts, causes of variations in quality, control limits, subgrouping summary of out of control criteria. Charts for variables \( \bar{X} \) and R charts. Charts for attributes - np, p, c and u - charts.

Principle of acceptance sampling- problem of lot acceptance, stipulation of good and bad lots, concepts of producer’s and consumer’s risks, AQL, LTPD, AOQL, ATI, ASN and OC functions. Single and double sampling plans and their ATI, ASN and OC functions.

UNIT - II


Linear Programming: elementary theory of convex sets, definition of general linear programming problems (LPP), formulation of LPP, examples of LPP. Graphical and simplex methods of solving an LPP, artificial variables, duality of LPP. Transportation problem (non-degenerate and balanced cases), initial basic feasible solution through North-West Corner Rule, Matrix Minima & VAN method.
References:


Additional References:


PAPER 304 : PRACTICAL (SEMESTER –VI)

Marks : 25
Time : 3 Hours

(Viva voce: 5 marks; record of the year: 5 marks; Final Exam: 15 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 5 marks, in three hours duration.

1. Drawing of $\bar{X}$, R, np, p, c and u – charts, Drawing of OC, AOQ and ATI curves for single and double sampling plans for attributes.

2. Construction of difference tables, use of Newton, Lagrange and divided difference interpolation formulae, numerical evaluation of integrals using Trapezoidal and Simpson one-third formulae, solution of system of linear equations by Gauss – Seidel iterative method.

3. Formulation of LPP’s and their duals. Solving LPP’s by graphical and Simplex methods, solution of transportation problem.
APPLIED STATISTICS
FIFTH SEMESTER

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 opting for this course will not be eligible for admission to M.A./M.Sc. Statistics.

3. There is one paper with code 301AS in the subject of Applied Statistics in B.A./B.Sc. Semester-V, having a total of 100 marks.

4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching

Paper-301AS: ESTIMATION AND TESTING OF HYPOTHESIS

Maximum Marks : 100
Theory : 90
Internal Assessment : 10
Time allowed : 3 hours

Objective: The objective of the course is to provide
(i) a systematic account of testing and closely related theory of point estimation and confidence sets, together with their applications.

(ii) exposure to various statistical designs leading to the analysis of variance, elimination of heterogeneity of the data and construction of designs.

(iii) an insight into Multivariate Techniques.

Notes:
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 Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

UNIT-I
Estimators and estimates, unbiased, consistent, efficient estimators. Methods of moments, maximum likelihood estimators for the parameters of Binomial, Poisson and normal distributions, confidence intervals.

Tests of a statistical hypothesis, two types of errors, power of a test, Tests for the parameters of Binomial, Poisson and normal distributions, Chi-squared tests of goodness of fit. Wilcoxon and sign test.
UNIT -II

Analysis of variance, one and two way classifications. Estimates of main effects, tests of significance for equality of effects.

Principles of design of experiments- Randomization, replication and local control. Completely randomized and randomized block designs.

Multivariate Techniques (upto 4 variables only). Estimators of mean vector and variance-covariance matrix of multivariate (upto 4) normal distribution, multiple regression, multiple correlation and partial correlation.

**Book Recommended**


2. Goon, A.M., Gupta, M.K. and Das Gupta, B (2005): Fundamentals of Statistics, Vol. II, Chapters: 1, 2 (only the relevant portion from these chapters as suggested in the syllabus)

**Additional references:**


APPLIED STATISTICS

SIXTH SEMESTER

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 opting for this course will not be eligible for admission to M.A./M.Sc. Statistics.

3. There is one paper with code 302AS in the subject of Applied Statistics in B.A./B.Sc. Semester VI, having a total of 100 marks.

4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching

Paper- 302AS: ECONOMICS AND INDUSTRIAL STATISTICS

Maximum Marks : 100
Theory : 90
Internal Assessment : 10
Time allowed : 3 hours

Objective: The objective of the course is to provide an idea about different sampling methods, use of index numbers and time series. It also provides exposure to the knowledge about controlling quality in industry. Different measures used in demography are described.

Notes:

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 Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

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.

UNIT-I

Sampling: Simple random and stratified sampling, optimum allocation in stratified sampling. Ratio and regression estimates.

Index Numbers: Index Numbers-as weighted averages, Price Index numbers, Quantity index numbers, Fisher’s tests for index numbers.

Time Series: The four components of a time series, moving average, the Slutsky Yule effect, determination of trend by curve fitting and moving average methods.
UNIT –II


Books Recommended


Additional References:

PHYSICS

B.Sc. (GENERAL) THIRD YEAR (5th and 6th Semester) EXAMINATION, 2018-19

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the theory papers is allocated 25 marks including 3(three) marks for the Internal assessment. The Practical examination is of 50 marks including 5 (Five) marks for the Internal assessment and will be held along with the sixth semester examination.

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 it will be four hours for practicals.

4. Each theory paper will consist of seven questions comprising of three sections. First two sections will comprise of three questions from each of Units I and II of syllabus, and the third section will comprise of one compulsory question of ten short answer type parts covering whole syllabus. The question paper will be set for 44 marks - All the questions in first and second sections will carry 9 (nine) marks each and the compulsory question will carry 8 marks. Student will attempt two questions from each of the first two sections and any eight parts of the compulsory question. After evaluation of the answer books out of 44 marks, the marks will be given out of 22 marks.

5. The numerical problems/exercises in the question paper should be 25-30%.

6. The use of Non-programmable calculators will be allowed (paper setters 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.
PHYSICS

SEMESTER – V

Papers, marks and teaching hours allocation:

- Paper A : Condensed Matter Physics - I  Total Teaching hours 30
- Paper B : Electronics and Solid State Devices - I Total Teaching hours 30
- Paper C : Nuclear & Particle Physics - I Total Teaching hours 30
- Physics Practicals Total Teaching hours 45

Paper A : CONDENSED MATTER PHYSICS - I (30 Hrs.)

UNIT-I

Crystal structure: Symmetry operations for a two dimensional crystal. Two dimensional Bravais lattices, Three dimensional Bravais lattices, Basic primitive cells, Crystal planes and Miller indices, Diamond and NaCl structure. Crystal diffraction : Bragg’s Law, Determination of crystal structure, Laue equations, Reciprocal lattices of SC, BCC and FCC, Bragg’s law in reciprocal lattice, Brillouin zones and its derivation in two dimensions, structure factor and atomic form factor.

UNIT-II

Band Theory of solids, periodic potential and Bloch theorem, Kronig-Penney model, band gaps, band structures in conductors, direct and indirect semiconductors and insulators. Free electron theory of metals, effective mass, drift current, mobility and conductivity (carrier concentration and mobility of carriers) and their variation with temperature in semi-conductors, Fermi level positions in intrinsic and extrinsic semiconductors, Wiedemann-Franz law, Hall effect in metals and semiconductors.

Recommended Books :

Essential Readings :

1. Introduction to Solid State Physics, C. Kittel, Wiley Eastern

Further Readings :

Paper-B :  ELECTRONICS AND SOLID STATE DEVICES - I  
(30 Hrs.)

UNIT-I

Concepts of current and voltage sources, Thevenin’s theorem, Norton’s theorem, Source conversion.  
CRO, Block diagram, construction and principle of working, Use of CRO for frequency, time period,  
special features of dual trace, phase measurements.

Energy band diagrams in semiconductors, Direct and indirect semiconductors, Formula to calculate  
Position of Fermi level in p and n semiconductors, Barrier formation, energy band diagram of p-n  
junction, Formula for Depletion width, Qualitative ideas of current flow mechanism in forward and  
reverse biased diode, v-i characteristics, static and dynamic resistance, Depletion and diffusion  
capacitance, zener diode, LED, photodiode and solar cell.

(Book 1, Book 3)

UNIT-II

Diode circuits, Clipping circuits, Rectification: half wave, full wave and bridge rectifiers, filter circuits  
(C, LC and \(\pi\) filters), rectification efficiency and ripple factor in LC filter, voltage regulation circuit using  
zener diode, voltage multiplier circuits.

Bipolar Junction transistors : Structure and working, different currents in transistor, switching action.  
Characteristics of CB, CE and CC configurations, Active, cutoff and saturation regions.

Load line analysis of transistors, Q-point, Transistor biasing and stabilization of operating point, fixed  
bias, collector to base bias, bias circuit with emitter resistor, voltage divider biasing circuit.

Working ans analysis of CE amplifier using h-parameters, current, voltage and power gain, input and  
output impedance. Class A, B and C amplifiers.

(Book 1, Book 2)

Recommended Books :

Essential Readings :

Further Readings :
3. Foundations of Electronics, D. Chatopadhyay, P.C. Rakshit, B. Saha, and N.N. Purkit, New Age International
Paper-C : NUCLEAR AND PARTICLE PHYSICS - I (60 Hrs.)

UNIT-I

General properties of Nuclei : Constituents of nucleus and their intrinsic properties, Quantitative facts about nuclear size, mass, density, binding energy and its variation with mass number, Wave mechanical properties of nucleus, angular momentum, parity; magnetic moment and electric moments of the nucleus. properties of nuclear forces and saturation, meson theory of nuclear forces

UNIT-II

Radioactive decay, Units of radioactivity (Ci and Bq), Successive disintegration, Natural radioactivity, Radioactive series, Carbon dating.
Alpha decay, energetic, alpha spectrum, Gamow’s theory of alpha decay, Geiger-Nuttal rule.
Beta decay, Qualitative discussion of beta spectrum, Evidence of existence of Neutrino, Conservation of nuclear energy in Beta minus, Beta plus and Electron capture decays.
Gamma-ray emission, selection rules, Internal conversion.

Nuclear Reactions: Types, Concept of compound and direct (pickup and stripping) reactions, Reaction differential and integral cross section, units, conservation laws and kinematics, Q-value equation, Coulomb (Rutherford) scattering cross section and distance of nearest approach.
Energy classification of neutrons, Nuclear fission in reactors, Reactor facilities available in India, Nuclear fusion in stars.

Recommended Books :

Essential Readings:


Further Readings :

1. *An Introduction to Nuclear Physics, M.R. Bhiday, and V.A. Joshi, Orient Longman.*
2. *Concepts of Nuclear Physics, B.L. Cohen, Tata McGraw Hill*
3. *Fundamentals of Nuclear Physics, J. Verma, CBS.*
PHYSICS PRACTICALS

The students are required to perform all the Nine experiments from each of the Units I and Unit II. The Practical examination will be held along with the sixth semester examination.

The aim of the project work is to develop the scientific and technical temper in the students and as such it may consist of development of a laboratory experiment, fabrication of a device or electronic circuit etc. The student will prepare a project report of about 10 pages. Assessment of the project work will be done on the basis of the effort put in the execution of the project, report prepared and viva-voce.

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
   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester 7
   (iii) Viva-Voce and Record (Practical file) 10
   (iv) Project 8
   (v) Internal Assessment 5

Total: 50 marks

Note for Examiners:

2. The marks scored under each head must be clearly written on the answer sheet.

3. There will be one session of 3 hours duration. The paper will have two sections. Section–A will consist of 4 experiments from each of Units I and Unit II, out of which an examinee will mark 3 experiments from either of units and one of these is to be allotted by the external examiner.

4. Section–B will consist of exercises/computer based activities 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.

5. 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.

6. Number of candidates in a group for practical examination should not exceed 12.

7. In a single group, no experiment be allotted to more than three examinees in the group.

List of Experiments:

Note: Each student should perform at least Nine experiments in the laboratory.
UNIT-I

I  CONDENSED MATTER PHYSICS:

(i) Measurement of reverse saturation current in p-n junction diode at various temperatures and to find the approximate value of energy gap.
(ii) To draw forward and reverse bias characteristics of a p-n junction diode and draw a load line.
(iii) Study of a diode as a clipping element.
(iv) To measure the magnetic susceptibility of FeCl₂ solution by Quincke’s method.

II  ELECTRONICS AND SOLID STATE DEVICES:

(v) To study the response of RC-circuit to various input voltages (square, sine and triangular).
(vi) To measure the efficiency and ripple factors for (a) Half-wave, (b) Full wave, and (c) Bridge rectifier circuits.
(vii) To study the reduction in the ripples in the rectified output with RC, LC and π-filters.
(viii) To draw the characteristics of a Zener diode and LED using constant current source.
(ix) To study the stabilization of output voltage of a power supply with Zener diode.
(x) To set up an oscillator and study its output on CRO for different V values.
(xi) To study the characteristics of a thermistor and find its parameters.

Exercises:
1. Any one exercise based on the above given experiments.

Computer Based Activities: Elementary C language programs.
1. Print a 2D array in spiral form.
2. To find determinant of a given matrix.
3. To find inverse of a given matrix.
4. To interpolate the data values from the given set.

UNIT-II

I  CONDENSED MATTER PHYSICS:

(i) To trace the B-H curves for different materials using CRO and find the magnetic parameters from these.
(ii) To find the conductivity of a given semi-conductor crystal using four probe method.
(iii) To determine the Hall coefficient for a given semiconductor.

II  ELECTRONICS AND SOLID STATE DEVICES:

(iv) To measure and plot Common Emitter Characteristics of a transistor (pnp or npn).
(v) To plot Common Base Characteristics and determine h-parameters of a given transistor.
(vi) To draw output and mutual characteristics of an FET and determine its parameters.
(vii) To study the gain of an amplifier at different frequencies and to find band-width and gain-band-width product.
III NUCLEAR PHYSICS:

(viii) To draw the Plateau of a GM counter and find its dead time.
(ix) To study the statistical fluctuations using GM counter.
(x) To study the absorption of beta-particles and determine the end point energy using GM counter. Also determine the absorption co-efficient (for aluminium) from it.
(xi) Verification of Rutherford Scattering experiment-mechanical analogue.

Exercises:
1. Any one exercise based on the above given experiments.

Computer Based Activities: Elementary C language programs.
1. To solve simultaneous equations by elimination method.
2. Fitting a straight line or a simple curve of a given data.
3. Convert a given integer into binary and octal/hexadecimal system and vice versa.

Text and Reference Books:
3. “Numerical Analysis” by C. Dixon
4. Programming with C, Byron Gottfried & Jitender Chhabra, Schaum series

.............................
PHYSICS

SEMESTER – VI

Papers, marks and teaching hours allocation:

<table>
<thead>
<tr>
<th>Paper</th>
<th>Subject</th>
<th>Total Teaching hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Condensed Matter Physics - II</td>
<td>30</td>
</tr>
<tr>
<td>B</td>
<td>Electronics and Solid State Devices - II</td>
<td>30</td>
</tr>
<tr>
<td>C</td>
<td>Nuclear &amp; Particle Physics - II</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Physics Practicals</td>
<td>45</td>
</tr>
</tbody>
</table>

Paper A: CONDENSED MATTER PHYSICS - II (30 Hrs.)

UNIT-I

Lattice Dynamics: Lattice vibrations and phonons, Scattering of photons by phonons, Dynamics of a linear chain of similar atoms and chain of two types of atoms, optical and acoustic modes, Density of modes, Einstein and Debye theories of specific heats of solids.

Magnetic classification of materials (Dia, para, ferro, ferri, antiferro), Langevin theory of dia and paramagnetism, Quantum theory, Weiss’s theory of Ferromagnetism, temperature dependence, hysteresis of ferromagnetic materials.

UNIT-II

Dielectric constant & polarizability, electric susceptibility, Clausius Mosotti equation, frequency dependence, ferroelectrics and Piezoelectrics.

Liquid crystals, various types and properties. Applications.

Superconductivity: Meisner effect, London’s equation and penetration depth, critical magnetic field and temperature, DC and AC Josephson effect, BCS theory (formation of Cooper pairs), ground state and energy gap.

Basic ideas of materials at nanoscale: Difference from bulk material properties, Nanoparticles, introduction to fabrication and characterization techniques, Carbon Nanostructures - nanotubes, grapheme. Applications of nanotechnology in various fields.

Recommended Books:

Essential Readings:
1. Introduction to Solid State Physics, C. Kittel, Wiley Eastern

Further Readings:
Paper-B : ELECTRONICS AND SOLID STATE DEVICES - II (30 Hrs.)

UNIT-I

Structure and working of JFET, characteristics, drain and transconductance curve, FET amplifier and its
voltage gain, Structure and working of MOSFET.
Feed back in amplifiers, voltage gain of negative feedback amplifier, advantages of negative voltage
feedback, negative current feedback circuit, emitter follower.
Theory of sinusoidal oscillations, loop gain and phase, Lead-lag RC circuit, Wein bridge oscillator.
Barkhausen criterion of sustained oscillations, positive feedback amplifier, LC oscillators, Colpitts and
Hartley oscillators. (Book1, Book2)

UNIT-II

Operational amplifier (black box approach) : Characteristics of ideal and practical opamp 741, open-loop
and closed-loop gain, characteristics and applications - inverting and non-inverting amplifiers, adder,
subtractor, differentiator and integrator, Comparator, Timer IC555, pin diagram and its applications as
astable and monostable multivibrator. (Book1, Book2)

Analog and digital circuits, binary numbers, decimal to binary conversions, AND, OR, NOT gates, NAND
NOR gates as universal gates, XOR and XNOR gates.
De Morgan’s theorem, Simplification of logic circuit using Boolean algebra, Minterms and Maxterms,
Conversion of a truth table into an equivalent logic circuit by Sum of products method. (Book 3)

Analog and digital communication systems, Amplitude and Frequency modulation, Power in AM wave,
generation and detection, Brief account of Satellite communication, Sky-wave communication, and mobile
communication.

Recommended Books :

Essential Readings :
   McGraw Hill

Further Readings :
2. Basic Electronics and Linear Circuits, N.N. Bhargave, D.C. Kulshreshtha, and S.C. Gupta,Tata McGraw
   Hill.
3. Foundations of Electronics, D. Chatopadhyay, P.C. Rakshit, B. Saha and N.N. Purkit, New Age
   International
Paper-C : NUCLEAR AND PARTICLE PHYSICS - II

(30 Hrs.)

UNIT-I

Interaction of nuclear radiation with matter: Energy loss due to ionization (Bethe Bloch formula), Range and energy straggling, Energy loss of electrons and positrons, radiation loss by fast electrons, Bremsstrahlung, electron-positron annihilation, production of Cerenkov radiation, Gamma-ray interaction with matter, photoelectric effect, Compton scattering, pair production (qualitative description).

Detectors for nuclear radiation: Gas-filled detectors, Ionization chamber, proportional counter, G.M. counter, Scintillation detector and Photomultiplier tube, Brief account of Semiconductor detectors.

UNIT-II

Particle Physics : Particle interactions : basic features and their exchange particles, Classification of elementary particles, properties, decay modes of leptons and mesons, Antiparticles, charge conjugation

Symmetries and Conservation principles, Lepton number, baryon number, Isospin, Hypercharge, Strangeness and charm, Gell-mann Nishijima formula

Concept of the quark model, color quantum number and gluons.

Origin and composition of Cosmic rays, Secondary cosmic rays, Effect of magnetic field of earth, Van Allen belts.

Particle accelerators: Cockcroft-Walton accelerator, Van-de Graaff generator, Tandem accelerator

Linear accelerator, Cyclotron. Brief account of Synchrtron, Accelerator facilities available in India.

Recommended Books:

Essential Readings:

4. An Introduction to Nuclear Physics, M.R. Bhiday, and V.A. Joshi, Orient Longman.

Further Readings:

1. Concepts of Nuclear Physics, B.L. Cohen, Tata McGraw Hill
2. Fundamentals of Nuclear Physics, J. Verma, CBS.

PHYSICS PRACTICALS

The Practical examination will be held along with the sixth semester examinations. General Guidelines for Physics Practical Examinations and syllabus is given in syllabus for Semester V.

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## CHEMISTRY

### SEMESTER-5<sup>th</sup>

**Scheme of Teaching and Examination**

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVII</td>
<td>Inorganic Chemistry-A</td>
<td>30 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XVIII</td>
<td>Organic Chemistry-A</td>
<td>30 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XIX</td>
<td>Physical Chemistry-A</td>
<td>30 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XX</td>
<td>Laboratory Practicals</td>
<td>6 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

*Total 15 periods/week 100*

### SEMESTER-6<sup>th</sup>

**Scheme of Teaching and Examination**

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
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<tr>
<td>XXI</td>
<td>Inorganic Chemistry-B</td>
<td>30 periods per week</td>
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<tr>
<td>XXIII</td>
<td>Physical Chemistry-B</td>
<td>30 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXIV</td>
<td>Laboratory Practicals</td>
<td>6 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

*Total 15 periods/week 100*

**Total Marks**

- SEMESTER-5 100
- SEMESTER-6 100

200
CHEMISTRY

SEMESTER-5th

Scheme of Teaching and Examination

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVII</td>
<td>Inorganic Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XVIII</td>
<td>Organic Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XIX</td>
<td>Physical Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XX</td>
<td>Laboratory Practicals</td>
<td>6 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

Total 15 periods/week 100

Paper-XVII: INORGANIC CHEMISTRY-A

Time : 3 Hrs
Max. Marks: 22+3
30 Hrs. (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) (Semester system) 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 is given to requisite intellectual and laboratory skills.

UNIT-I

Metal – Ligand Bonding in Transition Metal Complexes:

Limitations of valence bond theory, an elementary idea of crystal – field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal – field parameters, Spectro chemical Series.

UNIT-II

Thermodynamic and Kinetic Aspects of Metal Complexes:

A brief outline of thermodynamic and Kinetic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes.

UNIT-III

Organometallic Chemistry:

Definition, nomenclature and classification of organometallic compounds. Preparation, properties, bonding and applications of alkyls and aryls of Li, Al, Hg, Sn and Ti, a brief account of metal – ethylenic complexes and homogeneous hydrogenation, mononuclear carbonyls and the nature of bonding in metal carbonyls.
UNIT-IV

Bioinorganic Chemistry:

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. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-XVIII: ORGANIC CHEMISTRY-A

Objective of the course
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) 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 is given to requisite intellectual and laboratory skills.

UNIT-I

Electromagnetic Spectrum: Absorption Spectra –I:
Ultraviolet (UV) absorption spectroscopy – Absorption laws (Beer – Lambert Law), molar absorptivity, presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation. Concept of chromophore and auxochrom. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts. UV spectra of conjugated enes and enones.

Woodward Fieser Rules and their applications in calculating maximum values of conjugated alkenes (cyclic as well as acyclic) and conjugated carbonyl compounds.
UNIT-II (7 Hrs.)

Electromagnetic Spectrum: Absorption Spectra-II:

Infrared (IR) absorption spectroscopy – Molecular vibrations, Hooke’s law, selection rules, intensity and position of IR bands, measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds.

Problems pertaining to the structure elucidation of simple organic compounds using UV, IR and PMR spectroscopic techniques.

UNIT-III (8 Hrs.)

Spectroscopy:

Nuclear magnetic resonance (NMR) spectroscopy.

Proton magnetic resonance ($^1$H NMR) spectroscopy, nuclear shielding and deshielding, chemical shift and molecular structure, spin-spin splitting and coupling constants, area of signals, interpretation of PMR spectra of simple organic molecules such as ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromoethane, ethyl acetate, toluene and acetophenone.

UNIT-IV (8 Hrs.)

Carbohydrates:


Structure of ribose and deoxyribose.

An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.

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. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-XIX: PHYSICAL CHEMISTRY-A

Objective of the course
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) 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 is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)

Elementary Quantum Mechanics-I:
Black-body radiation, Planck’s radiation law, photoelectric effect, heat capacity of solids, Bohr’s model of hydrogen atom (no derivation) and its defects, Compton effect.
De Broglie hypothesis, the Heisenberg’s uncertainty principle, Sinusoidal wave equation, Hamiltonian operator, Schrodinger wave equation and its importance, physical interpretation of the wave function, postulates of quantum mechanics, particle in a one dimensional box.
Schrodinger wave equation for H-atom, separation into three equations (without derivation), quantum numbers and their importance, hydrogen like wave functions, radial wave functions, angular wave functions.

UNIT-II (7 Hrs.)

Elementary Quantum Mechanics-II:
Molecular orbital theory, basic ideas – criteria for forming M.O. from A.O., construction of M.O.’s by LCAO – \( \text{H}_2^+ \) ion. Calculation of energy levels from wave functions, physical picture of bonding and antibonding wave functions, concept of \( \sigma, \sigma^*, \pi, \pi^* \) orbitals and their characteristics. Hybrid orbitals – sp, sp\(^2\), sp\(^3\); calculation of coefficients of A.O.’s used in these hybrid orbitals.
Introduction to valence bond model of \( \text{H}_2 \), comparison of M.O. and V.B. models.

UNIT-III (8 Hrs.)

Photochemistry-I:
UNIT-IV
(7 Hrs.)

Photochemistry-II:
Qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield, photosensitized reactions – energy transfer processes (simple examples). Photochemistry of carbonyl compounds and alkenes.

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. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper – XX: LABORATORY PRACTICALS

INORGANIC CHEMISTRY

Synthesis and Analysis:

(a) Preparation of sodium trioxalatoferrate (III), \( \text{Na}_3[\text{Fe(C}_2\text{O}_4)_3] \) and determination of its composition by permaganometry.
(b) Preparation of copper tetraammine complex \([\text{Cu(NH}_3)_4]\text{SO}_4\).
(c) Preparation of cis-and trans-bisoxalatodiaqua chromate (III) ion.

Instrumentation

Solvent Extraction

Separation and estimation of Mg(II) and Fe(II).

PHYSICAL CHEMISTRY

Electrochemistry

(a) To determine the strength of the given acid conductometrically using standard alkali solution.
(b) To determine the solubility and solubility product of a sparingly soluble electrolyte conductometrically.
(c) To study the saponification of ethyl acetate conductometrically.
(d) To determine the ionization constant of a weak acid conductometrically.
(e) To study the distribution of iodine between water and CCl\(_4\).
(f) To study the distribution of benzoic acid between benzene and water.

Molecular Weight Determination

(a) Determination of molecular weight of a non-volatile solute by Rast method.
(b) Determination of the apparent degree of dissociation of an electrolyte (e.g. \( \text{NaCl} \)) in aqueous solution of the substance.

General Instruction to the Examiners:

Note: Practical examination will be of four hours duration & shall consist of the following questions:

Q.No. 1*. Preparation of an inorganic complex : 7 marks
Q.No. 2. Physical Chemistry : 7 marks

Students shall be allowed the choice to opt for one experiment out of the three offered. The candidate will write theory, short procedure and calculations of that experiments in the next 10 minutes. Note – Book / Books is/are not allowed during writing.
Q.No. 3. Viva-Voce : 5 marks

Minimum of four questions (2 marks each) be asked on the background of practical course.

Q.No. 4. Note Book : 3 marks

*If a question on preparation is asked, then the students shall be required to give Equation, requirements & short procedure in the first 10 minutes. Note Books are not allowed during writing.

**Books Suggested (Laboratory Courses)***

**CHEMISTRY**  
**SEMESTER-6th**  
Scheme of Teaching and Examination

<table>
<thead>
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<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXI</td>
<td>Inorganic Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXII</td>
<td>Organic Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXIII</td>
<td>Physical Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXIV</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

**Total** 15 periods/week 100

**Paper-XXI: INORGANIC CHEMISTRY-B**

<table>
<thead>
<tr>
<th>Time</th>
<th>3 Hrs</th>
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<tr>
<td>Max. Marks</td>
<td>22+3</td>
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<tr>
<td>30 Hrs. (2 Hrs/Week)</td>
<td></td>
</tr>
<tr>
<td>3 Periods/Week</td>
<td></td>
</tr>
</tbody>
</table>

**Objective of the course**

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) 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 is given to requisite intellectual and laboratory skills.

**UNIT-I** (7 Hrs.)

**Silicones and Phosphazenes:**

Silicones and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes.

**UNIT-II** (8 Hrs.)

**Hard and Soft Acids and Bases (HSAB):**

Classification of acids and bases as hard and soft Pearson’s HSAB concept, acid-base strength and hardness and softness. Symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness.

**UNIT-III** (8 Hrs.)

**Electronic Spectra of Transition Metal Complexes:**

Types of electronic transitions, L – S coupling, selection rules for d-d transitions, spectroscopic ground states, Orgel – energy level diagram for d<sup>1</sup> and d<sup>9</sup> states, discussion of the electronic spectrum of [Ti(H<sub>2</sub>O)<sub>6</sub>]<sup>3+</sup> complex ion.
UNIT-IV (7 Hrs.)

Magnetic Properties of Transition Metal Complexes:

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin-only formula. Correlation of $\mu_s$ and $\mu_{\text{eff}}$ values, orbital contribution to magnetic moments, application of magnetic moment data for 3$d$-metal complexes.

Instructions for paper setters and candidates:

1. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.
2. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.
3. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-XXII: ORGANIC CHEMISTRY-B

Time : 3 Hrs
Max. Marks: 22+3
30 Hrs. (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) (Semester system) 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 is given to requisite intellectual and laboratory skills.
UNIT-I

Amino Acids, Peptides, Proteins and Nucleic Acids:

Classification, structure and stereochemistry of amino acids. Acid-base behavior, isoelectric point and electrophoresis. Preparation and reactions of $\alpha$-amino acids.


UNIT-II

Synthetic Polymers:

Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler – Natta polymerization and vinyl polymers.

Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes.

Natural and synthetic rubbers.

UNIT-III

Organic Synthesis via Enolates:


UNIT-IV

Organometallic Compounds:

Organomagnesium Compounds: The Grignard reagents – Formation, structure and chemical reactions.

Organozinc Compounds: Formation and Chemical reactions.

Organolithium Compounds: Formation and Chemical reactions.

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. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Objective of the course
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) 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 is given to requisite intellectual and laboratory skills.

UNIT-I    (7 Hrs.)
Solid State-I:
Definition of space lattice, unit cell and Miller Indices

UNIT-II    (8 Hrs.)
Solid State-II:
X-ray diffraction by crystals. Derivation of Bragg equation. Determination of crystal structure of NaCl, KCl and CsCl (Laue’s method and powder method). Applications of Powder diffraction for structure determination, Thermal and photochemical reaction in solid state

UNIT-III    (8 Hrs.)
Spectroscopy:
Introduction : Electromagnetic radiation, regions of the spectrum, basic features of different spectrometers, statement of the Born-Oppenheimer approximation, degrees of freedom.
Rotational Spectrum:
Diatomic molecules. Energy levels of a rigid rotor (semi – classical principles), selection rules, spectral intensity, determination of bond length, qualitative description of non-rigid rotor, isotope effect.

UNIT-IV    (7 Hrs.)
Vibrational Spectrum:

Electronic Spectrum:
Concept of potential energy curves for bonding and antibonding molecular orbitals, qualitative description of selection rules and Franck- Condon principle.
Qualitative description of $\sigma$, $\pi$ – and n M.O., their energy levels and the respective transitions.
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. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested


Paper – XXIV: LABORATORY PRACTICALS

ORGANIC CHEMISTRY
Laboratory Techniques
Column Chromatography
Separation of fluorescein and methylene blue.
Separation of leaf pigments from spinach leaves.

Synthesis of Organic Compounds

(a) Aliphatic electrophilic substitution.
Preparation of iodoform from ethanol and acetone.

(b) Aromatic electrophilic substitution.
Nitration

Preparation of m-dinitrobenzene
Preparation of p-nitroacetanilide
Preparation of p-iodoaniline from aniline.
Preparation of methyl orange from N,N-dimethyl aniline and sulphanilic acid.
Halogenation
Preparation of p-bromoacetanilide
Preparation of 2,4,6 – tribromophenol
(c) Oxidation
Preparation of benzoic acid from toluene.
(d) Reduction
Preparation of aniline from nitrobenzene
Preparation of m-nitroaniline from m - dinitrobenzene

*Sterochemical study of Organic Compounds via Models*
R and S configuration of optical isomers.
E, Z configuration of geometrical isomers
Conformational analysis of cyclohexanes and substituted cyclohexanes.

**General Instruction to the Examiners:**
Note: Practical examination will be of four hours duration & shall consist of the following questions:

- Q.No. 1*: Preparation of an organic compound : 7 marks
- Q.No. 2. Experiment based on Laboratory Technique : 7 marks

Students shall be allowed the choice to opt for one experiment out of the three offered. The candidate will write theory, short procedure and calculations of that experiments in the next 10 minutes. Note – Book / Books is/are not allowed during writing.

- Q.No. 3. Viva-Voce : 5 marks
- Q.No. 4. Note Book : 3 marks

*If a question on preparation is asked, then the students shall be required to give Equation, requirements & short procedure in the first 10 minutes. Note Books are not allowed during writing.

**Books Suggested (Laboratory Courses)**

**BOTANY**

B.Sc. (General) Botany Fifth and Sixth Semester Syllabus  
(Examinations, 2018-2019)

<table>
<thead>
<tr>
<th>Fifth Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int Assess.</th>
<th>Max Marks</th>
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<tr>
<td>Theory Paper-A: Plant Physiology-I</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B: Plant Ecology</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs</td>
<td>18</td>
<td>02</td>
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<table>
<thead>
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<th>Time</th>
<th>Theory</th>
<th>Int Assess.</th>
<th>Max Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper-A: Plant Physiology-II</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B: Economic Botany</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs</td>
<td>18</td>
<td>02</td>
<td>20</td>
</tr>
</tbody>
</table>

**Total** 200

**Note:**
1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.
2. There will be two theory papers (A&B) in each semester. Each paper will consist of nine questions. Question No.1 will be compulsory and will consist of 12 parts (one mark each) comprising 6 MCQ and the rest 6 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 12 marks and the rest of 8 questions will be of 6 marks each.
THEORY PAPER- A: PLANT PHYSIOLOGY-I

Objectives: The basic aim of this paper is to familiarize the students with various concepts of functions and metabolism of plants. The course material of this paper would enable the students to correlate structural diversity of various plant forms with functional differentiation and its biological aspects including biological nitrogen fixation and mineral nutrition. In practicals, students will be familiarize with the various experiments pertaining to theory syllabus.

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.

UNIT-I

Plant Water Relations: Importance of water to plant life; physical properties of water; imbibition, diffusion, osmosis, plasmolysis and deplasmolysis, concept of osmotic potential, water potential and pressure potential; absorption of water, active and passive mechanism of water absorption; transport of water, mechanism and theories to explain ascent of sap; transpiration types, mechanism of opening and closing of stomata, mechanism of transpiration, factors affecting transpiration, antitranspirants.

UNIT-II

Mineral nutrition: Hydroponics and its importance; essential macro-and micro elements, essentiality criteria, deficiency symptoms and their role; mineral uptake; mechanism of mineral uptake (active, passive absorption and modern concepts).

UNIT-III

Nitrogen Metabolism: Biological nitrogen fixation; importance of nitrate reductase and its regulation; ammonia assimilation.

Lipid Metabolism: Structure and function of lipids; β – oxidation; saturated and unsaturated fatty acids.

UNIT-IV

Proteins: Classification, role and structure (primary, secondary and tertiary) of proteins.

Basics of enzymology: Discovery and nomenclature; classification, structure, properties, factors affecting enzyme activity, mechanism of enzyme action.
Suggested Readings:


PAPER-B: PLANT ECOLOGY

Objective: The basic objective of this paper is to make students aware about the role of environment in causing structural and functional variation in plants. Since the present day problems of varied nature like pollution, Global Warming etc. are directly or indirectly related to ecology, it is more than desired to provide the students with knowledge of basic concepts of ecology.

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

Definition, scope, relationship with other sciences.

Plant Environment: Climatic, edaphic, topographic and biotic factors affecting growth and distribution of plants.

UNIT-II

Ecosystem: Concept, structure; abiotic and biotic components; trophic levels, food chain, food web, ecological pyramids, energy flow, biogeochemical cycles of carbon, nitrogen and water.
UNIT-III

Community Ecology: Community characteristics, frequency, density cover, life forms, biological spectrum; ecological succession – Hydrosere and Xerosere.

UNIT-IV

Applied Ecology:

a) Air, water and soil pollution and their control.

b) Conservation and management of natural resources. (renewable and non-renewable)

Suggested Readings


Suggested laboratory exercises:

Plant Physiology:

1. To determine osmotic pressure of cell sap by plasmolytic method.
2. To demonstrate imbibition pressure using:
   i) Imbibition pressure apparatus.
   ii) Plaster of Paris cone.
3. To demonstrate osmosis through animal membrane/potato osmoscope.
4. To demonstrate plasmolysis and deplasmolysis.
5. To demonstrate mechanical and electrical adsorption.
6. To demonstrate the measurement of transpiration using simple potometer.
7. To demonstrate transpiration pull.
8. To study the effect of light intensity, and wind velocity on the rate of transpiration using Ganong’s potometer.
9. To compare the rate of transpiration from the two sides of a leaf using:
   i) Vaseline method
   ii) Cobalt chloride method

10. To demonstrate the mechanism of opening and closing of stomata.

11. To demonstrate the path of ascent of sap.

**Plant Ecology:***

1. Study of ecological adaptations in external characters of:
   *Hydrilla, Potamogeton, Ceratophyllum, Vallisneria, Lemna, Eichhornia Nelumbium, Calotropis, Nerium, Acacia, Zizyphus, Casuarina, Capparis, Asparagus, Ruscus, Opuntia, Euphorbia royleana.*

2. To prepare permanent stained slide to show ecological adaptations in the internal structure of the following:
   a) T.S. stem of *Hydrilla*
   b) T.S. leaf and petiole of *Eichhornia*
   c) T.S. leaf and petiole of *Nelumbium*
   d) T.S. leaf of *Nerium*
   e) T.S. stem of *Casuarina* and *Capparis*


4. To determine water holding capacity of soil.

**Guidelines for Botany Practical Examination**

<table>
<thead>
<tr>
<th>Max. Marks: 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical: 18</td>
</tr>
<tr>
<td>Int. Assess. 02</td>
</tr>
<tr>
<td>Time: 3 hours</td>
</tr>
</tbody>
</table>

1. Write material required, procedure and precautions for physiology experiment A (to be announced by the examiner). Perform the experiment, record observations, calculations if any, and results and show the experiment to the examiner. 6

2. Identify and cut T.S. of stem, leaf or petiole (to be announced by the examiner) of specimen B. Make its permanent stained slide and show it to the examiner. Draw its labelled diagram and write its morphological and anatomical characters of ecological importance. 6

3. Practical note-book 3

4. *Viva-voce* 3

..........................
Objectives: The main objective of this paper is to familiarize the students with growth and metabolic processes of the plants. It also deals with the plant development, differentiation and their regulatory mechanism along with basic concepts in tissue culture.

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 will be familiarize with the various experiments pertaining to theory syllabus.

UNIT-I
Photosynthesis: Significance, historical aspect; photosynthetic pigments; action spectra and enhancement effects; concept of two photosystems, cyclic and non-cyclic photophosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration; factors affecting photosynthesis; transport of organic substances: Mechanism of phloem transport, source-sink relationship, factors affecting translocation.

UNIT-II
Respiration: ATP – The biological energy currency; aerobic and anaerobic respiration; Krebs cycle; electron transport mechanism (Chemi-osmotic theory); redox potential; oxidative phosphorylation; pentose phosphate pathway; respiratory quotient.

UNIT-III
Growth and development: Definitions; phases of growth and development; kinetics of growth, factors affecting growth; plant movements; the concept of photoperiodism, physiology of flowering; florigen concept; roles of plant hormones– auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their discovery.

UNIT-IV
Biotechnology: Functional definition; basic aspects of plant tissue culture, its applications and somatic hybridization.
Suggested Readings:


PAPER-B: ECONOMIC BOTANY

Objective: The basic objective of this paper is aimed to give an insight into plant wealth such as medicinal plants; crop plants; beverages; spices; condiments; sugar; fiber; pulp & oil yielding plants of commercial & economic importance. Both the aspects of this paper give a sound basis of ecology and economic botany so that students can venture into fields like Environmental Biology, Conservation Biology, Forestry, Agriculture, Horticulture and Crop production etc.

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

Crop production: Area of cultivation, soil requirement, cultivation practices and high yielding varieties of :

i) Cereals (Wheat, Rice and Maize)
ii) Fibres (Cotton)
iii) Vegetables (Potato)

UNIT-II

Crop production: Area of cultivation, soil requirement, cultivation practices and high yielding varieties of :

i) Fruits (Mango, Grapes, Lemon)
ii) Sugar-yielding plants (Sugarcane)
iii) Oil-yielding plants (Groundnut, Mustard)
UNIT-III

Elementary knowledge of the following plants (Botanical names, families, parts used and economic importance):

i) Wheat, Maize, Rice, Moong, Gram (Food).
ii) Teak, Shisham, Deodar, Sal (Timbers).
iii) Cotton, Jute, Coir, Flax (Fibres).
iv) Fennel, Coriander, Turmeric, Ginger, Mint, Clove (Spices and Condiments).

UNIT-IV

Elementary knowledge of the following plants (Botanical names, families, parts used and economic importance):

i) Bamboo, Eucalyptus (Pulp plants).
ii) Liquorice, Belladona, Aconite, Ashwagandha, Arjun, Poppy, Amla (Medicinal plants).
iii) Tea and Coffee (Beverages).

Forestry: Forest conservation, wood seasoning and its preservation.

Suggested Readings

Suggested laboratory exercises:

**Plant Physiology:**

1. To demonstrate that chlorophyll is necessary for photosynthesis.
2. To demonstrate that light is necessary for photosynthesis.
3. To demonstrate that CO₂ is essential for photosynthesis.
4. To demonstrate evolution of oxygen during photosynthesis in an aquatic plant.
5. To study the effect of light intensity and CO₂ concentration on the rate of photosynthesis using an aquatic plant.
6. To demonstrate aerobic respiration using flask method.
7. To demonstrate anaerobic respiration in germinating seeds or yeast.
8. To demonstrate the activity of amylase.
9. To demonstrate the activity of catalase in plant tissue (germinating seeds).
10. To demonstrate phototropism.
11. To demonstrate geotropism using clinostat.
12. To test for the presence of starch, proteins, amino acids, and reducing sugars in plant material.

**Economic Botany:**

Identification and morphology of economically important part/s of crop plants mentioned below:

Cereals (wheat, rice); Fibres (cotton); Vegetables (potato); Fruits (mango, grapes, lemon); sugar-yielding plants (sugarcane) and oil-yielding plants (groundnut, mustard).

**Guidelines for Botany Practical Examination**

Max. Marks: 20  
Practical:  18  
Int. Assess.  02  
Time:  3 hours

1. Write material required, procedure and precautions for physiology experiment A (to be announced by the examiner). Perform the experiment, record observations, calculations if any, and results and show the experiment to the examiner.  
   6
2. Identify and write illustrated morphological notes on specimens B & C giving their economic importance.  
   6
3. Practical note-book  
   3
4. *Viva-voce*  
   3

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ZOOLOGY
SEMESTER - V

Paper I: Developmental Biology 40 (36 +4) marks
Paper II: Applied Zoology-I 40 (36 + 4) marks
Practical (Covering the entire syllabus) of 4 hours duration 20 (18 +2) marks

Total: 100 marks

Note: The number of hours for Theory and Practical per week shall be 6 hours and 4 hours, respectively.

OBJECTIVES OF THE COURSE

The syllabus pertaining to B.Sc. (General) Semester V, 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, Seashores, 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 I: DEVELOPMENTAL BIOLOGY (ZOO-501)

Max. Marks: 40
Theory Exam.: 36 marks
Internal Assessment: 4 marks
Time: 3 hours

UNIT-I

Gametogenesis with particular reference to differentiation of spermatozoa. Vitellogenesis, role of follicle/subtesticular cells in gametogenesis.
Egg maturation: egg membranes: polarity of egg.

UNIT-II

Fertilization, parthenogenesis.
Cleavage: Types of cleavage patterns depending upon amount and distribution of yolk and position of spindle. Blastula and types of blastula.

Fate maps of chick and frog embryos.
UNIT-III

Induction: cell to cell interactions: juxtacrine, paracrine, gap junctions; basic concepts of organizers and inducers and their role. Determination and differentiation.

Development up to three germ layers in Herdmania, Amphioxus, frog, chick and rabbit.

UNIT-IV

Foetal membranes, their formation and role.

Mammalian placenta – its formation, types and functions.

Metamorphosis in Herdmania and Rana (frog)

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 8 parts of 1 mark 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.

Books Recommended


Practical based on Theory Paper

1. Study of the development of frog from permanent slides.
2. Window preparation and identification of stages of development in chick egg.
3. Study of the development of chick embryo from permanent slides up to 96 hours.
4. Study of the following permanent slides:
   a. Stages of gametogenesis, structure of egg and sperm of a mammal.
   b. Larva of Herdmania.
5. Study of metamorphosis of Herdmania and Frog through charts/video.
Paper II: APPLIED ZOOLOGY-I

Max. Marks :  40
Theory   :  36 marks
Internal Assessment :    4 marks
Time    :    3 hours

Note: Students are required to opt any one of the following:

1. Medical Zoology and Medical Laboratory Technology-I
2. Economic Entomology and Pest Management-I
3. Inland Fisheries & Aquaculture-I

OPTION I: MEDICAL ZOOLOGY & MEDICAL LABORATORY TECHNOLOGY-I
(ZOO-502A)

UNIT-I

Introduction to parasitology (pertaining to various terminologies in use).
Brief introduction to pathogenic microbes. (Dengue, Chikangunya, Japanese encephalitis, tuberculosis).
Epidemic diseases, such as typhoid, cholera, small pox; their occurrence and eradication programmes.

UNIT-II

Brief accounts of life history, mode of infection and pathogenicity of the following pathogens with reference to man; prophylaxis and treatment:
Pathogenic protozoans : *Entamoeba, Trypanosoma, Leishmania, Giardia, Trichomonas* and *Plasmodium*.

UNIT-III

Pathogenic helminthes: *Fasciolopsis, Schistosoma, Echinococcus, Ancylostoma, Trichinella, Wuchereria, Dracunculus* and *Oxyuris*.

UNIT-IV

Life cycle, disease caused and control measures of arthropod vectors : *Anopheles stephensi, A culicifaces, Aedes aegypti, A. albopictus, Culex fatigans, C.tritaeniorhynchus, Mansonia sp., Xenopsylla cheopis, Pediculus*.

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 8 parts of 1 mark 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.
Books Recommended


Practicals based on Theory Paper ZOO-502A (ZOO-352A)

1. Introduction to Entomology to various orders. Demonstration of parts of microscope, its functioning and care.
2. Study of permanent slides and specimens of parasitic protozoans, helminthes and arthropods mentioned in theory syllabus.

OPTION-II: ECONOMIC ENTOMOLOGY AND PEST MANAGEMENT-I (ZOO-502B)

UNIT-I

Comparative studies of mouth parts in Grasshopper, Honeybee, Butterfly, Red-Cotton bug, House fly and Mosquito.
Major modifications in the antennae and legs of insects.
Introduction to Entomology with various orders.
Development of Insects: Different type of metamorphosis along with a study of different kinds of larvae and pupae.
Systematic position, habits and nature of damage of the following pests of crops and vegetables:

I. Sugarcane:
   1. Sugarcane leaf hopper (Pyriiaperpusila) along with life cycle and control measures.
   2. Sugarcane top borer (Scirpophaganivella)
   3. Sugarcane stem borer (Chilotreainfuscatellus)

II. Cotton:
   1. Pink bollworm (Pectinophoragossypiella) along with life cycle and control measures.
   2. Red cotton bug (Dysdercusinglulatus)
   3. Cotton grey weevil (Myllocerusmaculosus)
   4. Surface grasshopper (Chrotogonustrachypterus)
   5. Cotton jassid (Empoascadevastans)

III. Paddy:
   1. Rice Gundhy Bug (Leptocorisavaricornis) along with life cycle and control measures.
   2. Rice grasshopper (Hieroglyphyusbanian)
   3. Rice Hispa (Dicladispaarmigera)

IV. Wheat:
   1. Wheat stem borer (Sesamia inferens) along with life cycle and control measures.
   2. Termites (Microtermesobesi)
   3. Aphids (Macrosiphummiscanthi) Jassids (Amrasca sp.)
V. **Vegetables:**
1. Red pumpkin beetle (*Aulacophora foveicollis*)
2. Pumpkin fruit fly (*Dacus cucurbitae*) along with life cycle and control measures.
3. Hadda beetle (*Epilachna vigintioctopunctata*)

UNIT-III

VI. **Pests of Stored Grains:** Systematic position, habits and nature of damage of the following pests of stored grains:
1. Pulse Beetle (*Callosobruchus maculates*)
   along with life cycle and control.
2. Rice weevil (*Sitophilus oryzae*)
3. Khapra beetle (*Trogoderma granarium*)
4. Rust red flour beetle (*Tribolium castaneum*)
5. Lesser grain borer (*Rhizopertha dominica*)
6. Rice moth (*Corcyra cephalonica*)

UNIT-IV

Systematic position, disease caused and control of the following insects of Medical and Veterinary importance:
1. Mosquitoes (*Aedes, Anopheles, Culex*)
2. Sand fly (*Phlebotomus minutus*)
3. House fly (*Musca domestica*) along with life cycle of house fly.
4. Horse fly (*Tabanus striatus*)
5. Blow fly (*Calliphora erythrocephala*)
6. Warble fly (*Hypoderma lineatum*)
7. Poultry louse (*Menopon gallinae*)
8. Sucking louse (*Haematopinus surysternus*)
9. Fleas (*Xenopsylla cheopis*)

**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 8 parts of 1 mark 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.

**Books Recommended**

Practicals based on Theory Paper ZOO-502B (ZOO-352B)

2. External morphology and identification marks of the following stored grain pests: *Sitophilus oryzae* (Rice weevil), *Tribolium castaneum* (Rustred flour beetle), *Rhizopertha dominica* (Lesser grain borer/susri), *Trogoderma granarium* (Khapra beetle), *Callosobruchus maculatus* (Pulse beetle/Dhora).
3. External morphology and identification marks of the following insects of Medical/Veterinary importance: Mosquitoes (*Culex, Anopheles and Aedes*), house fly (*Musca domestica*), blow fly (*Calliphora erythrocephala*), warble fly (*Hypoderma lineatum*), and horse fly (*Tabanus striatus*).
4. A study of different types of larvae and pupae of insects through slides, charts etc.

OPTION III: INLAND FISHERIES & AQUACULTURE-I (ZOO-502C)

UNIT-I

- Morphology of a typical fish (Carp, Catfish, Eel, Perch)
- Culturable fishes: Characters of culturable fishes, Indian major carps, saltwater fishes, exotic species and air breathing fishes.

UNIT-II

- Structure of mouth of different fishes in relation to feeding habits
- Bionomics of *Labeorohita, CatlaCatla, Cirrhinusmrigala, Wallago attu.*
- Food value of Fish (Vitamins, Amino acids, Minerals etc.)

UNIT-III

- Exotic fishes: History, their introduction, morphology, their role in fish culture and impact on native fish fauna.
- Induced Breeding: History, technique, chemicals involved in induced breeding and impact on fish culture.

UNIT-IV

- Pond culture: Construction of pond, types of pond, hydrobiological factors of water and soil of a fish pond, fertilization of pond, maintenance of pond.
- Aquatic weeds and their control both biological and chemical.

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 8 parts of 1 mark 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.
Books recommended


Practicals based on Theory Paper ZOO-502C (ZOO-352C)

2. Morphometric and meristic characters of a typical fish.
3. Identification of the following fishes using keys to the species:

   For the identification of the fishes, the students can use already prepared keys or can prepare their own keys.

4. Determination of maturity stages (both male and female) of any commercial fish (preserved specimens) through slides/charts etc.
5. Preparation of permanent slides of phytoplanktons and zooplanktons which constitute the food of commercial fishes. Their identification and study of important characters.
6. Identification of common aquatic weeds of a fish pond.
7. Study of various exotic fishes (Hypophthalmichthys molitrix, Ctenopharyngodon idellaus, Cyprinus carpio, Gambusia affinis, Salmo trutta fario, salmo gairdneri, gairdneri) with respect to the purpose with which they were introduced.
8. Study of endemic culturable fish species (Catla catla, Labeo rohita, Cirrhinus mrigala)
9. Study of types of fins and scales.
Guidelines for the conduct of Practical Examinations:

Max. Marks : 20 marks
Practical Exam : 18 marks
Internal Assessment : 2 marks
Time : 4 hours

1. Identify the developmental stage of chick embryo by window preparation. 2.5
2. Identify the slides A, B & C. Give two reasons for each identification 4.5
3. Viva-Voce 2
4. Practical Note Book and Project Report 2

**Option-I**

5. To identify the specimens D, E & F. Write the disease caused by each and two reasons for their identification. 4.5
6. Identify the given instrument. Write about its uses and functions. 2.5

**Option- II**

5 To identify the specimens D, E & F belonging to crop and stored grain pests. Give one outstanding character of each. 4.5
6 Identify specimen/ slide G. Give its one outstanding morphological character and medical/ veterinary importance. 2.5

**Option- III**

5. Giving two identification features identify specimen D & E. 2
6. Identify specimen ‘F’. Give the purpose for which this fish has been introduced. 1
7. Identify the slides G & H. Give one identification features of each. 2
8. Identify the weed ‘I’ and write its common identification features. 2

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OBJECTIVES OF THE COURSE

The syllabus pertaining to B.Sc. (General) Semester VI, 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, Seashores, 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 I: GENETICS (ZOO-601)

UNIT-I

Mendelism and Mendelian Ratios.
Modification of Mendelian ratios.
Non-allelic gene interaction, Modified F2 ratios.
Gene modifications due to incomplete dominance, lethal factors (2:1), Pleiotropic genes.
Multiple Alleles : Blood group inheritance, eye colour in Drosophila, pseudo-allelism.
Multiple factors : Qualitative and quantitative characters, inheritance of quantitative traits (skin colour in man).

UNIT-II

Linkage, crossing over and recombination : Linkage, sex-linked characters, crossing over, frequency of crossing over, cytological basis of crossing over, synaptonemal complex. Recombination in Fungi, (tetrad analysis).
Properties of genetic code, codon assignment, wobble hypothesis.
Extranuclear inheritance : Kappa particles in Paramecium.
UNIT-III

Mutations: Spontaneous and induced mutations, physical and chemical mutagens. 
Regulation of gene expression in prokaryotes (Operon model) and in eukaryotes.

UNIT-IV

Population genetics: Equilibrium of gene frequencies and Hardy Weinberg Law. 
Genetic recombination in bacteria (conjugation, transduction and transformation) plasmids. 
Applied Genetics: Recombinant DNA, genetic cloning and its applications in medicine and agriculture, DNA finger printing.

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 8 parts of 1 mark 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.

Books Recommended


Practicals based on Theory Paper ZOO-601(ZOO-353)

1. Demonstration of Law of segregation, Independent assortment and epistasis (use of coloured beads or capsules etc.). Numericals for segregation and Independent assortment. 
2. Segregation demonstration in preserved material (Maize). 
3. Cytoplasmic inheritance in *Mirabilis jalapa*. 
4. Inheritance of other human characteristics, ability to taste, PTC, thiourea. 
5. Comparison of variance in respect of pod length and number of seeds/pods. 
6. Calculation of gene frequencies and random mating (coloured beads or capsules). 
7. Study of polytene chromosomes of *Chironomus/Drosophila* through photographs. 
8. Dermatographics: Palm print taking and finger tip patterns.
**Paper II: APPLIED ZOOLOGY-II**

Max. Marks : 40  
Theory : 36 marks  
Internal Assessment : 4 marks  
Time : 3 hours

Note: Students are required to opt any one of the following:
1. Medical Zoology and Medical Laboratory Technology-II  
2. Economic Entomology and Pest Management-II  
3. Inland Fisheries & Aquaculture-II

**OPTION I: MEDICAL ZOOLOGY AND MEDICAL LABORATORY TECHNOLOGY-II**  
(ZOO-602A)

**UNIT-I**

Brief introduction to human defence mechanisms.  
Humoral and cell mediated immune-response, Antigens-physical & chemical properties.

**UNIT-II**

Antibodies - structure and function of immunoglobulin M, G, A, E and D.  
Antigen and antibody interactions : Serodiagnostic assays.  
Vaccines and their types.

**UNIT- III**

Laboratory safety rules, hazards and precautions during sample collection and laboratory investigations.  
Laboratory techniques: Colorimetry, Microscopy (student’s and electron microscope), Autoclaving,  
Centrifugation, Spectrophotometry.  
Haematology: Collection of blood (Venous and Capillary), Anticoagulants (merits and demerits),  
Romanowsky’s stains,

**UNIT- IV**

**Bacteriology**: Sterilisation, (dry heat, moist heat, autoclave, filtration), Disinfection, Staining techniques (gram’s stain, AFB stain, etc), Culture media (Defined & Synthetic media & routine laboratory media),  
Bacterial culture (aerobic and anaerobic), Antibiotic sensitivity.

**Biochemistry**: Protein estimation, Estimation of blood urea, blood sugar and urine analysis.

**Histopathology**: Common fixatives and staining techniques, Histochemistry: Principle and method:  
Staining of carbohydrates, proteins and fats with bromo phenol blue, Periodic acid Schiff, Sudan Black blue and Feulgen reaction.
**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 8 parts of 1 mark 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.

**Books Recommended**


**Practicals based on Theory Paper ZOO-602A (ZOO-354A)**

1. Demonstration of safety rules in laboratory like proper handling of patients specimens and disposal of syringes, needles etc.
2. Demonstration of the use of autoclave, centrifuge and spectrophotometer.
3. Cleaning and sterilization of glassware using hot air oven, autoclave etc.
4. Demonstration of various equipments for the estimation of hemoglobin, WBC, RBC, ESR.
5. Estimation of sugar and protein in a sample.
6. Procedure of Fixation, embedding, cutting of tissue sections and their staining (Routine Haematoxylin and Eosin and special staining with BPB, PAS, SBB and Feulgen reaction) (Theory only).
7. Study of permanent slides-Thymus, spleen & lymph mode.

**OPTION-II: ECONOMIC ENTOMOLOGY AND PEST MANAGEMENT-II (ZOO-602B)**

**UNIT-I**

1. **Sericulture**
   (i) Species of silkworm
   (ii) Requirements of Sericulture Industry
   (iii) Grainage Management
   (iv) Pre and Post-cocoon processing (Stifling & Reeling)
   (v) Diseases of silkworm.
UNIT-II

2. Apiculture
   (i) Species of Honeybees
   (ii) Flora for Apiculture
   (iii) Methods & Appliances of Bee Keeping
   (iv) Products - (a) Honey (b) Bee wax (c) Propolis (d) Pollen (e) Royal Jelly
       (f) Bee Venom
   (v) Diseases of Honey bee

3. Lac Culture
   (i) Species and varities of Lac insect
   (ii) Host Plants
   (iii) Cultivation of Lac
   (iv) Processing of Lac
   (v) Lac Industry
   (vi) Enemies of Lac insect.

UNIT-III

I. Chemical Control: Types and Classification of Insecticides (a) Insecticides of plant origin with special reference to vicotine; Pyrethrum; Rotenone and Azadirachtin (b) Chlorinated Hydrocarbons insecticides with special reference to DDT; Toxaphene; BNC; Chlordane; Aldrin; Endrin and Endosulfan (c) Organophosphorus Insecticides with special reference to Malathion; TEPP; Parathion and DDVP (d) Carbamate Insecticides with reference to Carbaryl and Carbofuran (e) Fumigants with reference to Hydrogen cyanide; Methyl bromide; Ethylene dichloride; Carbon tetrachloride and Aluminium phosphide. Hazards of chemical control. List of banned pesticides.

UNIT-IV

II. Recent methods of Pest Control:
   • Biological Control: History; Techniques in biological control, Agents of biological Control (a) Vertebrates (b) Nemathelminthes (c) Arthropods (d) Protozoan; Microbial control with the help of Bacteria, Virus and Fungi.
   • Integrated Pest Control: Introduction of IPM: Pre-requisites; Implementation Strategy; Framework of IPM programme and perspectives in IPM.

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 8 parts of 1 mark 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.
Books Recommended


Practicals based on Theory Paper ZOO-602B (ZOO-354B)

1. Study of Mouth parts of honey bee, butterfly and red cotton bug from permanent mounts.
2. Study of different types of antennae, legs and wings through preserved specimens and permanent slides.
5. Visit to apiary and godowns for study of infestation and project report.

OPTION III - INLAND FISHERIES & AQUACULTURE-II (ZOO-602C)

UNIT-I
- Fishing gears: Classification of the fishing gears according to the habitats in which they are being used, Electrical fishing.
- Culture systems: Monoculture and polyculture

UNIT-II
- Pearl culture in India: Species used, implantation procedures, water quality requirements and economics
- Fish seed resources and their transport

UNIT-III
- Prawn culture: Culture of fresh water prawn, culture technology
- Cold water fisheries: Mahseer fisheries and trout fisheries
- Fish Diseases and their control: Viral, bacterial, fungal, protozoan, helminth, crustacean, diseases due to unhygienic conditions, diseases during transportation.
UNIT-IV

- Fish by-products
- Fish marketing
- Fish preservation: Principles of fish preservation, preservation by curing (Drying, Salting and Smoking), Chilling and freezing of fish, Canning of fish and fish products, Spoilage of fish, Rigor mortis

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 8 parts of 1 mark 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.

Books recommended


Practicals based on Theory Paper ZOO 602C (ZOO-354C)

1. Determination of food and feeding habits of locally available fishes on the basis of stomach analysis adopting the following methods:
   a. Frequency occurrence method
   b. Feeding intensity
   c. Point method.
2. Estimation of following chemical parameters of the water of a fish pond:
   a. Temperature
   b. pH
   c. Dissolved oxygen
   d. Phosphates
   e. Total dissolved solids
   f. Nitrates
   g. Hardness
   h. Chlorides
3. Visits to various fish ponds and fish market.
4. Study of various fresh water prawn species cultured in India.
Guidelines for the conduct of Practical Examinations

Max. Marks : 20
Practical Exam : 18 marks
Internal Assessment : 2 marks
Time : 4 hours

1. Demonstrate the law of independent assortment/segregation/epistasis from the material provided. Identify the characters involved showing the dominance/recessiveness of characters.

   OR

Calculate the gene frequency from a known sample of characteristics using Hardy-Weinberg Law.

2. Make a dermatographic print of your finger tips or palm pattern and classify the various visible patterns with the help of diagrams and demonstrate it to the examiner.

3. Identification of polytene chromosomes from the photograph provided.

4. Viva-Voce

5. Practical Note Book and Project Report

Option-I

6. Identify the slide and give two reasons for identification.

7. Identify the instrument/apparatus (Autoclave/centrifuge/spectrophotometer/microtome etc.). Write about its uses and working.

8. Quantitative estimation of sugar/protein in the given sample

Option- II

9. Identification of mouth parts/antennae/legs/wings from charts/slides/specimens

10. Mention the type of larva/pupa/stages of life history of silkworm, honeybees, lac insect. Write a note on its external morphology.

11. Name the apparatus provided. Draw its well labeled diagram and explain its structure and working.

Option- III

12. Identify the gear ‘A’ and draw its well labeled diagram.

13. Identify specimens B & C giving one identification feature of each.


15. Write the habit and habitat of given specimen (Cold water fish)’D’.
BIO-CHEMISTRY
SEMESTER V

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total no. of questions will be nine. All questions carry equal marks.
2. Q. no. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question Number 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 the 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.

Paper A: Molecular Biology – I
Marks: 45+5

Objective: To understand aspects of storage and expression of genetic information. Membrane structure and function.

SECTION-I
(Lectures: 10)

SECTION-II
(Lectures: 10)

SECTION-III
(Lectures: 10)
Transcription in prokaryotes and eukaryotes: promoter sequences, initiation, elongation, Rho dependent and rho independent termination, regulation, processing, alternative splicing, mRNA editing & Inhibitors of transcription.

SECTION-IV
(Lectures: 10)
Translation in prokaryotes and eukaryotes: Genetic code, Wobble hypothesis, structure of tRNA, amino acid activation, initiation, elongation, termination and inhibitors of translation, post translational modification of proteins.

Books Suggested:
Paper B: Applied Biochemistry – I

Marks: 45+5

Objective: To understand general aspects of vitamins, hormones, nutrition, immunology, blood coagulation, muscle contraction and nerve impulse transmission.

SECTION-I
(Lectures: 10)

Vitamins: water soluble & fat soluble, their sources, structure & biochemical function. Role of Thiamine, Riboflavin, Niacin, Pyridoxine, Pantothenic Acid, biotin, folic acid and Ascorbic acid. Role of Vitamin A in the visual cycle, Role of Vitamin D, Vitamin E and Antioxidant theory, role of Vitamin K in Coagulation.

SECTION-II
(Lectures: 10)

Essential nutrients. Protein energy malnutrition, starvation and obesity. Respiratory quotient (R.Q.) of carbohydrates, proteins and lipids. Basic metabolic rate and factors influencing it. Specific dynamic action of foods.

SECTION-III
(Lectures: 10)

Biochemical principles of toxicology. Phase I reactions and cytochrome P 450 enzyme systems. Phase II reactions and various conjugation systems. Effects of nutritional status and metabolic induction on xenobiotic toxicity; importance of physico–chemical properties of toxic chemicals. Biochemical basis of organophosphate and carbamate pesticides toxicity.

SECTION-IV
(Lectures: 10)

Hormones: classes, modes of action, endocrine glands & their hormones. Hypothalmic and posterior pituitary hormones, Anterior pituitary hormones, PTH, Calcitonin, insulin, glucagon, steroid hormones, thyroid hormones.

Books Suggested:

PRACTICALS:
Marks : 25

One Practical of three hours per week

1. Extraction of DNA
2. Estimation of DNA by diphenylamine method.
4. Assays of SGPT and SGOT in serum.
5. Extraction of RNA from yeast.
7. Determination of total protein and A/G ratio in serum.
9. Demonstration of Western Blotting technique.
BIO-CHEMISTRY

SEMESTER - VI

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus
3. Besides question Number 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 the 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.

Paper A: Molecular Biology – II  
Marks: 45+5

Objective: To understand aspects of storage, expression and regulation of genetic information.

SECTION-I
(Lectures: 10)
Targetting of proteins to different cell organelles. Post & co-translational modification of proteins. DNA binding domains of protein. Regulation of prokaryotes gene expression. Concept of operon, regulation of lac operon, trp-operon, phage infection (lysogenic & lytic mode)

SECTION-II
(Lectures: 10)
Regulation of enkaryotic gene expression. transcription factors: Zn fingers and leucine zipper. Roles of RNA regulators. hormonal control of transcription.

SECTION-III
(Lectures: 10)

SECTION-IV
(Lectures: 10)
Analysing genome, genome size, genome sequencing, microarrays, DNA finger printing, SNPs and applications in diseases and forensic.

Books Suggested:
Paper B: Applied Biochemistry – II  
Marks: 45+5

Objective: Providing the student a comprehensive knowledge of physiology with emphasis on immune system and techniques in use; blood, muscle and nerve. This course will explain and demonstrate important techniques being used for analysis of blood. It will also enable the students to understand how the fundamental systems work in tandem for keeping the body fit.

SECTION-I
(Lectures: 10)
Immunological techniques-their principle, method & applications: precipitation, agglutination, Immunofluorescence, radio-immunoassay (RIA), enzyme liked immunosorbent assay (ELISA) and immunoblotting.

SECTION-II
(Lectures: 10)

SECTION-III
(Lectures: 10)

SECTION-IV
(Lectures: 10)
Central nervous system, peripheral nervous system, action potential, neurotransmitters, synapses & nerve gases. Mechanism of nerve impulse transmission: structure, classification and functions of neurons and neuroglia. The resting membrane potential & action potential.
Properties of nerve fibers: excitability, conductivity, all or none law, accommodation, adaptation, summation, refractory period, indefatigability.
Synapses: types, structure, synaptic transmission of the impulse, synaptic potentials, neurotransmitters, cotransmitters, neuromodulators. The neuromuscular junction: structure, transmission, end-plate potential.

Books Suggested:
PRACTICALS:

Marks : 25

One Practical of three hours per week

1. Demonstration of western blotting
2. Use of different anticoagulants.
4. Demonstration of ELISA.
5. Determination of clotting time of blood.
7. Visualizing antigen-antibody precipitation in gel.
8. Agglutination assay.
9. Separation of proteins by SDS-Polyacrylamine Gel Electrophoresis
10. Liver function tests.
11. Estimation of urea and creatinine.
MICROBIOLOGY

SEMESTER - V

THEORY

MIC 501: Pathogenic Microbiology-I
3 hrs. 37.5 (33+4.5*)

MIC 502: Food and Industrial Microbiology-I
3 hrs. 37.5 (33+4.5*)

PRACTICAL

One Practical pertaining to the entire syllabus included in
3 hrs 25 (20+5*)
Theory Papers MIC 501 and MIC 502

SEMESTER - VI

THEORY

MIC 601: Pathogenic Microbiology-II
3 hrs 37.5 (33+4.5*)

MIC 602: Food and Industrial Microbiology-II
3 hrs 37.5 (33+4.5*)

PRACTICAL

One Practical pertaining to the entire syllabus included in
3 hrs 25 (20+5*)
Theory Papers MIC 601 and MIC 602

Note: * Denotes marks for the Internal Assessment.
MICROBIOLOGY
MIC 501-PATHOGENIC MICROBIOLOGY-I
SEMESTER- V

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Introduction to important diseases caused by Streptococcus, Pneumococcus, Neisseria, Corynebacterium, Bacillus, Clostridium, Proteus. The operative mechanisms, laboratory diagnosis, prevention and control of these diseases.

Section B

Section C
Introduction to Human mycotic infections viz Superficial, Cryptococciosis and Dermatophytosis.

Section D
Life cycle, pathogenic mechanisms and control of parasitic infections viz. amoebiasis, Kala-azar and Toxoplasmosis.
MICROBIOLOGY

MIC502-FOOD AND INDUSTRIAL MICROBIOLOGY-I

SEMESTER -V

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.
(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Food as substrate for microorganisms, Nutritive value of food stuffs, Effect of Hydrogen ion concentration (pH), moisture requirement on food, Important food borne diseases viz. Staphylococcal intoxication, Botulism, Salmonellosis and Shigillosis.

Section B
Contamination, preservation and spoilage in various foods viz. cereal and cereal products (cereal grains, flour, bread, pasta, macroni), Sugar and sugar products (Maple, Syrup, Honey, Candy).

Section C
Production strains, Isolation and screening techniques, preservation and genetic modification of Industrial microorganisms.

Section D
Yeast (Baker’s) and its uses, Fermentation of Beer, Wine and Alcohol.

Recommended Books :

### MICROBIOLOGY

**PRACTICAL**

**SEMESTER- V**

MAX. MARKS: 25 MARKS
PRACTICAL: 20 MARKS
INTERNAL ASSESSMENT: 5 MARKS
TIME: 3 HRS.

1. Identification of both Gram positive and Gram negative bacteria on the basis of:
   i) Morphology
   ii) Biochemical characteristics
   iii) Serological reactions
2. Demonstration of pathogens (Viruses, fungi, parasites) in permanent mounted slides
3. Demonstration of cysts/ ovas of Protozoa/ Helminths.
4. Demonstration of Laboratory grown fungi on Sabauraud’s agar
5. Germ tube test for *Candida albicans*
MICROBIOLOGY

MIC601-PATHOGENIC MICROBIOLOGY-II

SEMESTER- VI

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A

Introduction to important diseases caused by *Shigella*, *Salmonella*, *Vibrio*, *Yersinia*, *Hemophilus* and *Mycobacterium*. The operative mechanisms, laboratory diagnosis, prevention and control of these diseases.

Section B

Morphology, pathogenesis, life cycle, laboratory diagnosis, prevention and control of viral diseases viz. Herpes, Influenza and AIDS

Section C

Introduction to Human mycotic infections viz Blastomycosis, Opportunistic mycosis; Candidiasis and Aspergillosis.

Section D

Life cycle, pathogenic mechanisms and control of parasitic infections viz. Ascariasis, Filariasis and Hook worm infections.
MICROBIOLOGY
MIC602-FOOD AND INDUSTRIAL MICROBIOLOGY-II

SEMESTER- VI

MAX. MARKS:37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.
(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Qualitative and Quantitative analysis of food components (proteins, lipids, carbohydrates), Microbiological examination of food products including dairy products, food poisoning caused by bacteria and fungi.

Section B
Contamination, preservation and spoilage in various foods viz. Vegetables and fruits, Meat (Fresh meat, fresh beef, hamburger, fish), Milk and milk products (Cheese, butter)

Section C
Fermentation media, Characteristics of Ideal production media, Common substrates used in Ideal fermentations, Batch and continuous fermentations

Section D
Production of organic acids viz. acetic acid, lactic acid, propionic acid, butyric acid and mixed acids. Mass transfer in aerobic fermentations

Recommended Books :


**MICROBIOLOGY**
**PRACTICAL**
**SEMESTER- VI**

MAX. MARKS: 25 MARKS
PRACTICAL: 20 MARKS
INTERNAL ASSESSMENT: 5 MARKS
TIME: 3 HRS.

1. Demonstration of Fungi through normal saline/KOH preparation
2. Quantitative examination of microbial types in raw processed preserved food stuffs
3. Direct microscopic examination of bacteria in raw, pasteurised milk
4. Methylene reductase test for milk
5. Various biochemical tests and their importance in Food Microbiology
ELECTRONICS

(Kept in Abeyance)
AGRICULTURE
B.A./B.Sc. 5th and 6th Semester System

SEMESTER-V

Paper-V: Agrodiversity and Physiology

Max. Marks : 75 Marks
Theory : 70 Marks
Internal Assessment : 05 Marks
Time : 3 Hours

Period per week:
1. THEORY – Six of 45 minutes duration each.
2. PRACTICAL – Two 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 comprise of 9 questions in all.
3. Question 1 shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Unit I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit – I

History of Agroforestry
Agroecological Zonification
Socioeconomic Aspects of Agroforestry
Agroforestry System for Small Holdings
Arid Land Agroforestry

Unit – II

Establishment of Orchard
Basic Cultural Practices
Elemental Role and Needs of Nutrients
Propagation – Principles and Techniques
Stock – Scion relationship and their incompatibility
Fruit Physiology

Unit – III

Respiration- Glycolysis, Citric Acid Cycle, Photorespiration
Photosynthesis – Light Reaction, Dark Reaction, C₄ – Cycle, CAM Plants
Growth Hormones and their role in Agriculture
Enzymes and Vitamins
Vernalization
Photoperiodism
Unit – IV

Intellectual Property Right
Informatics in Agriculture
Seed Production and Technology
Indigenous Technical Knowledge in Agriculture
Introduction to Crop Biotechnology
Agrobiodiversity

PRACTICAL

Max. Marks : 25 Marks
Practical : 20 Marks
Internal Assessment : 05 Marks

Planning an Orchard
Study of Agroforestry of Local Area
Scion- Stock relationship study
Study the effect of temperature and light duration on various crop plants of an area
Role of computer in Agriculture
GM crops and techniques
Study of Agrobiodiversity of Punjab

BOOKS

AGRICULTURE

SEMESTER-VI

Paper-VI: Insect Pests and Diseases of Crop

Max. Marks : 75 Marks
Theory : 70 Marks
Internal Assessment : 5 Marks
Time : 3 Hours

**Period per week:**
1. THEORY – Six of 45 minutes duration each.
2. PRACTICAL – Two 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 comprise of 9 questions in all.
3. Question I shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

**Unit – I**

Plant Protection
Crop diseases ? How to control them?
Biological control, chemical control
Systemic fungicides
Weedicides
Compatibility of various fungicides and weedicides
Rodenticides

**Unit – II**

**Diseases of Crop Plants**

1. Crop- Wheat

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Loose smut of Wheat</td>
<td><em>Ustilago tritici</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Tundu disease of Wheat</td>
<td><em>Corynebacterium tritici</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Chloris striate mosaic</td>
<td>Chloris striate mosaic virus (CSMV)</td>
</tr>
</tbody>
</table>

2. Crop- Rice

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Blast of Rice</td>
<td><em>Piricularia oryzae</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial Blight of Rice</td>
<td><em>Xanthomonas oryzae</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Rice Tungro disease</td>
<td>Rice tungro Bacilliform virus (RTBV)</td>
</tr>
</tbody>
</table>

3. Crop- Maize

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Black kernal rot</td>
<td><em>Lasiodiplodia theobromae</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Stalk rot of Maize</td>
<td><em>Erwinia cartovora</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Maize chlorotic dwarf</td>
<td>Maize chlorotic dwarf virus (MCDV)</td>
</tr>
</tbody>
</table>
4. Crop-Citrus

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Citrus black spot</td>
<td>Guignardia citricarpa</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Citrus canker</td>
<td>Xanthomonas citri</td>
</tr>
<tr>
<td>Viral</td>
<td>Citrus Yellow Mosaic</td>
<td>Badnavirus</td>
</tr>
</tbody>
</table>

5. Crop-Grapes

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Powdery Mildew of grapevine</td>
<td>Unicinula nectator</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Crown gall</td>
<td>Agrobacterium tumifaciens</td>
</tr>
<tr>
<td>Viral</td>
<td>Cork bark</td>
<td>Grapevine virus B</td>
</tr>
</tbody>
</table>

6. Crop-Cotton

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Cotton Rust</td>
<td>Puccinia schedonnardii</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial Blight of Cotton</td>
<td>Xanthomonas citri</td>
</tr>
<tr>
<td>Viral</td>
<td>Leaf curl</td>
<td>Bigeminivirus or Cotton Leaf curl virus (CLCuV)</td>
</tr>
</tbody>
</table>

7. Vegetables

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Late Blight of Potato</td>
<td>Phytophthora infestans</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial canker of Tomato</td>
<td>Clavibacter michiganensis</td>
</tr>
<tr>
<td>Viral</td>
<td>Yellow vein mosaic of Bhindi</td>
<td>Yellow vein mosaic virus</td>
</tr>
</tbody>
</table>

8. Oil Crops: Mustard

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>White rust of crucifers</td>
<td>Albugo candida</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Black rot of crucifers</td>
<td>Xanthomonas campestris</td>
</tr>
<tr>
<td>Viral</td>
<td>Rai Mosaic virus</td>
<td>Yellow Mosaic Virus</td>
</tr>
</tbody>
</table>

9. Oil Crops: Groundnut

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Tikka Disease of groundnut</td>
<td>Cercospora sp.</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial wilt</td>
<td>Pseudomonas solanacearum</td>
</tr>
<tr>
<td>Viral</td>
<td>Groundnut crinkle</td>
<td>Groundnut crinkle virus</td>
</tr>
</tbody>
</table>
Unit – III

General account of Insects and pests
Classification of Insects
Parts of Insect body
Control measures of Insect pests and diseases of crop

Unit – IV

Insect and nematode diseases of Cereal (Wheat, Maize, Rice) crops; Oil (Sunflower, Groundnut, Mustard) crops; Fruit (Mango, Guava, Citrus) crops

Vegetable crops

**Rabi Crops**
- Green Peas
- Chick Peas (Cicer arietinum)
- Onion (Allium cepa)
- Tomato (Solanum lycopersicum)
- Potato (Solanum tuberosum)

**Kharif Crops**
- Chilli
- Okra
- Bitter Gourd
- Bottle Gourd
- Brinjal

**PRACTICAL**

<table>
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<th>Max. Marks</th>
<th>Practical</th>
<th>Internal Assessment</th>
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Study of all the diseases mentioned in theory
Symptoms and their control measures

**Books**

- Indian Crop Pests - Kumar and Nigam, 2007 – Emkay Publishers, Allahabad

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