

**OUTLINES OF TESTS, SYLLABI AND COURSES
OF READING IN THE VARIOUS SUBJECTS
FOR B.A./B.Sc. PART-II (12+3 SYSTEM OF
EDUCATION) EXAMINATION-2010-11**

ENGLISH (COMPULSORY)

Time: 3 Hours

Max. Marks: 100

A. Texts Prescribed

1. **Gauri** by **M.R. Anand**
2. **Moments in Time : An Anthology of Poems**, Guru Nanak Dev University, Amritsar.
3. **Murphy's English Grammar (Raymond Murphy)**, 3rd Edition, CUP 2004, rept. 2005. (Units : 42-48, 53-68, 98-112)

Instructions for the paper setter/examiner :

Note : The question paper will consist of three sections and the distribution of marks will be as follows :

Section A : 20 Marks

Section B : 48 Marks

Section C : 32 Marks

Section-A : It will consist of ten (10) questions on usage of grammar related to units 42-48, 53-68, 98-112 of *Murphy's English Grammar (Reymond Murphy), 3rd Edition, CUP. 2004 rept. 2005*. Each question will carry two (2) marks. All questions will be compulsory.

Section B : It will consist of eleven (11) questions. Students will be required to attempt eight (8) questions. Each question will carry 6 marks. The total marks for this section will be 48.

Eight questions (Q. I to VIII) will be set from the two literary texts (four from Novel and four from Poems). The questions on literary texts will include two reference to the context questions on poems. The students will be required to attempt any five (5), choosing at least two questions from each

prescribed text. The questions from literary texts will be answered in about 15 lines each.

The next three (3) questions (IX-XI) will be set on vocabulary and composition as given below. All the questions will be compulsory.

Question IX will be set on the vocabulary introduced in the two prescribed texts. The question should test meaning and usage of items glossed in the text.

Question X will be Translation of a short passage from Hindi/Punjabi to English

OR

Paraphrase of a short poem (only for foreign students who do not know Punjabi or Hindi).

Question XI will be Comprehension of an unseen prose passage. Three short questions of 2 marks each shall be asked on the given passage.

Section-C : It will consist of four questions, each carrying eight marks. Total marks for this section will be 32.

Question I-III will be set from the two literary texts, atleast *one* from each. Each question will have internal choice and has to be answered in not more than 300 words (*two to three* pages). The students will be required to attempt all the three questions.

Question IV will be writing an essay of about 35050 words on a given topic (with internal choice).

ENGLISH (ELECTIVE)**Paper-A****Time: 3 Hours****Max. Marks: 100****Instructions for Paper Setters :****Section-A**

1. Five questions, each to be answered in not more than 60 words, will be set from the play, *The Merchant of Venice*. Each question will carry 2 marks. The examinees will be required to answer all the questions. (2x5=10 marks)
2. Five questions, each to be answered in not more than 60 words, will be set from the book, *Fresh Showers*. Each question will carry 2 marks. The examinees will be required to answer all the questions. (2x5=10 marks)

Section-B

1. The examinees will be required to answer 2 questions on reference to the context out of the three set from the play, *The Merchant of Venice* and two questions on reference to the context out of the three set from the text book, *Fresh Showers*. (6x4=24 marks)
2. The examinees will be required to write notes on any four out of the six literary terms given from those prescribed in the syllabus. (6x4=24 marks)

Section-C

1. The examinees will be required to answer in 500-600 words, one essay-type question out of the two set from the play, *The Merchant of Venice*. (16 marks)
2. The examinees will be required to answer in 500-600 words, one essay-type question out of the two set from the textbook *Fresh Showers*. (16 marks)

Prescribed Books :

1. **The Merchant of Venice** by William Shakespeare. CENGAGE Learning Indian Edition, 2008.

2. **Fresh Showers, G.N.D.U.** Publication

The Following poems are deleted :

(i) Alexander's Feast (ii) Evelyn Hope (iii) Adam's Curse
(iv) Lay your Sleeping Head (v) A Hub for the Universe
(vi) Birches (vii) Tithonus.

3. **Glossary of Literary Terms** (eighth edition) by M.H. Abrams, Wadsworth CENGAGE Learning Publishers.

The following literary terms are prescribed for study:
Biography, Discourse analysis, Dissociation of sensibility,
Dramatic monologue, Expressionism, Formalism, Genres,
Melodrama, Persona, Poetic diction, Realism, Satire, Setting,
Sonnet, Style, Tone and voice, Tragedy, Three unities,
Tragicomedy, Wit and humour.

ENGLISH (ELECTIVE)**Paper-B****Time: 3 Hrs.****Max. Marks : 100****Instructions for Paper Setting :**

Section-A will comprise 10 questions. Each question carrying 2 marks, the total weightage of this section will be 20 marks. The examinees will be required to answer all the questions. The division of marks and the nature of questions to be set from each text will be as follows :

1. Five questions, each to be answered in not more than five sentences, will be set from *Modern English Prose*.
2. Five questions, each to be answered in a word, a phrase, or not more than three sentences, will be set from the textbook, *Study Writing*. The questions should relate to the task like identifying a sentence as formal/informal or creating a definition/developing a statement from a single word/phrase or giving classification/comparison etc. as suggested in the tasks given in the textbook, *Study Writing*.

Section-B will comprise eight questions. Each question carrying 6 marks, the total weightage of this section will be 48 marks.

1. Six questions will be set from *Modern English Prose*. The examinees will be required to answer any 4 questions.
2. Six questions based on the tasks given in the textbook, *Study Writing* will be set. The examinees will be required to answer any 4 questions. These questions will be related to the tasks such as rewriting a short passage in formal/academic/objective style by making changes in its grammar and vocabulary or creating a paragraph from a statement in the form of definition or classification or identifying and completing text structure/identifying words, phrases, sentences that signal evaluation or recommendation etc., exploring cohesion and coherence in a given prose passage.

Section-C will comprise 2 questions, each carrying 16 marks. The total weightage of this section will be 32 marks.

1. Two essay type questions will be set from *Modern English Prose*. The examinees will be required to answer any of the two in 400-600 words.
2. Three topics or statements will be given for writing an essay in 400-600 words on any one of the topics/statements. The examinees will be instructed to use academic style, and appropriate method of development i.e. definition, comparison and contrast, argument etc. The evaluation of the essay will be based on the use of appropriate style, method, strategies etc. as suggested in the textbook, *Study Writing*.

Books Prescribed

Modern Prose : *English and Indian*, G.N.D.U. Publication

Study Writing : *A Course in Writing Skills for Academic Purposes* by Liz Hamp-Lyons and Ben Heasley, Cambridge University Press, 2008, (South Asia)

FUNCTIONAL ENGLISH (Vocational)

Paper-A

Writing-Skills

Time : 3 Hours

Max. Marks : 100

Theory : 75

Practical : 25

The paper shall consist of 3 Sections.

Section-A carries 16 marks. 2 questions will be set of 8 marks each testing learner's ability to identify formal, informal response, and to provide contextual responses to given expressions.

Section-B carries 35 marks. 7 questions carrying 7 marks each will be set. Students will be required to attempt any 5 questions. Questions should evaluate the student's ability to use language according to the given situation/context and present it in the written mode.

Section-C carries 24 marks. Two questions of 12 marks each will be set. First question shall be on comprehension of a given conversation. Second question shall consist of short notes with internal choice on key concepts like oral or written communication, difference between dialect and idiolect, difference between register and style etc.

Course Contents :

Imaginative use of parts of speech.

How to plan paragraph writing. How to change direct into indirect speech and vice versa.

Sentence connector and cohesion.

Substitution and ellipsis.

Sentence Variations and the rewriting of sentences.

Imaginative features of language.

Idioms and phrases.

The objective is to teach the students the technique of writing and develop their power of expression through composition. Exercises and Letter-writing, precis and comprehension; paragraph-rising and expansion; descriptive writing; report writing; script writing for announcement, comparing should be administered.

Books Recommended :

- a) **Writing with a Purpose** by Tickoo, Champa and Sasikumar (OUP).
- b) **Essentials of Grammar and Composition** by Legget et. al., Prentice Hall.

Paper-B
CONVERSATIONAL ENGLISH

Time : 3 Hours

Max. Marks 100

Theory : 75

Practical : 25

The paper shall consist of 3 Sections.

Section-A carries 16 marks. 2 questions will be set of 8 marks each testing learner's ability to identify formal, informal response, and to provide contextual responses to given expressions.

Section-B carries 35 marks. 7 questions carrying 7 marks each will be set. Students will be required to attempt any 5 questions. Questions should evaluate the student's ability to use language according to the given situation/context and present it in the written mode.

Section-C carries 24 marks. Two questions of 12 marks each will be set. First question shall be on comprehension of a given conversation. Second question shall consist of short notes with internal choice on key concepts like oral or written communication, difference between dialect and idialect, difference between register and style etc.

Note : There will be a practical examination of 25 marks. An external examiner will test communication skills in specific with the help of an interview or oral test.

Objective : To introduce different social situations and develop Conversational Skills.

Course Contents :

Language and Society.

Language and Communication

English in situations :- (a) Greetings, (b) In the post office, (c) At the bank, (d) Buying a dress, (e) At the travel agency,

(f) At the customs, (g) At the International Airport, (h) Booking a room at a Hotel, (i) Making a telephone call, asking the time making an apology, receiving-seeing of a guest, (j) At the Chemist, At the doctor, (k) At a Dinner Party, At the Restaurant; at the coffee bar, (l) Making an appointment, At the ladies' hairdresser, At the hospital (m) Buying a Theatre Ticket.

Field Work :

Visit to various places offering different situations and practising conversation in actual situations. Students should be able to relate the situations in dialogues.

Books Recommended:

- (i) **Spoken English with Cassette** by Sasikumar and Dhanuja.
- (ii) **A Course in Listening and Speaking-I** by Sasikumar et.al.

On The Job Training :

To get apprenticeship training in conversational English for one month. (Students can work in Bank, Hotels, Computer Centres, Air Lines Offices etc.)

ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)

ਸਮਾਂ : 3 ਘੰਟੇ

ਕੁੱਲ ਅੰਕ : 100

1. ਕਾਵਿ ਕੀਰਤੀ-ਹਰਿਭਜਨ ਸਿੰਘ,
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2007.
2. ਆਧੁਨਿਕ ਇਕਾਂਗੀ
(ਸੰਪਾ. ਰੋਸ਼ਨ ਲਾਲ ਅਹੁਜਾ ਅਤੇ ਮਨਜੀਤਪਾਲ ਕੌਰ),
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2007.
3. ਸੰਖੇਪ ਰਚਨਾ (ਪ੍ਰੈਸੀ)
4. ਦਫ਼ਤਰੀ ਚਿੱਠੀ-ਪੱਤਰ
5. ਵਿਆਕਰਣ :
(ੳ) ਮੂਲ ਵਿਆਕਰਣ ਇਕਾਈਆਂ ਦੀ ਪਛਾਣ ਅਤੇ ਸਥਾਪਤੀ
(ਅ) ਵਾਕ ਬਣਤਰ ਅਤੇ ਵਾਕ ਰਚਨਾ
(ੲ) ਉਪਵਾਕ ਬਣਤਰ : ਪਛਾਣ ਅਤੇ ਕਾਰਜ
(ਸ) ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ
(ਹ) ਗੁਰਮੁੱਖੀ ਲਿੱਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ
ਅੰਕ ਵੰਡ ਤੇ ਪੇਪਰ ਸੈਟਰਾਂ ਲਈ ਹਦਾਇਤਾਂ
1. ਕਿਸੇ ਇੱਕ ਕਵਿਤਾ ਦਾ ਵਿਸ਼ੈ ਵਸਤੂ/ਸਾਰ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 20 ਅੰਕ
2. ਕਿਸੇ ਇੱਕ ਇੱਕਾਂਗੀ ਦਾ ਵਿਸ਼ੈ ਵਸਤੂ/ਸਾਰ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ)
ਜਾਂ ਚਾਰ ਵਿੱਚੋਂ ਦੋ ਪਾਤਰਾਂ ਦੀ ਪਾਤਰ-ਉਸਾਰੀ 20 ਅੰਕ
3. ਸੰਖੇਪ ਰਚਨਾ (ਪ੍ਰੈਸੀ) 10 ਅੰਕ
4. ਦਫ਼ਤਰੀ ਚਿੱਠੀ-ਪੱਤਰ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 10 ਅੰਕ
5. ਨੰਬਰ 5 ਉੱਤੇ ਨਿਰਧਾਰਤ ਵਿਆਕਰਣ ਵਿੱਚੋਂ
ਵਰਣਨਾਤਮਿਕ ਪੁਸ਼ਨ 20 ਅੰਕ
6. ਉਪਰੋਕਤ ਲੜੀ ਨੰਬਰ 1 ਅਤੇ 2 ਦੀਆਂ ਪੁਸ਼ਤਕਾਂ ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ
ਵਾਲੇ 10 ਪੁਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਦਾ ਉੱਤਰ 50 ਸ਼ਬਦਾਂ ਤੋਂ ਵੱਧ ਨਾ
ਹੋਵੇ। 10x2=20 ਅੰਕ

ਪੰਜਾਬੀ (ਇਲੈਕਟਿਵ)

ਪਰਚਾ-ਏ

ਸਮਾਂ: 3 Gltly

ਕੁੱਲ Eਕ : 100

1. ਮੱਧਕਾਲੀ ਪੰਜਾਬੀ ਕਾਵਿ (1701 ਤੋਂ 1900) 40 ਅੰਕ
(ਸੰਪਾ.) ਹਰਜਿੰਦਰ ਸਿੰਘ ਢਿੱਲੋਂ ਅਤੇ ਨਰਜੀਤ ਸਿੰਘ ਖਹਿਰਾ,
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2007.
2. ਕਥਾ ਕਹਾਣੀ
(ਸੰਪਾ.) ਡਾ. ਰਘਬੀਰ ਸਿੰਘ ਅਤੇ ਪ੍ਰੋ. ਦਰਬਾਰਾ ਸਿੰਘ, 30 ਅੰਕ
ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
3. ਸਭਿਆਚਾਰ ਅਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ (ਨਿਬੰਧ ਸੰਗ੍ਰਹਿ) 30 ਅੰਕ
(ਸੰਪਾ.) ਡਾ. ਰਣਜੀਤ ਸਿੰਘ ਬਾਜਵਾ ਅਤੇ ਪ੍ਰਿੰਸੀਪਲ ਵੀਰ ਸਿੰਘ ਰੰਧਾਵਾ,
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2007.

ਯੂਨਿਟ ਅਤੇ ਬੀਮ

1. ਮੱਧਕਾਲੀ ਪੰਜਾਬੀ ਕਾਵਿ (1701 ਤੋਂ 1900) 10+10=20 ਅੰਕ
(ੳ) ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ (ਚਾਰ ਵਿੱਚੋਂ ਦੋ)
(ਅ) ਕਿਸੇ ਕਵਿਤਾ ਦਾ ਵਿਸ਼ੈ ਵਸਤੂ/ਕਵੀ ਬਾਰੇ ਜਾਣਕਾਰੀ ਅਤੇ ਉਸਦਾ
ਯੋਗਦਾਨ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 10 ਅੰਕ
(ੲ) ਮਲਟੀਪਲ ਚੋਣ ਪ੍ਰਸ਼ਨ 5x2=10 ਅੰਕ
2. ਕਥਾ ਕਹਾਣੀ
ਕਿਸੇ ਇਕ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ੈ-ਵਸਤੂ/ਕਲਾ, ਕਹਾਣੀਕਾਰ ਬਾਰੇ ਜਾਣਕਾਰੀ
ਅਤੇ ਉਸਦਾ ਯੋਗਦਾਨ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 20 ਅੰਕ
3. ਸਭਿਆਚਾਰ ਅਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ (ਨਿਬੰਧ ਸੰਗ੍ਰਹਿ) ਕਿਸੇ ਇਕ
ਲੇਖ ਦਾ ਵਿਸ਼ੈ/ਸਾਰ/ਸ਼ੈਲੀ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 20 ਅੰਕ
4. ਕਥਾ ਕਹਾਣੀ ਅਤੇ ਸਭਿਆਚਾਰ ਅਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਪੁਸਤਕਾਂ
ਵਿੱਚੋਂ ਪਾਠ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿੱਚੋਂ ਚਾਰ)
4x5=20 ਅੰਕ

p᳚᳚᳚ bl (iel kitv)
prc`-bl

sm-: 3 Glt᳚

k᳚ El᳚ : 100

1. ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (1701 ਤੋਂ 1900)
(ਸੰਪਾ.) ਡਾ.ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1992.
(ੳ) ਸਾਹਿਤਕ ਰੂਪ, ਧਾਰਾਵਾਂ ਅਤੇ ਪ੍ਰਵਿਰਤੀਆਂ
ਅ) ਸਾਹਿਤਕ ਰੂਪਾਂ ਦੇ ਸਮੁੱਚੇ ਵਿਕਾਸ ਬਾਰੇ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
(ਵਿਅਕਤੀਗਤ ਸਾਹਿਤਕਾਰ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ ਨਹੀਂ ਪੁੱਛਿਆ ਜਾਵੇਗਾ)
ਉਪਰੋਕਤ ਦੋਹਾਂ ਭਾਗਾਂ ਵਿੱਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜਿਨ੍ਹਾਂ ਵਿੱਚੋਂ ਪਰੀਖਿਆਰਥੀਆਂ ਨੇ ਇੱਕ-ਇੱਕ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ।
20+20=40 ਅੰਕ
2. (ੳ) 1. ਦਿੱਤੇ ਪੈਰ੍ਹੇ ਵਿੱਚੋਂ ਸ਼ਬਦ-ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ 5 ਅੰਕ
2. ਦਿੱਤੇ ਪੈਰ੍ਹੇ ਨੂੰ ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹ ਲਾਉਣੇ। 5 ਅੰਕ
(ਅ) ਆਲੋਚਨਾ-ਪ੍ਰਣਾਲੀ ਨਾਲ ਸੰਬੰਧਿਤ 10 ਮੂਲ ਸੰਕਲਪ :
ਬਿੰਬ, ਪ੍ਰਤੀਕ, ਅਲੰਕਾਰ, ਸ਼ੈਲੀ, ਮਿਥ, ਕਥਾਨਕ, ਪਾਤਰ-ਉਸਾਰੀ, ਰੂਪ ਤੇ ਵਸਤੂ, ਅਨੁਕਰਣ, ਵਿਰੋਚਣ (ਚਾਰ ਵਿੱਚੋਂ ਦੋ)
5+5=10 ਅੰਕ
3. ਸਾਹਿਤ ਰੂਪ : ਵਾਰ, ਜੰਗਨਾਮਾ, ਕਿੱਸਾ, ਕਾਫ਼ੀ, ਜਨਮਸਾਖੀ, ਨਿੱਕੀ ਕਹਾਣੀ : ਪਰਿਭਾਸ਼ਾ, ਪ੍ਰਕਿਰਤੀ ਅਤੇ ਤੱਤ (ਤਿੰਨ ਵਿੱਚੋਂ ਦੋ)
10+10=20 ਅੰਕ
4. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਤੇ ਗੁਰਮੁਖੀ ਲਿੱਪੀ : ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 20 ਅੰਕ

ਕੰਰਜੀ ਪ੍ਰਬੰਧ

ਕੁਛ ਏਕ=100

ਪ੍ਰਚੰ-ਏ = ਈ ਕ੍ਰ ਸੀ ਏ-

50 ਏਕ

ਪ੍ਰਚੰ-ਬੀ = ਰਸਮੀ ਈ ਕ੍ਰ-

50 ਏਕ

ਪ੍ਰਬੰਧ :

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਵਿਆਕਰਨਕ ਬਣਤਰ ਨਾਲ ਜਾਣ-ਪਛਾਣ
2. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਰਜਿਸਟਰਾਂ ਸੰਬੰਧੀ ਜਾਣ-ਪਛਾਣ
3. ਪ੍ਰਾਪਤ ਲਿਖਣ ਸ਼ੈਲੀਆਂ ਨਾਲ ਜਾਣ ਪਛਾਣ ਕਰਾਉਣਾ ਅਤੇ ਰਸਮੀ ਪੱਧਰ 'ਤੇ ਲਿਖਣ ਦਾ ਅਭਿਆਸ ਕਰਾਉਣਾ।

ਸਮ- : 3 ਏਕ

ਕੁਛ ਏਕ : 50

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਰਜਿਸਟਰਾਂ ਸੰਬੰਧੀ ਜਾਣ-ਪਛਾਣ : ਸਾਹਿਤਕ ਭਾਸ਼ਾ, ਉਪਭਾਸ਼ਾ, ਵਿਅਕਤੀ ਭਾਸ਼ਾ, ਪਿਜਿਨ ਤੇ ਕਰਿਓਲ, ਬਣਾਵਟੀ ਭਾਸ਼ਾ।
20 ਏਕ
2. ਸਾਧਾਰਣ ਵਾਕਾਂ ਨੂੰ ਸੰਯੁਕਤ ਅਤੇ ਮਿਸ਼ਰਤ ਵਾਕਾਂ ਵਿਚ ਬਦਲਣਾ :
ਸਿਧਾਂਤ ਅਤੇ ਅਮਲੀ ਵਰਤੋਂ (ਘੱਟੋ-ਘੱਟ 50 ਅਭਿਆਸ ਕਰਾਉਣੇ)
15 ਏਕ
3. ਰਿਪੋਰਟਿੰਗ ਕਰਨਾ : ਸਮਾਚਾਰ ਲਿਖਣ ਦੀ ਵਿਧੀ ਅਤੇ ਤੱਤ, ਸਮਾਚਾਰਾਂ ਦੇ ਪ੍ਰਕਾਰ, ਸੰਖੇਪ ਕਰਨਾ ਤੇ ਵਿਆਖਿਆ ਕਰਨੀ। 15 ਏਕ

k`rj | pj `bl
prc` ey : p|ktlkl

sm- : 2 G|ty

kl Elk : 50

(ਪ੍ਰੈਕਟੀਕਲ ਪਰਚੇ ਵਿੱਚ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸੁਣਨ-ਸਮਝਣ-ਲਿਖਣ
ਯੋਗਤਾ ਦੀ ਪ੍ਰੀਖਿਆ ਲਈ ਜਾਵੇਗੀ)

ਭਾਸ਼ਾ ਪ੍ਰਯੋਗਸ਼ਾਲਾ ਵਿਚ ਅਭਿਆਸ ਕਰਨਾ :

- ੳ) ਪੰਜਾਬੀ ਦੇ ਉਪ-ਭਾਸ਼ਾਈ ਉਚਾਰਨ ਨੂੰ ਸੁਣ ਕੇ ਰਿਪੋਰਟ ਤਿਆਰ ਕਰਨੀ।
- ਅ) ਸੁਣੇ ਗਏ ਸ਼ਬਦਾਂ ਦੇ ਆਧਾਰ 'ਤੇ ਸਾਧਾਰਣ ਤੇ ਸੰਯੁਕਤ ਵਾਕ ਸਿਰਜਣੇ।
- ੲ) ਭਾਸ਼ਣ ਨੂੰ ਸੁਣ ਕੇ ਸੰਖੇਪ ਰੂਪ ਤਿਆਰ ਕਰਨਾ।
- ਸ) ਰਿਕਾਰਡ ਕੀਤੀਆਂ ਖ਼ਬਰਾਂ ਨੂੰ ਸੁਣ ਕੇ ਲਿਖਣਾ।

k`rj | pj `bl
prc` bl : iQalhl

sm- : 3 G|ty

k| Elk : 50

1. ਕਾਰਜੀ ਭਾਸ਼ਾ--ਦਫ਼ਤਰੀ ਭਾਸ਼ਾ, ਇਸ਼ਤਿਹਾਰੀ ਭਾਸ਼ਾ । 10 ਅੰਕ
2. ਫਾਈਲਾਂ ਤੇ ਨੋਟਿੰਗ ਦੇਣ ਦੀ ਵਿਧੀ, ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦੇ ਪ੍ਰਕਾਰ :
ਦਫ਼ਤਰੀ, ਪਰਿਵਾਰਕ ਅਤੇ ਸਮਾਜੀ। 20 ਅੰਕ
3. ਰਸਮੀ ਪੱਤਰ ਵਿਹਾਰ, ਐਕਸਪ੍ਰੈਸ ਪੱਤਰ, ਤਾਰ, ਦਫ਼ਤਰੀ ਆਦੇਸ਼,
ਦਫ਼ਤਰੀ ਸੂਚਨਾ, ਪ੍ਰੈਸ ਨੋਟ ਆਦਿ। 20 ਅੰਕ

k`rj | p|| `bl
prc` bl : p|ktlkl

sm- : 2 G|ty

k| Ek : 50

(ਪ੍ਰੈਕਟੀਕਲ ਪਰਚੇ ਵਿਚ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਵਿਗਿਆਪਨ, ਨੋਟਿੰਗ ਅਤੇ ਨੋਟੀਫਿਕੇਸ਼ਨ ਲਿਖਣ ਦੀ ਸਮਰਥਾ ਦੀ ਪ੍ਰੀਖਿਆ ਲਈ ਜਾਵੇਗੀ)

- ੳ) ਵਿਗਿਆਪਨ ਸਿਰਜਣਾ : ਨਿੱਤ ਵਰਤੋਂ ਦੀਆਂ 50 ਵਸਤਾਂ ਦੇ ਕੇ ਉਨ੍ਹਾਂ ਦੇ ਵਿਗਿਆਪਨ ਲਿਖਣ ਅਤੇ ਬੋਲਣ ਦਾ ਅਭਿਆਸ ਭਾਸ਼ਾ-ਪ੍ਰਯੋਗਸ਼ਾਲਾ ਵਿੱਚ ਕਰਵਾਉਣਾ।
- ਅ) ਦਫਤਰਾਂ ਨੂੰ ਲਿਖੇ ਪੱਤਰ ਨੂੰ ਸਮੱਗਰੀ ਬਣਾ ਕੇ ਨੋਟਿੰਗ ਦੇਣ ਦਾ ਅਭਿਆਸ ਕਰਵਾਉਣਾ (30 ਪੱਤਰ)
- ੲ) ਫਾਈਲਾਂ ਦੇ ਆਧਾਰ 'ਤੇ ਆਰਡਰ/ਨੋਟੀਫਿਕੇਸ਼ਨ ਲਿਖਣ ਦਾ ਅਭਿਆਸ ਕਰਵਾਉਣਾ।

Eml | is|KE`

iksy srk`rnl/ErD srk`rnl/Zr srk`rnl Ed`ry ivc Eml |
q| 'qyiq| h&qydl isKl `el p|pq krnl hwgl Eqyies dl p|| kt
irprt iqE`r krnl zrl| hwgl|

PUNJAB HISTORY AND CULTURE

(1000 to 1849 A.D.)

(Special Paper in lieu of Punjabi) (Compulsory)

(Common-for B.A./B.Sc. Part II)

Time: 3 Hours

Max. Marks: 100

Total Teaching Periods: 75

Note:- Each question paper shall consist of two sections viz A and B as under:-

Section A:

The examiner shall set 10 questions and the candidates will attempt any 7 questions carrying 4 marks each. Answer to each question shall be in 10 to 15 sentences. The total weightage of this section shall be 28 marks.

Section B:

The examiner shall set 8 questions which will cover the entire syllabus. The candidates shall attempt any 4 questions in atleast 5 pages. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

1. The Punjab under Turko-Afghan Sultans.
2. The Punjab under the Great Mughals.
3. Salient features of the Bhakti Movement and Sufism in the Punjab.
4. Guru Nanak Dev's teachings and impact on society.
5. Development of Sikhism (1539-1606) with special reference to Sangat, Masand System, Compilation of Adi Granth and Martyrdom of Guru Arjan Dev.
6. Martyrdom of Guru Teg Bahadur: Foundation of Khalsa by Guru Gobind Singh.

7. Banda Bahadur and his achievements.
8. Sikh struggle for sovereignty in the Punjab, 1716 to 1799.
9. Ranjit Singh's Rise to power, his civil and military administrations and relations with the British.
10. The Anglo-Sikh Wars and Annexation of the Punjab.
11. Development of Punjabi Language and Literature, classical writings and famous legends of the Punjab.
12. Social life with special reference to position of women, fairs, festivals, folk music, dances and games in the Punjab.

Suggested Readings :

1. Kirpal Singh (ed.) **History and Culture of the Punjab, Part-II**, Patiala, 1990 (3rd edition).
2. Fauja Singh (ed.) **History of the Punjab**, Vol. III, Patiala, 1972.
3. G. S. Chabra: **The Advanced History of the Punjab**, Vol. 1.
4. J.S.Grewal : **The Sikhs of the Punjab, The New Cambridge History of India**, Cambridge, 1991.

Sanskrit (Elective)**Paper—A**

(गद्य काव्य तथा महाकाव्य)

(Teaching—Six Periods per week)

Time : 3 Hours**M.M. 100**

प्रश्न—पत्र का माध्यम हिन्दी होगा। उत्तर संस्कृत/हिन्दी/पंजाबी/अंग्रेज़ी में हो सकते हैं।

I. निर्धारित पाठ्यक्रम :

1. हितोपदेश (नारायणपण्डित) : सुहृद्भेद चौखम्बा सुरभारती प्रकाशन, वाराणसी, 1990. 25 अंक
2. कादम्बरी (बाण) : शुकनासोपदेश भारतीय विद्या प्रकाशन, दिल्ली, 2003. 40 अंक
3. कुमार सम्भव (कालिदास)—पंचम सर्ग 35 अंक

II. प्रश्नपत्र निर्माण निर्देश:

प्रश्न—पत्र के 3 भाग होंगे—

प्रथम भाग—20 अंक

द्वितीय भाग—50 अंक

तृतीय भाग—30 अंक

1. प्रथम भाग :

शुकनासोपदेश से 5 प्रश्न तथा कुमार सम्भव के पंचमसर्ग से 5 प्रश्न अर्थात् कुल 10 प्रश्न अतिसंक्षिप्त उत्तरों के लिये पूछे जायेंगे। प्रत्येक प्रश्न के 2 अंक होंगे। 10X2=20

2. द्वितीय भाग :

(क) शुकनासोपदेश से 4 गद्यांश देकर 2 के सरलार्थ पूछे जाएंगे। प्रत्येक के 10 अंक होंगे। 2X10=20

(ख) कुमार सम्भव के पंचम सर्ग से 4 पद्य देकर 2 की सप्रसंग व्याख्या पूछी जाएं। प्रत्येक के 7 अंक हैं। 2X7½=15

(ग) (i) सुहृद्भेद से 2 गद्यांश देकर एक का सप्रसंग सरलार्थ पूछा जाएगा। इसके 5 अंक होंगे। 1X5=5

- (ii) सुहृद्भेद से 2 गद्यांश पद्य देकर एक की सप्रसंग व्याख्या पूछी जाएगी।
इसके 10 अंक होंगे। 1x10=10

3. तृतीय भाग :

- (क) शुकनासोपदेश के निर्धारित अंश से सम्बन्धित 2 प्रश्न देकर एक का उत्तर पूछा जाएगा। इसके 10 अंक होंगे। 1x10=10
- (ख) सुहृद्भेद से 2 कथाओं का नाम देकर एक का सार एवं शिक्षा पूछी जाएगी। इसके 10 अंक होंगे। 1x10=10
- (ग) कुमारसम्भव (पंचम सर्ग) से सम्बद्ध 2 प्रश्न देकर एक का उत्तर पूछा जाएगा। इसके 10 अंक होंगे। 1x10=10

III. नोट :-तृतीय भाग के लिए सम्भावित बिन्दु :

1. शुकनासोपदेश

- (क) शुकनासोपदेश का सार
(ख) पात्र चित्रण
(ग) गद्य शैली
(घ) लक्ष्मी का स्वरूप
(ङ) शुकनासोपदेश का महत्व
(च) ग्रन्थकार का संक्षिप्त परिचय
(छ) गद्य काव्य की विशेषतायें
.....इत्यादि।

2. कुमार सम्भव (पंचम सर्ग)

- (क) कथा सार।
(ख) पात्र चित्रण
(ग) प्रकृतिचित्रण
(घ) शैली
(ङ) ब्रह्मचारी-संवाद वैशिष्ट्य
.....इत्यादि।

SANSKRIT (Elective)

Paper—B (व्याकरण तथा अनुवाद)
(Teaching—Six Periods per week)

Time : 3 Hours

M.M. 100

प्रश्न-प्रश्न का माध्यम हिन्दी होगा। उत्तर संस्कृत/हिन्दी/पंजाबी/अंग्रेज़ी में हो सकते हैं।

I. निर्धारित पाठ्यक्रम :

1. व्यञ्जन सन्धि 10 अंक
2. समास (द्वन्द्व, तत्पुरुष) 10 अंक
3. शब्द रूप 20 अंक
 - (क) देव, मुनि, नदी, रमा, गुरु, धेनु, कर्तृ, स्त्री, वाच, जगत, भवत्, ऋत्विज्, दधि, मनस्, पुंस्, महत्, सुहृद्, युवन्, चन्द्रमस्, विद्वस्।
 - (ख) यति, कति, युष्मद्, अस्मद्।
 - (ग) इदम्, अदस्, तद्, एतद्, यद्, किम् (तीनों लिंगों में)।
4. धातुरूप (लट्, लोट्, लृट्, लङ्, विधिलिङ् लकारों में) 20 अंक
 - (क) भ्वादिगण-रक्ष्, लभ्।
 - (ख) आदादिगण-अस्।
 - (ग) तुदादिगण-तुद्, सिच्, प्रच्छ्, मुच्, मिल्।
 - (घ) रुधादिगण-भिद्, छिद्।
 - (ङ) तनादिगण-तन्, कृ।
 - (च) क्र्यादिगण-क्री, ग्रह्, ज्ञा।
 - (छ) चुरादिगण-चुर, कथ्, भक्ष्, तृल्, चिन्त्, रच्।
5. (क) तद्धित प्रत्यय 10 अंक

अण्, मतुप्, त्व, तल्, इमनिच्, मयट्, तरप्, तमप्।
6. वाच्य परिवर्तन (लट् लकार में) 5 अंक
7. स्त्री प्रत्यय 5 अंक
8. छन्द 10 अंक

अनुष्टुप्, वंशस्थ, इन्द्रवज्रा, उपेन्द्रवज्रा, उपजाति, शिखरिणी, मन्दाक्रान्ता, मालिनी, विद्युन्माला, शार्दूल विक्रीडित, वसन्त तिलका।
9. संस्कृत में अनुवाद 10 अंक

II. प्रश्न निर्माण निर्देशः

प्रश्न प्रत्र के 3 भाग होंगे—

प्रथम भाग—20 अंक

द्वितीय भाग—60 अंक

तृतीय भाग—20 अंक

1. प्रथम भाग :

इसमें व्यञ्जन सन्धि से सन्धि/सन्धि विच्छेद पर आधारित 5 प्रश्न तथा समासों से समस्तपद का विग्रह व समास—नाम पर आधारित 5 प्रश्न अर्थात् कुल 10 प्रश्न पूछे जायेंगे। प्रत्येक के 2 अंक हैं। $10 \times 2 = 20$

2. द्वितीय भाग :

(क) 8 शब्द देकर 4 के रूप पूछे जाएंगे। प्रत्येक के 5 अंक होंगे।

$$4 \times 5 = 20$$

(ख) 8 धातु देकर 4 के रूप लिखने के लिए कहा जाए। प्रत्येक धातु के रूपा के लिए 5 अंक हैं। $4 \times 5 = 20$

(ग) 10 शब्दों के साथ निर्धारित तद्धित प्रत्यय देकर 5 के तद्धितान्त रूप लिखवाये जायेंगे। प्रत्येक तद्धितान्त शब्द के 2 अंक होंगे। $5 \times 2 \times 10$

(घ) 4 वाक्य देकर 2 का वाच्य परिवर्तन पूछा जाएगा। प्रत्येक के $2\frac{1}{2}$ अंक होंगे। $2\frac{1}{2} + 2\frac{1}{2} = 5$

(ङ) 10 शब्दों के साथ स्त्री प्रत्यय देकर 5 का स्त्री प्रत्यय रूप लिखवाया जाएगा। प्रत्येक का 1 अंक होगा। $5 \times 1 = 5$

3. तृतीय भाग :

(क) 4 छन्द देकर 2 पूछे जाएंगे। प्रत्येक के 2 अंक होंगे।

अथवा

निर्धारित भिन्न भिन्न छन्दों वाले 4 श्लोकांश देकर 2 के छन्दों का स्पष्टीकरण पूछा जाएगा। प्रत्येक के 5 अंक होंगे। $2 \times 5 = 10$

(ख) हिन्दी में सरल व लघु वाक्यों वाले 2 गद्यांश देकर एक का संस्कृत में अनुवाद पूछा जाएगा। इसके 10 अंक होंगे। $1 \times 10 = 10$

SANSKRIT (Vocational)

Paper - I

Time : 3 Hours

Max. Marks : 100

Part-A

In this part 10 Objective type/Short Answer questions carrying 2 marks each will be set. All questions will be compulsory.

Marks : 20

Part-B

In this part 12 Questions carrying 6 marks each will be set. The candidates will have to attempt only 8 questions out of these 12 questions.

Marks : 48

Part-C

In this part 4 questions carrying 16 marks each will be set. The candidates will have to attempt only 2 questions out of these 4 questions.

Marks : 32

Note: The question Paper will be set in Hindi.

SANSKRIT (Vocational)
Paper - II

Time : 3 Hours

Max. Marks : Total : 100

(Theory) : 84

(Practical) : 16

Part-A

In this part 10 Objective type/Short Answer questions carrying 2 marks each will be set. All questions will be compulsory.

Marks : 20

Part-B

In this part 12 Questions carrying 6 marks each will be set. The candidates will have to attempt only 8 questions out of these 12 questions.

Marks : 48

Part-C

In this part 4 questions carrying 16 marks each will be set. The candidates will have to attempt only 2 questions out of these 4 questions.

Max. Marks : 32

16 (Written) + 16 (Practical) = 32

Note:

1. There will be a practical examination of 16 marks to fulfil the U.G.C. requirement.
2. The question paper will be set in Hindi.

प्रश्न पत्र—प्रथम

1. अनवली नजम् अनवलोभनम्
2. सीत्तोनयनम्
3. जातकर्म
4. नामकरणम्
5. कर्णवेध
6. अन्नप्राशनम्
7. चुडाकर्म
8. विधारम्
9. उपनयनम्
10. समावर्तनम्
11. विवाह
13. अपरकर्माणि

प्रश्न पत्र—द्वितीय

1. शवसांरविधयः
2. श्रद्धभेदः
3. श्रद्धकाल
4. सपिण्डीकरणम्
5. श्रद्धविकारिणः
6. भारतीय वस्तु शास्त्र परिचयः
7. गृहनिर्माणविधिः
8. गृहप्रवेश
9. वास्तु शान्तिः
10. गृहस्थधर्मा
12. अन्त्येष्टिः

हिन्दी**पेपर : ऐ****मध्ययुगीन काव्य एवं इतिहास तथा काव्यांग****समय: तीन घण्टे****कुल अंक : 100****नोट :** यह प्रश्न-प्रश्न तीन भागों में विभक्त है।**खण्ड—एक**

इस भाग में से 10 प्रश्न पूछे जाएंगे। इस का पांच पंक्तियों में उत्तर देना होगा। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न दो अंकों का है।

कुल अंक 20**खण्ड—दो**

इस भाग में 12 प्रश्न पूछे जाएंगे जिनमें से 8 प्रश्नों का उत्तर देना अनिवार्य होगा। प्रत्येक प्रश्न का उत्तर दो पृष्ठों तक सीमित होगा। प्रत्येक प्रश्न के छः अंक हैं।

कुल अंक 48**खण्ड—तीन**

इस भाग में चार प्रश्न पूछे जाएंगे जिनमें से दो प्रश्नों का उत्तर देना अनिवार्य है। प्रत्येक प्रश्न का उत्तर पांच पृष्ठों का होगा। प्रत्येक प्रश्न सोलह अंकों का होगा।

कुल अंक 32**निर्धारित पाठ्यक्रम****पाठ्य-पुस्तकें :**

1. काव्य—गरिमा, सम्पादक डॉ० हरमहेन्द्र सिंह बेदी, प्रकाशक : गुरु नानक देव यूनिवर्सिटी, अमृतसर।
2. हिन्दी साहित्य का इतिहास, प्रकाशक: गुरु नानक देव यूनिवर्सिटी, अमृतसर।
- हिन्दी साहित्य के आदिकाल और भक्ति काल का अध्ययन अपेक्षित हैं। तत्सम्बन्धी प्रमुख परिक्षेत्र—आदिकाल परिस्थितियां, विशेषताएं, नामकरण, काल विभाजनादि।
- भक्तिकाल—नामकरण, काल विभाजन, परिस्थितियां, विशेषताएं।

3. अलंकार—निरूपण तथा मुहावरे, लोकोक्तियां ।
- अनुप्रास, यमक, उपमा, रूपक, प्रतीक, विरोधाभास (छः अलंकार) का सोदाहरण परिचय ।
 - किन्ही 2 मुहावरों तथा 2 लोकोक्तियों का अर्थ और वाक्य प्रयोग ।

बिषयानुकूल विभाजन :

1. **प्रथम खण्ड** में चार प्रथम प्रश्न अलंकारों तथा मुहावरों, लोकोक्तियों से करने होंगे। शेष में आधे प्रश्न पाठ्य पुस्तक तथा आधे प्रश्न साहित्येतिहास से होंगे।
2. **दूसरे खण्ड** में चार प्रश्न सप्रसंग व्याख्याओं के होंगे जिनमें से दो प्रश्न अनिवार्य हैं। दो प्रश्न अलंकार आदि से तथा शेष प्रश्नों में से तीन प्रश्न साहित्येतिहास से तथा तीन कवि तथा कविताओं से सम्बद्धित होंगे।
3. **तृतीय खण्ड** में दो प्रश्न कवि, एवं कविताओं के मूल्यांकन तथा साहित्येतिहास से होंगे।

हिन्दी

पेपर : बी

उपन्यास, नाटक तथा सैद्धान्तिकी

समय: तीन घण्टे

कुल : 100

नोट : यह प्रश्न-प्रश्न तीन भागों में विभक्त होगा।

खण्ड—एक

इस भाग में से 10 प्रश्न पूछे जाएंगे। इस का पांच पंक्तियों में उत्तर देना होगा। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न दो अंक का है।

कुल अंक 20

खण्ड—दो

इस भाग में 12 प्रश्न पूछे जाएंगे जिनमें से 8 प्रश्नों का उत्तर देना अनिवार्य होगा। प्रत्येक का उत्तर दो पृष्ठों तक सीमित होगा। प्रत्येक प्रश्न के छः अंक हैं।

कुल अंक 48

खण्ड—तीन

इस भाग में चार प्रश्न पूछे जाएंगे जिनमें से दो प्रश्नों का उत्तर देना अनिवार्य है। प्रत्येक प्रश्न का उत्तर पांच पृष्ठों का होगा। प्रत्येक प्रश्न सोलह अंकों का होगा।

कुल अंक 32

निर्धारित पाठ्यक्रम

अमिता — (ऐतिहासिक उपन्यास) : यशपाल

कोणार्क (नाटक) : जगदीशचंद्र

सैद्धान्तिकी

उपन्यास, तथा नाटक की परिभाषा, स्वरूप: तत्व, प्रकार

अंक विभाजन:—

1. **प्रथम खण्ड** में आधे प्रश्न सैद्धान्तिकी से और आधे प्रश्न पाठ्य पुस्तकों से होंगे।
2. **दूसरे खण्ड** में से चार प्रश्न सैद्धान्तिकी सम्बन्धी; चार व्याख्या सम्बन्धी तथा शेष चार प्रश्न पाठ्यक्रम में निर्धारित पुस्तकों से होंगे। पुस्तकों से संबंधी प्रश्न कथ्य, शिल्प, पात्रों रंगमंच तथा अभिनेयता संबंधी होंगे। प्रत्येक खण्ड में से दो दो प्रश्न करने अनिवार्य हैं।
3. **तीसरे खण्ड** में दो प्रश्न सैद्धान्तिकी तथा दो पाठ्य पुस्तकों से होंगे। इनमें लेखकों के साहित्य के मूल्यांकन, महत्व, पतिपाद्य, तथा नाटक और उपन्यास विधाओं के तत्व आदि पर प्रश्न (पाठ्य पुस्तकों के संदर्भ में) पूछे जाएंगे।

फंक्शनल हिन्दी

पेपर—एक

टिप्पणी, प्रारूप लेखन, व्यावसायिक पत्रचार और भक्तिकालीन हिन्दी साहित्य का इतिहास

समय: तीन घण्टे

पूर्णांक : 100 (80+20)

नोट :

- क) यह प्रश्नपत्र तीन भागों में बंटा हुआ है। पहले भाग में से दस प्रश्न पूछे जाएंगे। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न दो अंकों का है। **कुल अंक 20**
- ख) इस भाग में बारह प्रश्न पूछे जाएंगे जिनमें से आठ प्रश्नों का उत्तर देने हैं प्रत्येक प्रश्न 100 शब्दों तक की सीमा का होगा। प्रत्येक प्रश्न के पांच अंक होंगे। **कुल अंक 40**
- ग) इस भाग में चार प्रश्न पूछे जाएंगे जिनमें से दो प्रश्नों का उत्तर देना अनिवार्य है। प्रत्येक प्रश्न का उत्तर पांच पृष्ठों अथवा एक हजार शब्दों तक सीमित होगा। प्रत्येक प्रश्न के 10 अंक होंगे। **कुल अंक 20**
- घ) **प्रोजैक्ट**—प्रोजैक्ट के विषय की स्वीकृति गुरु नानक देव विश्वविद्यालय के हिन्दी विभाग के अध्यक्ष से लिखित रूप में लेनी होगी। प्रोजैक्ट की रपट की तीन प्रतियां (टंकित) विश्वविद्यालय के हिन्दी विभाग में वार्षिक परीक्षा से दो सप्ताह पूर्व भेजनी होंगी। **कुल अंक 10**

मौखिकी—मौखिक परीक्षा की समिति में विश्वविद्यालय का अध्यक्ष/अध्यक्ष की तरफ से नामजद प्रोफेसर तथा कालेज का विभागाध्यक्ष होंगे।

कुल अंक 10

सिद्धान्त:—

(क) टिप्पणी प्रारूप लेखन

सामान्य परिचय

1. टिप्पणी : टिप्पणी में प्रयुक्त भाषा और शैली।
2. प्रकरण (केस) ब्यौरा (हिस्टरी)
3. आक्षरिक पर्ची (Flagging of reference)

4. केस तैयार करना
5. परिणाम तक पहुंचना और कार्यवाही की प्रस्तावना
6. टिप्पणी की विशेषताएं/लक्षण और इसमें प्रयुक्त की जाने वाली आवश्यक औपाचारिकता।

(ख) वाणिज्य और व्यावसायिक पत्रचार

1. वाणिज्य (Commercial) और व्यावसायिक (Business) का पत्रचारों का स्वरूप
2. कार्यालय, वाणिज्य और व्यावसायिक पत्रों में अन्तर
3. प्रस्ताव-पत्र (Letters of Offer)
4. भाव-दर-सूची (Quotations)
5. बजक/विधेयक (Invoice/Bills)
6. रसीदें (Receipts)
7. आदेश-पत्र (Letters of Placing Orders)
8. भुगतान-सूचना (Advice of Payments)
9. बैंक में लेन-देन सम्बन्धी पत्र (Letters regarding Banking Transactions)
10. वाणिज्य और व्यावसायिक पत्रों की शब्दावली
11. विज्ञापन: परिचय और प्रकाशनाधिकार, क्षेत्र, संभावना, भाषा और महत्व
12. विज्ञापन में वाक्यांश/पद का प्रभाव और महत्व
13. सफल प्रकाशनाधिकारी के गुण

(ग) हिन्दी साहित्य का इतिहास:

1. हिन्दी साहित्य के भक्तिकाल की विशेषताएं

प्रयोग :-

1. दिये गए विषयों पर उच्च अधिकारियों के सामने विभिन्न प्रकार के केस प्रस्तुत करने का अभ्यास।

2. उपलब्ध विज्ञापनों को एकत्रित करना और उनका अनुवाद

विभाजन :

1. प्रथम खण्ड में वाणिज्य और व्यावसाय के क्रमांक 3 से 10 तक में प्रश्न पूछे जाएंगे।
2. द्वितीय खण्ड में टिप्पणी, प्रारूपलेखन और विज्ञापन क्षेत्रों में से प्रश्न पूछे जाएंगे।
3. तृतीय खण्ड में वाणिज्य तथा व्यावसायिक पत्रचार क्रमांक 1, 2 तथा हिन्दी साहित्य का इतिहास पर प्रश्न पूछे जाएंगे।

परियोजना :-

10 से 12 पृष्ठों का प्रोजेक्ट तैयार करना होगा। 10 अंक

मौखिकी

10 अंक

सन्दर्भ पुस्तकें :

1. टिप्पणी तथा प्रूपपठन ओम प्रकाश सिंहल, पीतांबर पब्लिशिंग, 888-ईस्ट पार्क रोड, नई दिल्ली, 110005.
2. व्यावहारिक हिन्दी भाग-2, ओमप्रकाश सिंहल, पीतांबर पब्लिशिंग, 888-ईस्ट पार्क रोड, नई दिल्ली, 110005.
3. व्यावहारिक हिन्दी, डा० महेन्द्र मित्तल, शाबरी संस्थान, 12/180 आर्य धर्म बिल्डिंग, बिल्वा लाइन्स, दिल्ली-110007.
4. प्रागाणिक आलेखन व टिप्पणी बिराज एम.ए. राजपाल एण्ड संज, काश्मीरी गेट, दिल्ली-110006.
5. हिन्दी साहित्य का इतिहास, वासुदेव शर्मा अग्रवाल सूर्य प्रकाशन, नई सड़क, दिल्ली।

फंक्शनल हिन्दी**पेपर—दो, निर्वचन और प्रैस विज्ञप्ति****(Interpretation and Press Communiques)**

समय: तीन घण्टे

पूर्णांक : 100 (80+20)

नोट :

क) यह प्रश्नप्रश्न तीन भागों में बंटा हुआ है। पहले भाग में से दस प्रश्न पूछे जाएंगे। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न दो अंकों का है।
कुल अंक 20

ख) इस भाग में बारह प्रश्न पूछे जाएंगे जिनमें से आठ प्रश्नों का उत्तर देना है। इन प्रश्नों का उत्तर दो पृष्ठों में देना होगा। अथवा दो सौ शब्दों तक की सीमा का होगा। प्रत्येक प्रश्न पांच अंक का है।
कुल अंक 40

ग) इस भाग में चार प्रश्न पूछे जाएंगे जिनमें से दो प्रश्नों का उत्तर देना अनिवार्य है। जिनमें से दो प्रश्नों का उत्तर पांच पृष्ठों अथवा एक हजार शब्दों तक सीमित होगा। प्रत्येक प्रश्न 10 अंक का होगा।
कुल अंक 20

घ) प्रोजेक्ट—प्रोजेक्ट के विषय की स्वीकृति गुरु नानक देव विश्वविद्यालय के हिन्दी विभाग के अध्यक्ष से लिखित रूप में लेनी होगी। प्रोजेक्ट की रपट की तीन प्रतियां (टंकित) विश्वविद्यालय के हिन्दी विभाग में वार्षिक परीक्षा से दो सप्ताह पूर्व भेजनी होंगी।
कुल अंक 10

मौखिकी—मौखिक परीक्षा की समिति में विश्वविद्यालय का अध्यक्ष/अध्यक्ष की तरफ से नामजद प्रोफेसर तथा कालेज का विभागाध्यक्ष होंगे।

कुल अंक 10

सिद्धान्त :-

(क) निर्वचन (Interpretation)

1. निर्वचन क्या है?
2. निर्वचन: क्षेत्र संभावना, भूमिका
3. दुभाषिया: गुण और उत्तरदायित्व
4. निर्वचन: सारांश और स्पष्टीकरण
5. भाषा पर अधिकार (अंग्रेजी-हिन्दी और क्षेत्रीय भाषाएं)
6. दुभाषिए और अनुवादक में अन्तर
7. आशु-भाषांतरण अनुवाद (अनुव्याख्या)
8. संपादन
9. बैठकों (सभाओं) और वाद-विवाद के निष्कर्ष की व्याख्या
10. भाषण का संदेश और व्याख्यानों का सार

(ख) प्रैस विज्ञप्ति (Press Communiques)

1. प्रैस विज्ञप्ति: परिचय, अवधारणा स्वरूप और क्षेत्र
2. प्रैस प्रकाशनी (Press release) की मुख्य विषय वस्तु
3. सारांश
4. प्रैस विज्ञप्ति: भाषा शैली
5. प्रैस विज्ञप्ति: शब्दावली
6. पुनर्विलोकन (Review) और संपादन (Editing)
7. प्रैस प्रकाशनी जारी करने का अधिकारी
8. कवरेज (Coverage)
9. प्रैस रिपोर्ट-भाषा और शैली
10. प्रैस-रिपोर्ट करना (Draft Report)
11. प्रूफ रीडिंग

(ग) मुख्य समाचार पत्र: परिचय और इतिहास**प्रयोग:**

1. दुनिया विषयों पर समूहवार बहस और उनकी व्याख्या
2. आशु-भाषांतरण (Extempore) अनुवाद का अभ्यास
3. भाषाओं, व्याख्यानों और प्रोग्रामों का संदेश पहुंचने का अभ्यास
4. प्रैस का हिन्दी-कथन/पाठ (Version) तैयार करना, समाचार मद आदि (अंग्रेजी समाचार पत्रों में प्रकाशित)
5. प्रैस-प्रकाशन विषयों के निर्देशन तैयार करना।

विभाजन :

- (क) निर्वचन तथा प्रैस विज्ञप्ति में से प्रश्न पूछे जाएंगे।
- (ख) निर्वचन 1 से 4 तक में प्रश्न पूछे जाएंगे।
- प्रैस विज्ञप्ति से 1 से 2 तक प्रश्न पूछे जाएंगे।
- पंजाब के समाचार पत्र:- परिचय और इतिहास संबंधी प्रश्न पूछे जाएंगे।

परियोजना:

10 से 12 पृष्ठों का प्रोजेक्ट तैयार करना होगा।

कुल अंक 10

मौखिकी

कुल अंक 10

सन्दर्भ पुस्तकें :-

1. **पत्रिका संपादन कला**, रामचन्द्र तिवारी, आलेख प्रकाशन, नई दिल्ली।
2. **समाचार पत्र व्यवस्थापन**, अनंत गोपले शेवडे, मध्यप्रदेश, हिन्दी ग्रंथ अकादमी, भोपाल।

RUSSIAN
Paper - A (Written)

Time: 3 Hours

M.Marks : 100

1. Translation from Russian into English/Hindi/Punjabi
30 Marks
2. Comprehension (Texts with questions) **30 Marks**
3. Translation from English to Russian **40 Marks**

Course of Reading & Prescribed Text-Book :

"RUSSIAN" by Wagner V.N. & Ovsienko Y.G.
(Lessons 26 to 40) PPH, N.D., 1991.

Note : Dictionaries are allowed.

RUSSIAN**Paper-B****Time : 3 Hrs.****M.Marks : 100**

(A) (Written)	50
1. Grammer	35
2. Composition (one out of five topics)	15

Topics : My friend; My family; City; My University; My work;
An Off Day; Our Library.

Courses of Reading & Prescribed Text-Book :

- Declension of Nouns & Adjectives in all Cases & Numbers.
 - Verbs of motion with & without prefixes
 - Use of “который”
 - "RUSSIAN" by Wagner V.N. & Ovsienko Y.G.
(Lessons 26 to 40)
 - "RUSSIAN" by Ovsienko Y.G. & Skopina (Part-I & II)
- | | |
|---------------------------|-----------|
| (B) Oral/Practical | 50 |
| - Reading of a text | 15 |
| - Dictation | 15 |
| - Conversation | 20 |

FRENCH
Paper-A (Written)

Time: 3 Hours

Max. Marks: 100

Composition and Grammar :

1. A Dialogue in French of about one page on the topic covered in the Text Book. 15
2. An informal letter in French (to friend & family) 10
3. Questions on Applied Grammar pertaining to the text 40
(Exercises from the textbook)
4. Conjugations of verbs used in the text) 15
5. Short answer questions from the textbook. 20

The general questions are based on the vocabulary of the text book. (Eight out of the twelve to be attempted).

Courses of Reading & Prescribed Text-Book :

"CONNEXIONS-2" by Regine Merieux & Yves Loiseau,
Published by Didier, 2004.

FRENCH**Paper-B****M.Marks : 100****A : Written : 60****B : Viva : 40****A. : Written (Translation & Literature)****Time : 3 Hrs.****M. Marks : 60**

- | | |
|---|-----------|
| 1. Translation from French to English
(From the textbook) | 15 |
| 2. Translation from English to French.
(From the textbook) | 15 |
| 3. Summary of one of the poems studied. | 15 |
| 4. Conte De Fee-Le Petit Chaperon Rouge | 15 |

Course of Reading & Prescribed Text-Book :

- "CONNEXIONS-2" by Regine Merieux & Yves Loiseau,
Published by Didier, 2004.
- Conte De Fee-Le Petit Chaperon Rouge
- Poetry-Dejeunei Matin (Prevert)

(B) Oral/Practical 40

- | | |
|---------------------|-----------|
| - Reading of a text | 10 |
| - Dictation | 10 |
| - Conversation | 20 |

Course of Reading & Prescribed Text-Book :

- "CONNEXIONS-2" by Regine Merieux & Yves Loiseau,
Published by Didier, 2004.

URDU (ELECTIVE)**Paper-A****Time: 3 Hours****Max. Marks: 100****Note : - Instructions for the paper-setters/examiners:****Each question paper may consist of three sections as follows:**

Section-A will consist of 10 very short answer questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 20 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Prose & Poetry

- i) Explanation of Verses
- ii) Explanation of Prose
- iii) Introduction to Literary contribution of the following Poets and Prose writers.

Poets

Mir Taqi Mir, Asad-ulla-Khan Ghalib, Nazir Akbarabadi, Brij Narain Chakbast & Jigar Muradabadi)

Prose Writers

Sir Syed Ahmad Khan, Mohd. Hussain Azad, Altaf Husain Hali, Munshi Prem Chand, Rashid Ahmad Siddiqui)

Book Prescribed

Naqoosh-e-Adab published by Education Book House, A.M.U. Market, Aligarh, 2003.

Books Recommended

1. Mukhtasar Tarikh-Adab-e-Urdu, by Aijaz Husain, Education Book House, A.M.U. Market, Aligarh, 2003.
2. Urdu Zaban-o-Adab ka Khaka by Khushhal Zaidi, Edara Bazme Khizre Rah, 80-Ghaffar Manzil Jamianagar, New Delhi, 110025, 2001.

URDU (ELECTIVE)**Paper-B****Time: 3 Hours****Max. Marks : 100****Note :- Instructions for the paper-setters/examiners :****Each question paper may consist of three sections as follows:**

Section-A will consist of 10 very short answer questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 20 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section being be 48 marks.

Section-C will consist of essay type questions with answers to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Novel and Precis Writing

1. a) Novel : Plot, characterisation, language and style & treatment of situation/social condition.
- b) Explanation of a paragraph from the novel.
2. Media and Information :
(Qualities and Duties with reference to Urdu)

Book Prescribed :

Ek Chadar Maili Si by Rajinder Singh Bedi, Education Book House, A.M.U. Market, Aligarh, 2003.

Books Recommended

1. *Urdu Sahafat* by Saqib Siddiqui, Sir Syed Book Depot, Jamia Urdu, Medical College Road, Aligarh-202002 (UP), 2003.
2. *Sahafat Kaya Hai* edited by Department of Persian and Urdu, Punjabi University, Patiala, 2001.
3. *Television Ki Sahafat* by Shakeel Hasan Shamsi, 37-Johri Mohalla, Lucknow, 2001.

PERSIAN (ELECTIVE)**Paper - A****Time: 3 Hours****Max. Marks: 100****Note : - Instructions for the paper-setters/examiners:****Each question paper may consist of three sections as follows:**

Section-A will consist of 10 very short answer questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 20 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section being 48 marks.

Section-C will consist of essay type questions with answers to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Prose and Poetry**Prose :**

Azan-e-Maghrib by Saeed Nafisi. (Page-171)

Khana-e-Pidari by Saeed Nafisi. (Page-178)

Khud-Kushi by Mohd. Hijazi, (Page-199)

Eidi by Mohd. Hijazi. (Page-205)

Poetry :**a) Ghazaliyat-e-Hafiz**

Agar An Turk Shirazi Badasat Arad Dile Mara

Dil Miravad z Dastam Sahib Dilan Khudara

Saqi Banoor-e-Bade Bar Afroz Jam-e-Ma. (Pages 4-8)

b) Ghazaliyat-e-Khusrau

Jaan z tan Burdi-o-Dar Jani Hanuz

Madeh Pindam Keh Man Dar Sene Sauda-e-Digar Daram

Janan Shabi Bakoo-e-Ghariban Maqam Kun. (Pages 24-25)

Qasida Mlik-ush-Sho'ara Bahar (Jughad-e-Jang)

1. Fughan z Jughad-e-Jang-o-Marghwai-o. (Pages 54-59), 2006.

Masnavi-Maulana Room

Bishno Az Nai Choon Hikayat Mee Kunad

Hikayat Ashiq Shudan-e-Badshah Bar Kaneezak

Zahir Shudan-e-Ijz-e-Hakiman Az Mo' alija-e-Kaneezak

Badshah b Dargah-e-Khuda-o-Khwab Didan Shah Wali Ra
(Pages 117-133)

Book Prescribed :

Nisab-e-Jadeed-e-Farsi, Published by Jyed Press Ballimaran Delhi-6 and available from Maktaba Jamia, Urdu Bazaar, Jama Masjid, Delhi-6. (1990)

Books Recommended :

1. Jadid Farsi Shai'ri by Dr. Mohd. Taqi Ali Abidi, Uttar Pradesh Urdu Academy, Lucknow, 1996.
2. Jadid Farsi Shai'ri by Dr. Munib-ur-Rehman, University Press, A.M.U. Aligarh, 1980.
3. Asari Farsi Shai'ri by Dr. Syed Ahsan-uz-Zafar, Uttar Pradesh Urdu Academy, Lucknow, 1995.
4. Masnaviyat-e-fani Kashmiri by Iraq Raza Zaidi, 2003 (2nd Edition).
5. Sho'ra-e-Namwar by M.M. Jalali, Uttar Pradesh Urdu Academy, Lucknow, 1995.
6. Tarikh-e-Adabiyat-e-Iran by Raza Zada Shafaq, Edara Musannifin, Hyderabad, 1990.

PERSIAN (ELECTIVE)**Paper - B****Time: 3 Hours****Max. Marks: 100****Note:- Instructions for the paper-setters/examiners:****Each question paper may consist of three sections as follows:**

Section-A will consist of 10 very short answer questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 20 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section being 48 marks.

Section-C will consist of essay type questions with answers to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Grammar and Persian Genres :

- a) Grammar : Definitions and kinds of the following :
Ism, Zameer, Sifat, Fail, Fa'il, Mafool & Jumla
Mutazad Alfaz
- b) Persian Genres:
Ghazal
Qasida
Masnavi
Rubai
Dastan
Dastan-e-Kotah
Zindgi Nameh

Media :

Its Qualities and Duties

Books Recommended:

1. Miftah-ul-Qawaid by Mohiuddin Jafri, 2001.
2. Naseem-e-Balaghat by Jalal-ud-din Jafri, 2001.
3. Farsi-o-Dastur, Part-II by Zohra Khanlari, 2003.
4. Urdu Sahafat by Anwar Dehlvi, Urdu Academy, Delhi, 2000.
5. Rehbar-e-Akhbar Navisi by Iqbal Qadri, Qaumi Council, R.K. Puram, New Delhi, 1999.
6. Urdu : Radio aur Television Mein by Kamal Ahmad Siddiqui. Qaumi Council, R.K. Puram, New Delhi, 2003.
7. Awami Zra'i Iblagh : Tarsil aur Tamir-o-Tarraqi by Shahid Parvej, Qaumi Council, R.K. Puram, New Delhi, 2001 (2nd reprint).

HISTORY

Paper-A

History of India (1707-1964 A.D.)

Time : 3 Hours

Max. Marks : 100

Note : The question paper shall consist of two sections as follows :

Section A : The examiner will set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question will be in 10 to 15 sentences. The total weightage of the section will be 28 marks.

Section B : The examiner will set 8 questions which will cover the entire syllabus. The candidates will attempt any 4 questions in at least 5 pages each. Each question will carry 18 marks. The total weightage of this section will 72 marks.

Important Note : Paper Setter must ensure that questions in Section-A do not cover more than one point, and questions in Section-B should cover at least 50 percent of the theme.

1. **Foundation of British Rule :** Advent of the British; Battles of Plassey and Buxar, Clive and Warren Hastings; Subsidiary Alliance Policy, Doctrine of Lapse.
2. **The Uprising of 1857 :** Causes, Spread of the Uprisings, Nature and aftermath.
3. **Economic Changes :** Agriculture, British commercial policies and the impact on the trade balance; Destruction of indigenous industries; the growth of modern industry; The drain theory.
4. **Growth of Education and Political Organisation :** New education; Rise of the middle classes, Political institutions.
5. **Socio Religious Movements :** Brahma Samaj, Arya Samaj, Rama Krishana Mission, Prarthna Samaj, Theosophical Society, Aligarh Movement.
6. **The Revolutionary Terrorism :** Partition of Bengal and its impact; Revolutionary Terrorism in Bengal, Maharashtra and the Punjab, Impact on the national movement.

7. **The Phase of Non-Co-operation** : Emergence of Gandhi; The Jallianwala Bagh Massacre and its impact; Khilafat agitation; the Non-cooperation Movement; Withdrawal and impact; the Swarajists; The Simon Commission.
8. **The Phase of Civil Disobedience** : The programme and the course of the Civil Disobedience movement, the Round Table Conferences; Communal Award; Poona-pact; Withdrawal of Civil Disobedience Movement.
9. **Constitutional Development** : The Acts of 1861 and 1892; the Minto-Morley Reforms of 1909, The Act of 1919 and Dyarchy; Government of India Act, 1935 and Provincial Autonomy.
10. **Towards Partition and Independence** : Growth of communal politics; Lahore resolution, Cripps proposals; 'Quit India' Movement; the INA Trials, Interim Government and Elections; Cabinet Mission towards Independence.

HISTORY

Paper-B

History of the Punjab (1469-1799)

Time : 3 Hours

Max. Marks : 100

Note : Each question paper shall consist of two sections as follows :

Section A : The examiner will set 10 questions and the candidates will attempt any 7 questions carrying 4 marks each. Answer to each question will be in 10 to 15 sentences. The total weightage of this section will be 28 marks.

Section B : The examiner will set 8 questions which will cover the entire syllabus. The candidates will attempt any 4 questions in at least 5 pages each. Each question will carry 18 marks. The total weightage of this section will be 72 marks.

Important Note : Paper Setter must ensure that questions in Section-A do not cover more than one point, and questions in Section-B should cover atleast 50 percent of the theme.

1. **Sources :** Geographical and Physical features, Historical literature in Persian and Punjabi; Religious literature; Administrative records and documents; European travellers' accounts, Non-literary sources : numismatics and paintings.
2. **Socio-Religious condition of the Punjab around 1500 A.D. :** The Sunnis; the Shias; the Sufis, the Brahmans; the Jogis; the Vaishnava bhakti and the saints.
3. **Foundation of Sikh Panth : Guru Nanak Dev and his Teachings :** Early life, Conception of God, Importance of the Guru, Insistance on right conduct and earnest profession; Institution of community kitchen (Langer) and Congregational worship (sangat), Succession to Guruship.
4. **Development of the Sikh Panth : Guru Angad Dev to Guru Arjan Dev :** Increasing number of sangats : Sikh ceremonies; the Manji and Masand system, The founding

of the sacred places, The Harimandir. Compilation of the Adi Granth.

5. **Transformation of the Sikh Panth : Guru Hargobind to Guru Tegh Bahadur :** Martyrdom of Guru Arjan Dev and Guru Hargobind's response; Armed conflict with the state; Circumstances leading to the accession and martyrdom of Guru Tegh Bahadur.
6. **Creation of Khalsa :** Meaning; Circumstances leading to the creation of the Khalsa (1699); New Social order; Conflict with the Hill chiefs and Mughal administrators; Legacy.
7. **Banda Bahadur :** Early life of Banda Bahadur and his meeting with Guru Gobind Singh; His political activities upto the conquest of Sarhind; Establishment of an independent rule; Imperial campaign against Banda.
8. **Political Struggle (1716-48) :** Position of the Sikhs; Repression and conciliation by the Mughal governors, Abdus Samad Khan and Zakaria Khan (1716-1745), Ghallughara, Sikh-Afghan struggle (1752-65); Occupation of Lahore, the striking of the coin; Causes of Sikh success against the Mughals and Afghans.
9. **Leading Sardars and Territories :** Nawab Kapur Singh; Jassa Singh Ahluwalia; Bhangis; Jassa Singh Ramgarhia; Charat Singh and Mahan Singh; Jai Singh Kanhaya; Ala Singh.
10. **Political Organisations of the Sikhs in the 18th Century:** Rakhi; Dal Khalsa; Gurmata, Misl. Emergence of new rulers and their military resources; Administrative arrangements; Land revenue; Administrative of Justice.

Political Science

Paper – A

(Indian Constitution)

Time : 3 Hours

Max. Marks: 100

20x4 = 80

10x2 =20

Instructions for the Paper Setter:

The question paper will consist of five Sections: A,B,C,D and E, Section A,B,C and D will have two questions from the respective portion of the syllabus and will carry 20 marks each. Section E will consist of 10 short answer type questions to be set from entire syllabus i.e sections A, B, C & D and will carry 20 marks in all, such short answer type questions carry 2 marks.

Instructions for the candidates:

Candidates are required to attempt one question each from sections A,B,C and D of the question paper and the entire section E. The candidates are required to answer the short questions in not less than 50 words.

Section — A

1. Constitution Assembly and making of India's Constitution.
2. Basic features of the Indian Constitution.
3. Preamble and its importance.
4. Nature of Indian Federalism and Centre-State Relations.

Section — B

1. Fundamental Rights, features, kinds and evaluation.
2. Fundamental Duties.
3. Directive Principles of the State Policy.

Section — C

1. **Parliament:** Composition, Powers and Role.
2. **President:** Election, Powers and Position.
3. **Indian Cabinet and Prime Minister:** Election, Powers, Position and Changing Role.
4. **Supreme Court and High Court:** Composition, Powers and Role.

Section — D

1. **Governor:** Appointment, Powers and Role.
2. **State Legislature:** Composition, Powers and Role.
3. **Council of Ministers and Chief Minister:** Election, Powers, Position and Role.

Books Recommended:

1. G. Austin, *The Indian Constitution : Corner Stone of a Nation*, Oxford, Oxford University Press, 1966.
2. G. Austin, *Working of a Democratic Constitution : The Indian Experience*, Oxford University Press, 2000, Delhi.
3. D.D. Basu, *An Introduction to the Constitution of India*, New Delhi, Prentice Hall, 2008.
4. C.P. Bambhri, *The Indian State Fifty Years*, New Delhi, Shipra, 1997.
5. P. Brass, *Politics of India Since Independence*, Hyderabad, Orient Longman, 1990.
6. P. Brass, *Caste, Faction and Parties in Indian Politics*, Vol. II, Delhi, Chanakya Publications 1984-1985.
7. P. Brass, *Ethnic Groups and the State*, London, Croom, Helm, 1995.
8. P. Brass, *Language, Religion and Politics in North Indian*, London, Cambridge University Press, 1974.
9. B.L. Fadia, *State Politics in India*, Vol. II, New Delhi, Radiant Publishers, 1984.
10. F.R. Frankel, *India's Political Economy 1947-1977, The Gradual Revolution*, Oxford, Oxford University Press, 1978.
11. R. Kothari, *State against Democracy : In Search of Human Governance*, Delhi, Ajanta, 1988.
12. R. Kothari, *Politics in India*, New Delhi, Orient Longman, 1970.
13. R. Kothari, *Party System and Election Studies*, Bombay, Asia Publishing House, 1967.
14. I. Narain (ed.), *State Politics in India*, Meerut, Meenakshi Parkashan, 1967.

15. M.V. Pylee, *Constitutional Government in India*, Bombay, Asia Publishing House, 1977.
16. M.V. Pylee, *An Introduction to the Constitution of India*, New Delhi, Vikas, 1998.
17. S.P. Verma and C.P. Bhambari (ed.), *Election and Political Consciousness in India*, Meerut, Meenakshi Parkashan, 1967.
18. B.L. Fadia, *Indian Government and Politics*, Agra, Sahitya Bhavan Publications, 2008.
19. A.S. Narang, *Indian Government and Politics*, New Delhi, Gitanjali, 1999.
20. *Indian Journal of Political Sciences*
21. *Punjab Journal of Politics*
22. Seminar
23. Lloyd I. Rudolph and Susanne Hoebe Rudolph, *Explaining Indian Democracy: A Fifty-Year Perspective, 1956-2006*, Vol. I, II, III, New Delhi, OUP, 2008.
24. Francine Frankel, *India's Political Economy: 1947-2004*, New Delhi, OUP, 2006.

GAP PAGE NO.: 53-55

Political Science
Paper - B
(Indian Political System)

Time : 3 Hours

Max. Marks: 100

20x4 = 80

10x2 = 20

Instructions for the Paper Setter:

The question paper will consist of five Sections: A, B, C, D and E. Section A, B, C and D will have two questions from the respective portion of the syllabus and will carry 20 marks each. Section E will consist of 10 short answer type questions to be set from the entire syllabus i.e. sections A, B, C & D and will carry 20 marks in all, such short answer type questions carry 2 marks.

Instructions for the candidates:

Candidates are required to attempt one question each, from sections A, B, C, and D of the question paper and the entire section E. The candidates are required to answer the short questions in not less than 50 words

Section — A

1. **Nature of Party System in India:** A Critical Evaluation.
2. National Political Parties (National Congress – BJP, CPI, CPI(M), BSP; Their organisation, Ideologies and electoral performance.
3. **Regional Political Parties (SAD, NC, DMK, Telugu Desam):** Their Organisation, Ideologies and Electoral Performance.
4. Pressure groups in Indian Politics.

Section — B

1. **The Election Commission:** Powers, functions, and Electoral reforms.
2. Voting Behaviour.
3. **Political Participation:** Determinants and levels of Political Participation.

Section — C

1. Caste and Religion in Indian Politics.
2. Regionalism and Indian politics.
3. Liberalisation and Indian Politics.
4. Emerging trends in Indian Politics.

Section — D

1. Basic principles and determinants of Indian Foreign Policy.
2. Policy of Non-alignment and its relevance in contemporary world.

Books Recommended:

1. G. Austin, *The Indian Constitution : Corner Stone of a Nation*, Oxford, Oxford University Press, 1966.
2. G. Austin, *Working of a Democratic Constitution : The Indian Experience*, Oxford University Press, 2000, Delhi.
3. D.D. Basu, *An Introduction to the Constitution of India*, New Delhi, Prentice Hall, 2008.
4. C.P. Bambhari, *The Indian State Fifty Years*, New Delhi, Sipra, 1997.
5. P. Brass, *Politics of India Since Independence*, Hyderabad, Orient Longman, 1990.
6. P. Brass, *Caste, Faction and Parties in Indian Politics*, Vol. II, Delhi, Chanakya Publications 1984-1985.
7. P. Brass, *Ethnic Groups and the State*, London, Croom, Helm, 1995.
8. P. Brass, *Language, Religion and Politics in North Indian*, London, Cambridge University Press, 1974.
9. B.L. Fadia, *State Politics in India*, Vol. II, New Delhi, Radiant Publishers, 1984.
10. F.R. Frankel, *India's Political Economy 1947-1977, The Gradual Revolution*, Oxford, Oxford University Press, 1978.
11. R. Kothari, *State against Democracy : In Search of Human Governance*, Delhi, Ajanta, 1988.
12. R. Kothari, *Politics in India*, New Delhi, Orient Longman, 1970.
13. R. Kothari, *Party System and Election Studies*, Bombay, Asia Publishing House, 1967.
14. I. Narain (ed.), *State Politics in India*, Meerut, Meenakshi Parkashan, 1967.

15. M.V. Pylee, *Constitutional Government in India*, Bombay, Asia Publishing House, 1977.
16. M.V. Pylee, *An Introduction to the Consutitution of India*, New Delhi, Vikas, 1998.
17. S.P. Verma and C.P. Bhambari (ed.), *Election and Political Consciousness in India*, Meerut, Meenakshi Parkashan, 1967.
18. B.L. Fadia, *Indian Government and Politics*, Agra, Sahitya Bhavan Publications, 2008.
19. A.S. Narang, *Indian Government and Politics*, New Delhi, Gitanjali, 1999.
20. *Indian Journal of Political Sciences*
21. *Punjab Journal of Politics*
22. Seminar
23. Lloyd I. Rudolph and Susanne Hoeba Rudolph, *Explaining Indian Democracy: A Fifty-Year Perspective, 1956-2006*, Vol. I, II, III, New Delhi, OUP, 2008.
24. Francine Frankel, *India's Political Economy: 1947-2004*, New Delhi, OUP, 2006.

Defence and Strategic Studies**Paper-A****Evolution of Warfare in Europe****Marks : 160****Marks : 40****Total : 200****Time : 3 Hrs.****Max. Marks : 80****Note : Question paper shall consist of two sections as follows:**

Section A : The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section B : The examiner shall set 8 questions which will cover the entire syllabus. The candidates shall attempt any 4 questions in atleast 5 pages each. Each question shall carry 13 marks. The total weightage of this section shall be 52 marks.

Note : *Practicals only meant for the regular students. For the private students the two papers shall be of 100 marks each. For the private students the each question in section B will be 18 marks.*

Section-A**1. Military Organisations and techniques of fighting of Macedonians and Persians with particular reference to the Battle of Arbela, 331 B.C.**

- (a) Military organisations of Macedonians and Persians.
- (b) Battle of Arbela
 - (i) Introduction
 - (ii) Opposing forces and their deployment.
 - (iii) Description of the battle.
 - (vi) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

2. Military organizations and techniques of fighting of Romans and Carthaginians with particular reference to the Battle of Cannae 216 B.C. :

- (a) Military organisations of Romans and Carthaginians.
- (b) Battle of Cannae
 - (i) Introduction
 - (ii) Opposing forces and their deployment.
 - (iii) Description of the battle.
 - (iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

3. Military organizations and techniques of fighting of Romans and Barbarians with particular reference to the Battle of Adrianople 378. A.D. : Military organizations and techniques of fighting of Romans and Barbarians.

- (a) Military organisations of Romans and Barbarians.
- (b) Battle of Adrianople
 - (i) Introduction
 - (ii) Opposing forces and their deployment.
 - (iii) Description of the battle.
 - (iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

Section-B

4. Military organizations and techniques of fighting of the English and Romans with particular reference to the Battle of Hastings 1066 AD. :

- a) Military organisation of the English and Romans.
- b) Battle of Hastings
 - i. Introduction
 - ii. Opposing forces and their deployment.

- iii. Description of the battle.
- iv. Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

5. The Mongol art of war under Changez Khan and Taimur

- a) Organisation of Mongol Army.
- b) Mongol Art of War.

Section-C

6. Industrial Revolution and its impact

- a) Impact on Society
- b) Impact on weapons for land and naval warfare
- c) Impact on means of communications
- d) Impact on tactics for land and naval warfare.

7. Napoleonic Warfare

- a) Elements of Napoleonic Warfare.
- b) Principles of Napoleonic Warfare.

Section-D

8. Naval Warfare with particular reference to the Battle of Trafalgar 1805 A.D. :

- a) Background of the English and Franco-Spanish rivalry for naval supremacy.
- b) Battle of Trafalgar.
 - I. Opposing forces and their deployment.
 - II. Description of the battle.
 - III. Analysis (strategy, tactics, application of principles of War and causes of defeat and victory).

9. American Civil War (1861-65)

- i) Introduction
- ii) Causes
- iii) Events in brief

- iv) The Character of the Civil War
- v) Tactical development

Text Books and Supplementary Readings :

1. Burne, Alfred H : The Art of War on Land.
2. Das, S.T. : An Introduction to the Art of War.
3. Fuller, J.F.C. : Conduct of War.
4. Fuller, J.F.C. : The American Civil War.
5. Fuller, J.F.C. The Generalship of Alexander The Great.
6. Montgomery, Viscount : A History of Warfare.
7. Ropp, Theodore : War in the Modern World.
8. Sarkar, J.N. : Military History of India.
9. Sheppard, E.W. : The Study of Military History.
10. Barrie and Rockliff : The Ancient Art of War, Vol. I.
11. Barrie and Rockliff : The Ancient Art of War, Vol. II.
12. Cleaton, P.E. Weapons of War.
13. Creasy, E.S. : The Fifteen Decisive Battles of the World.
14. Depuy, Earnest : The Encyclopedia of Military History.
15. Encyclopedia Britannica.
16. Encyclopedia America.
17. Falls, Cyril : A Hundred Years of War.
18. Fuller, J.F.C. : Armament and History.
19. Fuller, J.F.C. : The Decisive Battles of the Western World, Vol. I.
20. Fuller, J.F.C. : The Decisive Battles of the Western World, Vol. II.
21. Fuller, J.F.C. : Pachhmi, Duniya De Nirnehjanak Jang (Pbi. Translation).
22. Hortog, I.D. : Genghis Kha-ti-Conqueor of the World.
23. Hauerslty, Roy : The Great Commander-Nelson.
24. Kemp, Peter : The Oxford Companion to Ships and Sea.
25. Phul, R.K. : Armies of the Great Mughals.

Defence and Strategic Studies

Paper-B

Evolution of Warfare in India

Time : 3 Hours

Max. Marks : 80

Total Teaching Periods : 75

(This paper deals with salient features of Indian Warfare from 326 BC to 1850 AD)

Note : Question paper shall consist of two sections as follows:

Section A : The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section B : The examiner shall set 8 questions which will cover the entire syllabus. The candidates shall attempt any 4 questions in atleast 5 pages each. Each question shall carry 13 marks. The total weightage of this section shall be 52 marks.

Note : *Practicals only meant for the regular students. For the private students the two papers shall be of 100 marks each. For the private students each question in section B will be of 18 marks.*

Section-A

1. Macedonian and Indian Military Organisation and techniques of fighting with particular reference to the Battle of Hydaspes, 326 B.C. :

- (a) Macedonian and Indian Military organisations.
- (b) Battle of Hydaspes.
 - i) Introduction
 - ii) Opposing forces and their deployment.
 - iii) Description of the battle.
 - iv) Analysis (strategy, tactics, application of Principles of war and causes of defeat and victory).

2. Kautilya's Philosophy of War

- i. Diplomacy and Strategy.
- ii. The Institution of Spices.
- iii. Army Organisation.
- iv. Mode of Warfare.
- v. Forts-type & role.

Section-B**3. Military organizations and techniques of fighting of Rajputs and Turks with particular reference to the Battle of Terrain 1192 A.D. :**

- (a) Military organisations of Rajputs and Turks.
- (b) Battle of Terrain.
 - i) Introduction
 - ii) Opposing forces and their deployment
 - iii) Description of the battle
 - iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

4. Military organizations and techniques of fighting of Mughals and Afghans with particular reference to the First Battle of Panipat 1526 AD. :

- (a) Military organisations of Mughals and Afghans.
- (b) First Battle of Panipat.
 - i) Introduction
 - ii) Opposing forces and their deployment
 - iii) Description of the battle
 - iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory)

Section-C**5. Fighting techniques of Southern Muslim Sultana with particular reference to the Battle of Talikota, 1568 A.D.**

- i) Introduction
- ii) Opposing forces and their deployment
- iii) Description of the battle
- iv) Analysis (strategy, tactics, application of principles of War and causes of defeat and victory)

6. Military Organisations of Marathas under Shivaji and his techniques of fighting :

- i) Shivaji as a military leader.
- ii) Higher Defence Organisation.
- iii) Military Organisation.
- iv) Techniques of Fighting.

Section-D**7. Military organisation of Sikh Army and its fighting techniques under Maharaja Ranjit Singh :**

- i) Maharaja Ranjit Singh as a Military leader.
- ii) Growth and development of the Sikh Army from 1799-1849).
- iii) Organisation of the Army.
- iv) Fighting techniques of the Sikh Army strategies and tactics.

8. Anglo-Maratha and Anglo-Sikh Warfare with particular reference to the Battles of Assaye, 1803 A.D. and Chillianwala, 1849 A.D. :

- (a) Battle of Assaye
 - i) Introduction
 - ii) Opposing forces and their deployment.

- iii) Description of the battle.
 - iv) Analysis (strategy, tactics application of principles of War and causes of defeat and victory).
- (b) Battle of Chillianwala
- i) Introduction
 - ii) Opposing forces and their deployment.
 - iii) Description of the battle.
 - iv) Analysis (strategy, tactics application of principles of War and causes of defeat and victory).

Books Recommended**Text Books**

1. Alfred, David : Indian Art of War.
2. Bajwa, F.S. : Military System of the Sikhs.
3. Bruce, George : Six Battles of India.
4. Das, S.T. : Indian Military—Its History and Development.
5. Fuller, J.F.C. Generalship of Alexander the Great.
6. Gill, K.S. Yudh Niti Pakhon Bharat De Parmukh Yudh (Punjabi).
7. Carr, E.H. Military History of India.
8. Majumdar, B.K. : Military System in Ancient India.
9. Majumdar, B.K. : Military System of the Sikhs.
10. Malleson G.B. : Decisive Battles of India.
11. Sarkar, J.N. : Military History of India.
12. Sen S.N. : Military System of the Marathas.
13. Sharma, Gautam : Indian Army Through the Ages.
14. Singh Gurcharan : Battles of Panipat.
15. Thind, Sukhbir, S. : Bharat Yudh Kala Da Vikas (Punjabi).

Supplementary Readings :

16. Cook, H.C.B. : The Sikh Wars 1845 to 1849.
17. Dupuy, Earnest : The Encyclopaedia of Military History.
18. Habibullah, A.B.M. : The Foundation of Muslim Rule in India.
19. Jaffar, S.M. : Medieval India under Muslim Kings.
20. Kangle, B.P. : Kautilaya's Arth Shastra.
21. Majumdar, B.K. : Study of Indian Military History.
22. Shastri, Sharma : Artha Shastra.
23. Singh Nagendra : The Theory of Force and Organisation Defence in India.
24. Subramanyam T.G. : Famous Battles in Indian History.

Practical

Total Teaching Hours : 3 Periods per week

Time for Practical Examination : 3 Hrs. Max. Marks : 40

Section-A Written Test : 1½ Hours

1. Map : Definition, features, classification : Topo Sheets and its utility for Military : Enlargement and reduction of Maps.
2. Conventional Signs.
3. GRID System : Four Figure and Six Figure Map References.
4. Scale : Definition methods of presenting scale
Interconversion of statement into Representative fraction :
construction of simple scale line and the comparative scale lines.
5. North : Types of north and finding out true north direction by equal altitude methods : Watch method & Compass method.

Discussion (Topics)

Section-B

- (i) Punjab Problems
- (ii) J & K Problems
- (iii) Assam Problems
- (iv) Human Rights (Meaning and Concept)

Section-C : Viva-Voce

Section-D : Record

Instructions for the Examiners

Written test would be given on the spot by the external examiner. Internal examiner is to be appointed to assist the external examiner.

PUBLIC ADMINISTRATION

Paper - A

Personnel Administration in India

Time: 3 Hours

Max. Marks: 100

Note:- Instructions for the paper-setters/examiners:

Each question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Introduction:

Meaning, Nature and Scope of Personnel Administration.

Functions and Significance of Personnel Administration.

Public Services and their role in Administrative System.

Characteristics of Public Personnel Administration in India.

Civil Services in India:

Recruitment : Meaning, Methods

Promotion : Meaning, Principles.

Training : Meaning, Objectives and Types, Training System in India.

Personnel Agencies:

Functions and Role of Department of Personnel and Public Grievances, Union Public Service Commission, State Public Service Commissions & Staff Selection Commissions.

Employer — Employee Relations and Working Conditions:

Employees participation in Management.

Employee's Unions.

Joint Consultative Machinery.

Rights of Public Servant, Conduct and Discipline.

Motivation and Morale.

Integrity in Public Services - Problem of Corruption.

Relationship between permanent and political executive.

Lok Pal and Lok Ayukta. Central Vigilance Commission.

Organization and working of Central Bureau of Investigation (CBI)

Suggested Readings :

1. Government of India, Report on Personnel Administration, New Delhi, 1970.
2. Glenn O. Stahl : Public Personnel Administration, 7th Ed., Oxford IBH Publication Company, New Delhi, 1977.
3. Goel S.L. and Shalini Rajneesh, Public Personnel Administration : Theory and Practice, Deep and Deep Publications, New Delhi, 2002.
4. Indian Institute of Public Administration, Personnel Administration, New Delhi, 1970.
5. Sahib Singh and Sawinder Singh, Public Personnel and Financial Administration, New Academic Publisher, 2002.
6. Sinha V.M., Personnel Administration, R.B.S.A., Publisher, Jaipur, 1985.

PUBLIC ADMINISTRATION

Paper - B Financial Administration

Time: 3 Hours

Max. Marks: 100

Note: Instructions for the paper-setters/examiners:

Each question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer type questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Introduction

Nature and scope of Financial Administration

Objectives and Principles of Financial Administration.

Union-State Financial Relations, Finance Commission, Planning Commission, Organization of Ministry of Finance. Department of Finance in Punjab

Budgetary System

Meaning, purpose and principles of Budget—Budget as a tool of Administration.

Preparation of Budget.

Enactment of Budget.

Execution of Budget.

Performance Budgeting.

Zero-Base Budgeting.

Control over Finance.

Legislative Control.

Public Accounts Committee.

Estimates Committee.

Committee on Public Undertakings, Comptroller and Auditor General, Accounting and Audit.

Suggested Readings

1. Goel S.L., Financial Administration, Deep and Deep Publication, New Delhi, 2002.
2. Government of India, Administrative Reforms Commission, Report of Financial Account and Audit, New Delhi, 1967.
3. Government of India, Administrative Reforms Commission, Report of Central State Relations, New Delhi, 1967.
4. Lall G.S., Financial Administration in India, H.P.J. Kapoor Delhi, 1969.
5. Puri K.K. and G.S. Barara, Personnel and Financial Administration, Bharat Prakashan, Jalandhar, 2003.
6. Sahib Singh and Swinder Singh, Public Personnel and Financial Administration, New Academic Publisher, 2002.
7. Thavaraj M.J.K., Financial Administration in India, S.Chand & Co. Pvt. Ltd., New Delhi, 1997.

SOCIOLOGY

Paper - A

Society in India

Time: 3 Hours

Max. Marks: 100

Note:- Question paper may consist of two sections as follows:

Section-A will consist of 10 very short answer questions to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B will consist of short answer questions with answer to each question upto 3 pages in length or in 500 words. The examiner will set fifteen questions (at least 7 from each unit) and the candidates will attempt eight (four from each unit). Each question will carry ten marks. Total weightage of the section being 80 marks.

Unit—I

- (a) Indian Society : Features and Unity in Diversity.
- (b) Caste : Features, Functions, Changing pattern, Caste and Politics, Difference between caste and class.
- (c) Social Issues : Regionalism and Communalism.

Unit—II

- (a) Marriage—Meaning, Types, Functions, Rules and Changes.
- (b) Family—Meaning, Types, Functions and Changes.
- (c) Kinship Systems in India: North and South India.

SOCIOLOGY

Paper-B

Social Change in India

Time : 3 Hours

Max. Marks : 100

Note:- Question paper may consist of two sections as follows:

Section-A will consist of 10 very short answer questions with answers to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 20 marks.

Section-B will consist of short answer questions with answer to each question upto three pages in length or in 500 words. The examiner will set fifteen questions (at least 7 from each unit) and the candidate will attempt eight (four from each unit). Each question will carry ten marks. Total weightage of the section being 80 marks.

Unit—I

- a) Social change : Meaning and Forms : Evolution, Revolution, Progress and Development.
- b) Factors of Social Change : Demographic, Education, Industrialization and Legislation.

Unit—II

- a) Processes of Change : Sanskritization, Westernization, Modernization and Secularization.
- b) Problems of Social Change : Dowry, Domestic Violence, Divorce, Problems of elderly, Female foeticide.

Books Recommended for Paper A and B

1. Ahuja, Ram : *Social Problems*, Rawat Publishers, New Delhi, 1992.
2. Abraham, M. Francis : *Contemporary Sociology*, Oxford University, New Delhi, 2006.

3. Dhaliwal et al: *Fundamentals of Environmental Science*, Kalyani Publishing, New Delhi, 1996.
4. Ghurye, G.S. : *Caste & Race in India*, Popular, Bombay, Punjabi Translations by N.S. Sodhi, Panjabi University, Patiala, 1962.
5. Gill, S.S. : *The Pathology of Corruption*, Harper Collin Publishers, New Delhi, 1998.
6. Hutton, J.H. : *Caste in India—Its Nature, Functions and Origin*, Oxford University Press, Delhi 1980.
7. Jayaraman, Raja : *Caste & Class, Dynamics of Inequality in Indian Society*, Hindustan Publishing Corporation, 1981.
8. Kapadia, K.M. : *Marriage and Family in India*, Oxford University Press, Calcutta, 1996.
9. Kapila, S : *A Textbook of Sociology*, Part-I & II, New Academic House, Jalandhar, 1990-91.
10. Kapila, S. : *Fundamentals of Sociology*, Vol. II Panchkula, Kapila Publishers, 2008.
11. Kothari, Rajni (ed): *Caste in Indian Politics*, Orient Longman, Delhi, 1973.
12. Kuppaswamy, B.: *Social Change in India*, Vikas, Delhi, 1975.
13. Mandelbaum : David G.: *Society in India*, Popular Prakashan, Bombay, 1972.
14. Mukerji, D.P. : *Diversities : Essays in Economics, Sociology and Social Problems*, Manak, New Delhi, 2002.
15. Maclver, R.M. & Page, Charles H. : *Society, An Introductory Analysis*, Macmillan, London, 1974.
16. Srinivas, M.N.: *Social Change in Modern India*, Orient Longman, Bombay, 1972.

PSYCHOLOGY

Paper-A

Experimental Psychology

Time : 3 Hours

Max. Marks : 75

- Note :**
1. The use of Non-Programmable calculators and Statistical Tables are allowed in the examination.
 2. Only one numerical question is to be set either of nine marks (from section-B) or of twelve marks (from Section-C).
 3. The question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer questions with answers to each question upto five lines in length. All questions will be compulsory. Each question will carry 1½ marks; total weightage of the section being 15 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Six questions will be set by the examiner and four will be attempted by the candidates. Each question will carry 9 marks; total weightage of the section being 36 marks.

Section-C will consist of essay type questions with answer to each question upto five pages in length. Four questions will be set by the examiner and candidates will be required to attempt two. Each question being 24 marks.

(The questions are to be set to judge the candidates basic understanding of the concepts.)

Experimental Psychology : Introduction and Nature
Experimental Method : Experimental of Method, Name, Advantage and Dis-advantage.

Variables:-Types of Variables, Stimulus, Organismic and Response Variables, Process of experimentation-manipulation and control of variables, Concept of within and between Experimental Designs.

Sensation: Types of sensations, Visual sensation; structure and functions of the eye. Theories of colour vision (Young-Helmholtz).

Opponent-Process & Evolutionary). Auditory sensation : Structure and functions of the Ear-Theories of hearing. Brief introduction to cutaneous sensation, olfactory sensation and gustatory sensation.

Perceptual Processes: Selective Attention-Nature and factors affecting perception, Principles of perception (organisation), perception of form; contour and contrast, figure-ground differentiation, perceptual set.

Perception of Movement : Image-Retina and Eye-Head movement system, Apparent movement, Induced movement, Auto Kinetic movement.

Perception of Space : Monocular and Binocular cues for space perception. Perceptual constancies lightness, brightness, size and shape.

Illusions : Types, causes and theories

Statistics : Normal Probability Curve, Its nature and characteristics (Numericals of Areas under NPG only) Correlations : Types, of Correlation, Nature and characteristics. Rank order and product moment methods (Numericals for Individual data).

References :

1. D. Amato, M.H.R. Experimental Psychology, Tata McGraw Hill, New Delhi, 2001.
2. Garrett, H.E. and Woodworth, R.S. Statistics in Psychology and Education. Vikils, Feffer and Simons Pvt. Ltd., 1969.
3. Kerlinger, P.N. : Foundation of Behavioural Research, Surjeet Publications, New Delhi, 1998.
4. Postman, L. and Egan. J.P.: Experimental Psychology, Harper and Row, New York.
5. Schiffman, H.R.: Sensation and Perceptions, John Willey and Sons, 1982.
6. Woodworth, R.S. and Schlosberg, H.: Experimental Psychology, Holt, Rinehart and Winston, Inc. 1954.
7. Solso, Experimental Psychology: A Case Approach Pearson Education, New Delhi, 2007.
8. Sternberg, R.J. Cognitive Psychology, Thomson Wads Worth, 2007.

PSYCHOLOGY

Paper-B (Theory)

Experimental Psychology

Time : 3 Hours

Max. Marks 75

- Note :**
1. The use of Non-Programmable calculators and Statistical Tables are allowed in the examination.
 2. Only one numerical question is to be set either of nine marks (from Section-B) or of twelve marks (from Section-C).
 3. The question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer question with answers to each question up to five lines in length. All questions will be compulsory. Each question will carry 1½ marks; total weightage of the section being 15 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Six questions will be set by the examiner and four will be attempted by the candidates. Each question will carry 9 marks. Total weightage of the section being 36 marks.

Section-C will consist of essay type questions with answer to each question upto five pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question being 24 marks.

(The questions are to be set to judge the candidates basic understanding of the concepts.)

Psychophysics : Concept of Psychophysics, Physical V/S. Psychological continua, Weber Fechner law Concept of Absolute and Differential Thresholds. Determination of AL and DL by Methods of limits, Method of Constant Stimuli & Method of Average Error.

Learning: Classical and operant conditioning, Basic Processes; Extinction, spontaneous recovery, Generalization and Discrimination. Factors influencing classical and instrumental conditioning. Concept of Reinforcement, Types of reinforcement and Reinforcement Schedules. Transfer of Training and skill learning.

Minumonics,: An Introduction to the concept of Mnemonics, Constructive memory, Implicit memory & Eyewitness memory. Methods of Retention.

Forgetting : Nature, Factors, Affecting forgetting, Theories of for-getting, Decay, Interference retrieval failure.

Thinking and Problem Solving : Nature, Types of Thinking and Nature of Problem Solving, Stages of Problem solving, Factors, effecting Problem Solving role of set in problem solving.

Concept : Nature of concept formation, Types and Processes.

Reasoning : Nature and types of reasoning.

References :

1. D'Amato, M.R. : Experimental Psychology : Methodology Psychophysics and Learning, McGraw Hill Company, New Delhi, 1970.
2. Postman, L and Egan, J.P.: Experimental, Psychology, Harper and Row, New York.
3. Woodworth, R.S. and Schlosberg, H. : Experimental Psychology. New York; Holt, Rinehart and Winston Inc. 1954.
4. Galotti, K.M., Cognitive Psychology in and Out of the Laboratory, Thomson Wads Worth, 2007.

PSYCHOLOGY

Practical

Time : 3 Hours

Max. Marks : 50

Note: Any Ten Practicals out of Twelve are to be conducted.

1. Measurement of Differential Threshold.
2. Span of Attention/Division of Attention
3. Muller-Luyer Illusion
4. Role of set in perception.
5. Retroactive inhibition
6. Recall Vs Recognition Method
7. Bilateral transfer of learning.
8. Reaction Time (Simple vs choice RT or Auditory vs Visual RT)
9. Retinal Colour zones.
10. Problem-Solving
11. Paired Associate learning.
12. Concept formation.

GEOGRAPHY

Paper-A

RESOURCES AND ENVIRONMENT : WORLD PATTERNS

Time: 3 Hours

Max Marks: 70

Objective :

1. To understand concept of resources and their interface with environment;
2. To examine use and misuse of various resources, and analyse future prospects;
3. To study various methods and approaches of conservation and management of natural resources;
4. To understand the quantitative and qualitative aspects of human resources in spatial perspectives and the associated environmental problems.

Course Content :

Unit - I

Meaning, nature and components of environment. Nature and definition of Resources. Resources environment interface.

Classification of Resources : Renewable and Non-renewable : Biotic (forests, wild-life; live-stock, fisheries, agriculture crops) and abiotic (land, water, mineral).

Unit - II

Distribution availability, utilization and conservation of water, minerals and energy resources; their economic and environmental significance and sustainability.

Types and distribution of forests—their economic and environmental significance and conservation.

Types and distribution of fisheries—their economic and environmental significance and conservation.

Major soil types and their distribution; problems of soil erosion and soil conservation.

Unit-III

Human Resources : Quantitative and qualitative aspects of population : number, distribution, density, growth, literacy and urbanization.

Population Resources Relationship : Population-Resource Regions of the world.

Unit-IV

Environment : Natural and Human, Man-environment relationship—determinism, Possibilism, ecology.

Biodiversity

Environmental Issues : Pollution; population explosion; food security; deforestation; conservation of wild life.

Note :

1. A compulsory question containing 20 short answer type questions will be set covering the whole syllabus. The students will attempt any 15 parts in about 25-30 words each. Each part will carry 2 marks (Total 30 marks).
2. The whole syllabus will be divided into 4 units. Eight questions will be out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. These will be in addition to the compulsory question at serial number 1. Each question will carry 10 marks (40 marks) .
3. Special credit will be given to suitable use of maps and diagrams.
4. In Unit—II question will focus on general aspects of the topic instead of on any individual resources.

Books Recommended

1. Agarwal, A. et.al. : The Citizen's Fifth Report, Centre for Science and Environment, New Delhi, 1999.
2. Chandna, R.C. : A Geography of Population, Kalyani Publishers, Ludhiana, 1996.
3. Chawla, I.N. : Geography of Resources, Bharat Prakashan, Jalandhar, latest edition.
4. Hartshorne Truman : Economic Geography, Prentice A, and W. Alexander: Hall, 1988, 3rd John Edition.
5. Kates, R.W. & : Geography, Resources and Burton, I (Eds.) : Environment, Vol. I & II, University of Chicago Press, Chicago, 1986.
6. Trewartha, G.T. : A Geography of Population—World Patterns. John Wiley and Sons, New York, 1969.
7. Zelinsky, Wilbur : A Prologue to Population Geography, Prentice Hall, New Jersey, 1966.
8. Zimmerman E.W. : World Resources and Industries, Harpar New York.
9. Chandna, R.C. : Environmental Awareness Kalyani Publishers, Ludhiana.
10. Chawla. I.N., : Resources & Environmental Bharat Publishers, Jalandhar.

GEOGRAPHY

Paper-B

Geography of Punjab

Time : 3 Hours

Max Marks: 70

Objective :

1. To understand the regional setting of Punjab State in detail through physical and political maps.
2. To examine the pattern of select population characteristics.
3. To study the distribution of major crops, industries and transport links in the state.
4. To understand the intra regional variations in the select aspects.

Unit—I

Location, evolution of the state, administrative divisions.

Relief, drainage, climate, soils, vegetation, mineral and power resources.

Unit—II

Population : Numbers, distribution, density, growth (birth rate, death rate and migration), religious composition, urbanization.

Agriculture : Main characteristics including green revolution, irrigation, main crops (wheat, rice, cotton, sugarcane) and their distribution, agricultural marketing, livestock and dairying, problems of agriculture.

Unit—III

Industries : Main characteristics, distribution pattern of major industries (cotton textile, sugar, hosiery, engineering) industrial concentration, problems of industrialization.

Transport and Trade : Road, rail and their transport; inter-state trade.

Unit—IV

Regional Geography of Majha, Doaba, Malwa and major characteristics of each region.

Note :

1. A compulsory question containing 20 short answer type questions will be set covering the whole syllabus. The students will attempt any 15 parts in about 25-30 words each. Each part will carry 2 marks (Total 30 marks).
2. 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. These will be in addition to the compulsory question at serial number 1. Each question will carry 10 marks. (Total 40 Marks).
3. Special credit will be given to appropriate use of maps and diagrams.

Books Recommended :**Essential Readings :**

1. Mankoo, Darshan S. : Geography of Punjab, Kalyani Publication, Ludhiana, 1977.
2. Mavi, H.S. & Tiwana, D.S. : Geography of Punjab, National Book Trust, Delhi, 1993.
3. Singh, Malkit : Geography of Punjab, Reshmeet, Publications, Jalandhar.

Further Readings :

1. Census of India : Punjab: Census Atlas, Vol. XIII, No.IX, 1996.
2. Deshpande, C.D. : India : A Regional Interpretation, Northern Book Centre, New Delhi, 1992.
3. Gosal G.S. & Gopal Krishan : Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.

4. Gupta, S.P. : The Punjab : An Overview, Ess
Pee Publications, Chandigarh,
2005.
5. Singh, Pritam : Punjab Economy : The Emerging
Pattern, Enkay Publishers, New
Delhi, 1995.
6. Singh, R.L., (Ed.) : India : A Regional Geography,
National Geographical Society of
India, 1990, reprint.
7. Spate O.H.K. & : India and Pakistan : A General
Learmonth, A.T.A. and Regional Geography.
Methuen, London, Latest Edition.

GEOGRAPHY

Paper-C

Cartography

Time : 3 Hours

Max. Marks : 60

Written Paper of 3 Hours : 35 Marks

Distribution of Terminal Exam.

Viva and Practical Record (10+15) : 25 Marks

Objective :

1. To apprise the students with symbolization of different types of geographical data and depiction of various spatial data.
2. To provide training in application of various graphical methods of depicting geographic data.
3. To train the students to interpret the topographical sheets at different scales course Content.

Unit—I

Symbolization of Geographical Data :

- a) **Point symbols** : Dot, circle, sphere.
- b) **Line symbols** : Isopleths and flow lines.
- c) **Areas symbols** : Choropleth.

Unit—II

Construction and Significance of the following:

- a) **Columnar diagrams** : Simple, percentage, superimposed, composite.
- b) **Graphs** : Line graphs, climograph, hythergraph, erograph, wind rose.

Unit—III

- a) **Cartographic Representation of** : Population data (distribution, density, growth, migration and literacy)

- b) Agriculture data (land utilization, distribution of crops, percentage of cropped area and irrigated areas).
- c) Industrial data (distribution, employment and production)
- d) Transport data (traffic flow).

Unit—IV

Topographical Maps : Significance of topographical maps in geographical studies.

Study and Interpretation of topographical Maps of India (two sheets : one representing a hilly/mountainous tract and the other a plain tract).

Profiles : Definition, Types : Serial, Super-imposed, Projected, Composite, Longitudinal and Transverse Profiles.

Note :

1. A compulsory question containing 10 short answer type questions will be set covering the whole syllabus. The students will attempt any 7 parts in about 25-30 words each. Each part will carry one mark (Total 7 marks).
2. The whole syllabus be divided into 4 units. Eight questions will be set out of the whole syllabus i.e. 2 from each unit. The students will be required to attempt one question from each unit. These will be in addition to the compulsory question at serial number 1. Each question will carry 7 marks. (Total 28 Marks)
3. Evaluation of Practical Record will be done at the time of viva-voice examination. A minimum of 25 sheet are to be prepared by each student. There will be no laboratory exercise at that time.
4. In case, the candidate has applied for improvement, he/she should be required to make a fresh practical note book.
5. For practical classes, the number of students in one group shall not exceed fifteen.

Books Recommended :**Essential Readings :**

1. Khullar, D.R. : Essentials of Practical Geography, New Academic Publishing Co., Mai Hiran Gate, Jalandhar, 2000.
2. Robinson, A.H. : Elements of Cartography, John Wiley, New York, 1995.
3. Singh, Gopal : Mapwork & Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi, 1995.
4. Singh, R.L. & Singh : Mapwork and Practical Geography, Raghunandan Central Book Depot, Allahabad, 1993.

Further Readings:

1. Birch, T.W. : Maps Topographical & Statistical; Clarendon Press, Oxford, 1949.
2. Garnett, A. : Geographical Interpretation of Topographical Maps, George Harrap & Co., London, 1953.
3. Monkhosue, F.J. : Maps and Diagrams, Methuen & Co., London, 1994 (reprint).

Journalism and Mass Communication

Paper-A

Writing for Print Media

Time : 3 Hours

Max. Marks : 75

Note : Instructions for the paper-setters/examiners :

Each question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer type questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks; total weightage being 20 marks.

Section-B will consist of short-answer type questions with answer to each question one and half pages in length (250 words). Seven to eight questions will be set by the examiner and five will be attempted by the candidates. Each question will carry 7 marks. The total weightage of the section shall be 35 marks.

Section-C will consist of essay type questions with answer to each question up to four pages in length (800 words). Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry 10 marks, total weightage of the section being 20 marks.

News : Writing a news story; chronological, logical and inverted pyramid styles, Headlines : Types of headlines.

Leads; Types of leads, Sources of News, Elements of News.

Organisational setup of a news paper office; Role of editor, a sub-editor and news editor.

How to produce a news paper

How to get a news paper registered

Qualities of a journalist

Functions of the Press

Printing Process

New Technology in Print Media

Practicals :25 Marks

Books Recommended

1. Newspaper Editing : K.M. Srivastava, Sterling Publishers Pvt. Ltd. (1987).
2. Newspaper Management : Golab Kothari, Intercultural Open University (1995).

Journalism and Mass Communication

Paper-B

Mass Media and Photography

Time : 3 Hours

Max. Marks : 75

Note : Instructions for the paper-setters/examiners :

Each question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer type questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks; total weightage being 20 marks.

Section-B will consist of short-answer type questions with answer to each question one and half pages in length (250 words). Seven to eight questions will be set by the examiner and five will be attempted by the candidates. Each question will carry 7 marks. The total weightage of the section shall be 35 marks.

Section-C will consist of essay type questions with answer to each question up to four pages in length (800 words). Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry 10 marks, total weightage of the section being 20 marks.

Traditional and Folk Media : Characteristics, Role in the age of Electronic Media.

Radio : Characteristics & Principles of Broadcasting, Popular Radio Genres, Code of Broadcasting.

Television : Characteristics, Objectives of the medium, Educational TV, Satellite Invasion and Cable Television, Internet.

Photography : Introduction to Photography, Aperture setting, Shutter speed, Lens, How to take good picture, Types of Cameras, Qualities of a good photograph, Photojournalism.

Practicals :25 Marks

Books Recommended :

1. Handbook of Journalism & Mass Communication : Virbala Aggarwal, 2004, Concept Publishing Co., New Delhi.
2. Photography : Barbara Upton, 1981, Little Brown & Co., Boston.

Mass Communications & Video Production
(Vocational)
Paper - I
Sound & Script Writing for Media

Time : 3 Hours

Max. Marks : 60

Instructions to the Paper Setters

There shall be three parts i.e. A, B & C in each.

- Part A consists of 10 questions carrying 2 mark for each question 10x2=20 Marks
- Part B consists of eight questions. Candidates have to do any six questions which will carry 4 marks for each questions. 6x4=24 Marks
- Part C consists of four questions and candidates have to do any two questions which will carry 8 marks for each question. 8x2=16 Marks

Question paper will be set in English only but the medium of examination will be English, Punjabi and Hindi.

Sound

- * Meaning
- * Characteristics
- * Propagation
- * Acoustic Reverberation

Microphones

- * Selection of Microphones
- * Types of Microphones

Magnetic Recording Principles

Audio Cables & Connectors (Types & Uses)

Noise & Distortion

Dope Sheet/Exposure Sheet

Sound Recordist's role in production crew

Audio console

Script Writing

- * Basics
- * Elements of Good Script Writing
- * Role of Writer
- * Structure of Script

Subject Research (Idea, Visualisation & Script Sources of Information)

Formats of Script Writing

Story Board

Practicals

Max. Marks : 40

Writing script for various radio formats

Practical acquaintance with sound equipment

Visit to sound recording studios

Books Recommended

1. Writing scripts for TV, Willis, Edgor Chicago, Halt and
Radio and Film Rinchart. 1981
2. Basics of Video Sound Das Lyver Focal Press

Note : Practical to be conducted by external examiner.

Mass Communications & Video Production
Paper-B
Introduction to Media (Vocational)

Time : 3 hrs.

Max. Marks : 60

Instructions for Paper Setters

There shall be three parts i.e. A, B and C in each.

- Part-A consists of 10 questions carrying 2 mark for each question. 10x2=20 Marks
- Part-B consists of eight questions. Candidates have to do any six questions which will carry 4 marks for each question. 6x4=24 Marks
- Part C consists of four questions and candidates have to do any two questions which will carry 8 marks for each question. 8x2=16 Marks

Question paper will be set in English only but the medium of examination will be English, Punjabi and Hindi.

Question paper will be set in English only but the medium of examination will be English, Punjabi and Hindi.

Role & Impact of Media in Different Socio-Economic & Political Systems/Freedom of Press

Press Laws in India

- * Defamation
- * Official Secrets Act, 1923
- * Concept of Court Act, 1971
- * Press & Registration of Books Act, 1867
- * Public Libraries Act

Advertising

- * Meaning & Concept
- * Role & Importance
- * Types of Ads

- * Advertising Agency
- * Advertising Budget
- * Advertising Designing & Layout

Public Relations

- * Meaning & Concept
- * Role & Importance
- * Qualities to Good PRO
- * Tools/Technique of PR
- * PR in Government, Public & Private Sector

Difference between PR & Advertising Propaganda, Publicity & Public Opinion

Practicals

Max. Marks : 40

Handling Cameras.

Visit to Ad, Agency, I and B organs and other media organization.

Marking of an advertisement (Print and Audio-visual)

Making of Press note/press releases.

Books Recommended :

1. Advertising, Santokki, Kalyani Publishers, 1994.
2. Handbook of Public Relation, D.S. Mehta, Allied Publishers Limited, 1998.
3. Press laws, D.D. Basu, Prentice-Hall of India Pvt. Ltd., 1996.

Note : Practical to be conducted by external examiner.

EDUCATION

Paper-A

Philosophical, Sociological and Psychological Foundations of Education

Time : 3 Hours

Max. Marks : 100

There will be two papers of 100 marks each.

Total Teaching Periods : 150

- Note :** 1. There will be eight questions in all, four questions from each section.
2. The candidates are required to attempt at least two questions from each section and five in all.

Section-I

Unit-I

Philosophical, sociological and psychological foundations of education.

Unit-II

Meaning of sociology, relationship between education and sociology, nature and scope of educational sociology.

Unit-III

Social change-Meaning factors and role of education.

Section-II

Unit-IV

Meaning and importance of value education, imparting value education

Unit-V

Education and international understanding.

Unit-VI

Moral and religious education.

Unit-VII

Need and importance of population education.

Books Recommended :

1. Aggarwal, J.C. - Principles and Techiques of Education, Ayra Book Depot, New Delhi.
2. Bhatia and Narang - Theory and Principles of Education, Ludhiana, Parkash Brothers, 1986.
3. Bhatia and Safaya - Educational : Psychology, Jalandhar Dhanpat Rai and Sons, 1980.
4. Dhaliwal, A.S. - Vidyak Manovigyan, Patiala : Punjabi University, 1985.
5. Sandhu, I.K. and Kaur Amrio - Sikhya Manovigyan : Punjabi University, Patiala.
6. Saxena Swaroop, N.R.- Education in Emerging Indian Society, and Chaturvedi Sikha R. Lall Book Depot, Meerut, 2005.
7. Sharma, T.R. - Sikhya Manovigyan, Ludhiana : Lahore Book Shop.
8. Sociological Approach to Indian Eduction, Agra Pustik Mandir.
9. Sodhi, T.S. - Bharti Sikhya, Patiala : R.K. Publication, 1989.
10. Taneja, V.R. - Socio-Philosophical Approach to Education, Delhi : Atlantic Publishers, 1983.

EDUCATION

Paper-B

Time : 3 Hours

Max. Marks : 100

There will be two papers of 100 marks each.

Total Teaching Periods : 150

Note : 1. There will be eight questions in all, four questions from each section.

2. The candidates are required to attempt atleast two questions from each section and five in all.

Section-I

Unit-I

Meaning, Nature and theories of learning.

Unit-II

Meaning of memory, retention, recall, recognition and measures of improving memory.

Unit-III

Concept of intelligence, concept of I.O. and its measurement.

Section-II

Unit-IV

Meaning types and Measurement of aptitudes.

Unit-V

Meaning and importance of evaluation, examination reforms.

Unit-VI

Types and importance of co-curricular activities.

Unit-VII

Characteristics and problems of exceptional children.

Gifted, Slow learner & Problem Children.

Books Recommended

1. Bhatia and Narang - Theory and Principles of Education, Parkash Brothers, Ludhiana, 1996.
2. Dayakar, Reddy, D. - Value Oriented Education, Educational Psychology, Jalandhar, Paul Publishers, 1985.
3. Dhaliwal, A.S. - Vidhyak Manovigyan, Patiala : Punjabi University, 1985.
4. Govt. of India, Ministry of Education - Report of Secondary Education Comission (1952-53), New Delhi.
5. Prasad and Chandra, Deepak - Sociological Foundation of Education KSK Publisher, Delhi, 2007.
6. Saxena Swaroop and Chaturvedi Sikha - Education in Emerging Indian Society, R. Lall Book Depot, Meerut, 2005.
7. Sodhi, T.S. - Philosophical and Sociological Foundations of Education, Bawa Publication, Patiala, 2007.
8. Taneja, V.R. - Foundations of Education, Chandigarh, Mahindra.Capital Punjab, 2006.
9. Walia, J.S. - Philosophical and Sociological Basis of Education, Ahim Paul Publisher, Jalandhar, 2007.

PHYSICAL EDUCATION

Paper-A

Time: 3 Hours

Max. Marks: 60

Note : - Instructions for the paper-setters/examiners. Each question paper may consist of three sections as follows:

Section A : The candidates are required to attempt all the six questions. Each question carrying two marks. **6x2=12 Marks**

Section B : The candidates are required to attempt seven out of twelve questions. Each question carrying four marks.

7x4=28 Marks

Section C : The candidates are required to attempt two out of four questions. Each question carrying ten marks. **10x2=20 Marks**

Part-A

1. Meaning of Learning, Nature of Skill Learning and laws of Learning.
2. Learning Curve.
3. Motivation in Physical Education.
4. Play meaning and theories.
5. Psychological factors effecting sports performance i.e. stress tension, anxiety, aggression.
6. Psychological characteristics of the adolescent in sports situations.

Part-B

1. Transfer of training, its application in sports situations.
2. Growth and development during childhood;
 - i) Physical
 - ii) Mental
 - iii) Emotional
 - iv) Inter-personal social development.

3. Sports and Economy.
4. Causes of poor performance of Sports in India.
5. Sports and Socialization-integration through sports (National & International)
6. Sports, Politics and their relationship.

Practical - 40 (Internal - 10, External - 30)

7. Games : Football; Volleyball; Tennis; Hockey.

PHYSICAL EDUCATION

Paper-B

Time: 3 Hours

Max. Marks: 60

Note : - Instructions for the paper-setters/examiners. Each question paper may consist of three sections as follows:

Section A : The candidates are required to attempt all the six questions. Each question carrying two marks. **6x2=12 Marks**

Section B : The candidates are required to attempt seven out of twelve questions. Each question carrying four marks.

7x4=28 Marks

Section C : The candidates are required to attempt two out of four questions. Each question carrying ten marks. **10x2=20 Marks**

Part-A

1. Meaning, aims and types of Yoga.
2. The practice of Asans and their importance, meditative poses, Padma, Vajra, Sukh Asanas, Cultural poses, Halasan, Sarvangasana, Bhujangasna, Salbhasana, Dhanurasana, Chakarasana,
3. Pranayam, its types, objectives and Physiological values.
4. Sudhi kirya; its types, objectives and Physiological values.
5. Effect of Yogic and Physical exercises on various systems of the body.

Part-B

1. Respiratory system, Organs of respiratory, Mechanism of respiration.
2. Excretory system; Structure and functions of kidney and skin.
3. Endocrine system, Meaning of endocrine glands, functions

and location of pituitary, thyroid and adrenal glands.

4. Nervous system : its organs and functions.
5. Circulatory system: Heart and its structure, Mechanism of circulation of Blood, various types of blood vessels.
6. Care, prevention of causes and cure of sports injuries (sprain, contusion, dislocation and fractures).

Practicals

Athletics --40 Marks (Internal 10, External 1 - 30)

One Throw.

One Jump

One Race

References:

1. Blair, Jones, and Simpson Educational Psychology, The Macmillan Co., New York, 1962.
2. Lindgren, H.E. Educational Psychology in the Class Room, John Wiley and Sons, New York, 1962.
3. Biggeh & Hunt Psychological Foundations of Education, Harper & Row Publishers, 1962.
4. Crow, L.D. & Crow, A Educational Psychology, Littlefield Adams & Co., S. Chand and Co., New Delhi, 1979.
5. Whiting, HTA Readings in Sports Psychology, Henry Kimpton Publishers, London, 1972.
6. Puni, A.T. Sports Psychology, (An Abridged) translation by G.S. Sandhu, N.I.S. Patiala, 1980.
7. Suin, R.M. Psychology in Sports, Methods and Applications, Surjeet Publications, New Delhi, 1982.

Books Recommended :

1. Singh, Kanwaljeet and Singh Inderjeet : Sports Sociology, Friends Publication, New Delhi, 2000.
2. Tandan, D.K. et.al, : Scientific basis of Physical Education and Sports, Friends Publication, New Delhi, 2001.
3. Singh, Ajmer and Gill Jagtar : Essentials of Physical Education and Olympic movement, Kalyani Publishers, Ludhiana, 2004.
4. Kang, G.S. : Anatomy, Physiology and Health Education, Publication Bureau, Punjabi University, Patiala, 2000.
5. Kang, G.S. and Deol, N.S. : An Introduction to Health and Physical Education, 21st Century, Patiala, 2008.

PHILOSOPHY

Paper-A

Logic : Western and Indian

Time Allowed : 3 Hours

Max. Marks : 100

Lectures to be delivered : 75

Pass Marks : 35

Instructions for the Paper-setters

The question paper will consist of five sections : A,B,C,D and E. Section A,B,C and D will have two questions from the respective sections of the syllabus and will carry 15 marks each. Section E will consist of 10 short answer type questions which will cover the entire syllabus uniformly and will carry 40 marks in all, each short answer type question carrying 4 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

1. Definition, Nature and Utility of Western Logic.
2. Laws of Thought : Identity, Contradiction, Excluded Middle, Law of Sufficient Reason and their Characteristics.
3. Terms : Kinds, Connotation, Denotation and Relation between Connotation and Denotation.

Section-B

4. Proposition : Classification of Propositions, Four-fold division of Propositions.
5. Immediate Inference : Square of Opposition-contradiction, contrary, sub-altration.
6. Mediate Inference : Structure and Rules of Validity of Categorical Syllogism.

Section-C

7. Definition of Deduction and Induction; Distinction between Deduction and Induction.
8. Causation : Nature of Cause, Plurality of Causes (Mill)
9. Nature and Conditions of a Valid Hypothesis.

Section-D

10. Definition, Scope and Utility of Indian Logic.
11. Nyaya Syllogism.
12. Difference between Nyaya Syllogism and Aristotelian Syllogism.

Section-E

Ten Short answer type questions.

Recommended Readings

1. Cohen and Negal, *Introduction to Logic and Scientific Methods*, Allied Publishers, Bombay, 1976.
2. R.D. Nirakari, *Uchera Tarak Shastra* (Punjabi).
3. Wazir Singh & Harnam Singh, *Tarak Gian De Mudhle Niyam : (Part-I)* (Nigman), Punjabi University, Patiala.
4. Wazir Singh & Harnam Singh, *Tarak Gian De Mudhle Niyam : (Part-II)* (Nigman), Punjabi University, Patiala.
5. Wazir Singh & A.P. Sharma, *Tarak Gian Di Jan-Pahichan*.
6. S.S. Barlingay, *A Modern Introduction to Indian Logic*, National Publishing House, Delhi, 1965.
7. Peter A Facione, *Logical and Logic thinking, a modular approach*, McGraw Hill, New York 1978.
8. डा. सुरेन्द्र, भारतीय तर्क शास्त्र की रूप रेखा, राजस्थान ग्रंथ आकदमी, जयपुर ।

PHILOSOPHY

Paper-B

Applied Ethics (Opt. i)

Lectures to be delivered : 75+50=125

(Only for Regular Students)

Max. Marks : 100

Time : 3 Hours

Theory Marks : 60

Pass Marks : 35% Project Work & Practical : 40

Note : Instructions for the Paper-Setter :

The question paper will consist of five Sections : A,B,C,D & E. Sections A,B,C and D will have two questions from the respective sections of the syllabus and will carry 10 marks each. Section E will consist of 10 short answer type questions which will cover the entire syllabus uniformly and will carry 20 marks. Each short answer type question will be of 2 marks. There will be a separate paper for the project and practical related to the subject. For it there will be four lectures in a week besides the theory lectures. The focus of these lectures would be on the applied aspect of the course. A candidate will have to prepare a project report at least of 15 pages. A teacher from the affiliated colleges will conduct the viva-voce before the theory examination and will award the marks on the basis of **project report** and **viva voce** separately. Out of the 40 marks, 20 marks are each for the **project report and viva-voce**.

Instructions for the Candidates :

Candidates are required to attempt one question each from the sections A,B,C & D of the question paper and the entire section E. They will have to prepare a project report of atleast of 15 pages and will have to appear in viva-voce. The project report and viva voce will be of 20 marks each.

Section-A

Introduction

1. Applied Ethics : Nature and Scope.
2. De-ontological and Teleological Approaches to Moral Action.

Section-B

3. **Ecology** : Definition, Scope and its relation to Ethics.
4. Man-Nature Relationship (Indian Tradition).

Section-C**Ecological Problems**

5. Population
6. Pollution
7. Nuclear Threats

Section-D**Professional Ethics**

8. Medical Ethics
9. Educational Ethics and Moral Principles
10. Legal Ethics

Section-E

Ten short answer type questions.

Recommended Readings :

1. Surjit Kaur Chahal, *Environment and the Moral Life, Towards a New Paradigm*, Ashish Publishing House, New Delhi, 1994.
2. T.L. Beauchamp & J.E. Childress, (Jr.), *Principles of Biomedical Ethics*, 2nd Ed., Oxford University Press, Oxford, 2001.
3. R. Attfield, *Environmental Philosophy : Principles and Prospects*, Aldershot, Avebury, 1994.
4. Harold H. Titus, *Ethics for Today*, Eurasia Publishing House, New Delhi, 1966.
5. Oleg Dreyer, *Ecological Problems of developing Countries*, Ajanta Publications, Delhi, 1989.

PHILOSOPHY**Paper-B (Opt. ii)
(Social Philosophy)****Time : 3 Hours****Max. Marks : 100****Lecture to be delivered : 75 Pass Marks : 35%****Instructions for the paper-setter**

The Question paper will consist of five Sections : A, B, C, D & E. Sections A, B, C, D and E will have two questions from the respective sections of the syllabus and will carry 15 marks each. Section E will consist of 10 short answer type questions which will cover the entire syllabus uniformly and will carry 40 marks in all, each short answer type question carrying 4 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

1. Social Philosophy : Nature and Importance of Social Philosophy.
2. Social Philosophy and Ethics.
3. Social Philosophy and Political Science.

Section-B

4. Plato's Theory of State
5. Theories about origin of Society : Organic Theory, Social Contract Theory and Idealistic Theory
6. Social Progress : Meaning and Factors

Section-C

7. Major Social Theories : Socialism and Democracy
8. Gandhism : Swaraj and Sarvodaya
9. Social Philosophy of Sikhism : Justice and Equality

Section-D

10. Social Problems : Dowry, Divorce and Corruption
11. Crime : Meaning and Nature of Crime
12. Punishment : Theories of Punishment and Capital Punishment

Section-E

Ten short answer type questions

Recommended Readings :

1. Daya Krishan, *Social Philosophy : Past and Future*, Indian Institute of Advanced Study, Shimla, 1969.
2. Dr. A.K. Sinha, *Social Philosophy*, Krishna, Amritsar, n.d.
3. Anthony Quinton (Ed.), *Political Philosophy*, Oxford, London, 1973.
4. Ram Nath Sharma, *Overview of Philosophy*, Lucky Star, Delhi, 1983.
5. Robert N. Bech, *Handbook of Social Philosophy*.
6. फ. गुरुनरिणु लु इलु, गुरुनरिणु बरुलु इवलु नरुलुकु द' एजुक' पुरुषु/

ਧਰਮ ਅਧਿਐਨ

ਪੇਪਰ-ਏ (ਸਾਮੀ ਧਰਮ)

ਸਮਾਂ : 3 ਘੰਟੇ

ਕੁੱਲ ਅੰਕ : 100

ਲੈਕਚਰਾਂ ਦੀ ਗਿਣਤੀ : 75

ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 35%

ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ :

ਪੇਪਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ : ਓ, ਅ, ਏ, ਸ ਅਤੇ ਹ। ਭਾਗ ਓ, ਅ, ਏ ਅਤੇ ਸ ਵਿੱਚੋਂ 2-2 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਇੱਕ-ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੋਵੇਗਾ ਅਤੇ ਹਰ ਇੱਕ ਪ੍ਰਸ਼ਨ ਦੇ 15 ਅੰਕ ਹੋਣਗੇ। ਕੁਲ ਅੰਕ 60 ਹੋਣਗੇ। ਭਾਗ ਹ ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ, ਜਿਹੜੇ ਸਾਰੇ ਸਲੇਬਸ ਵਿੱਚੋਂ ਹੋਣਗੇ ਅਤੇ ਉਨ੍ਹਾਂ ਦੇ 40 ਅੰਕ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 4-4 ਅੰਕ ਹੋਣਗੇ।

ਪ੍ਰੀਖਿਆਰਥੀ ਲਈ ਹਦਾਇਤਾਂ :

ਭਾਗ ਓ, ਅ, ਏ, ਸ ਵਿੱਚੋਂ ਕੇਵਲ ਇੱਕ-ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੈ ਅਤੇ ਭਾਗ 'ਹ' ਦੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਜ਼ਰੂਰੀ ਹਨ।

ਭਾਗ (ਓ) ਯਹੂਦੀ ਧਰਮ

1. ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ--ਯਹੂਦੀ ਧਰਮ ਦਾ ਇਤਿਹਾਸ
2. ਪੈਗੰਬਰ ਮੂਸਾ ਦਾ ਜੀਵਨ ਤੇ ਸਿੱਖਿਆਵਾਂ
3. ਯਹੂਦੀ ਧਰਮ-ਗ੍ਰੰਥ ਤੋਰਾਹ (The Law), ਨਬੀ (The Prophets), iKq`b- (The Writings) b`rysKp j`xk`r|

ਭਾਗ (ਅ) ਈਸਾਈ ਮੱਤ

1. ਈਸਾਈ ਚਰਚ ਦਾ ਆਰੰਭ ਅਤੇ ਪਾਸਾਰ (ਨਵੇਂ ਨੇਮ ਦੀ ਪੰਜਵੀਂ ਪੁਸਤਕ 'ਰਸੂਲਾਂ ਦੇ ਕਰਤਬ' ਦੀ ਪੁਸਤਕ 'ਤੇ ਆਧਾਰਿਤ)।
2. ਯਸੂ ਮਸੀਹ ਦਾ ਜੀਵਨ ਤੇ ਸਿੱਖਿਆਵਾਂ
3. ਨਵਾਂ ਨੇਮ (New Testament) ਤਿੰਨ ਮੁੱਖ ਭਾਗ:
 1. ਮੱਤੀ ਦੀ ਅੰਜੀਲ ਸੰਖਿਪਤ ਜਾਣਕਾਰੀ
 2. 21 ਪੱਤਰ (Epistles) ਸੰਤ ਪਾਲ ਅਤੇ ਦੂਜੇ ਸੰਤਾਂ ਦੇ
 3. ਪ੍ਰਕਾਸ਼ ਦੀ ਪੋਥੀ (Apocalypes) b`rysKp j`xk`r|

B`g (e) : iesl`m

1. ipCkV, E`rB Eqyivk's, iesl`m q`pihl - Erb dl D`rimk Eqy sm`ij k siQq|

2. p^gbr m^hhd d' j lvn qyis^hKE^v-, iesl`m dypj Q^h (Five pillars) elm`n, sl`q, r^z, h^g, zk`q)
3. pivqr kr`n b`ry s^hkp j`x-pC`x : s^hdn` Eqy bxqr

B`g (s) : p`rsl m^g

1. s^hkp j`x-pC`x: as sm^hd^s dl sm`ij k Eqy D`rimk EvsQ`, j l`vqnl Eqy B`rq ivc E`gmn|
2. j r^gs^g d' j lvn qyis^hKE^v : n^hkl-bdl d' isD-q, piv`irk Eqy sm`ij k B`elc`ry dl bxqr|
3. Ehr m`zd`, Ehrmn Eqy j^h-Ev^sq` dl s^hkp j`xk`r|

B`g (h) s^hkp atqr- v`l y 10 p^sn

su`eIE- p^sqk- dl s^hl :

1. j`nz m^sl. msl^hEq : iek pircw, Pklr is^hg E^hf s^hz, E^hm^hsr|
2. b`elbl (pj`bl Enw`d), b`elbl s^sietl E`& iel^hE^h, b^hl^h |
3. j l.E`r. is^hg Eqy sl. fbl al f^hv^f, j h^hl^h D^hm p^hsl^hlw D^hm, l Knal^hpbil is^hg h`a^s, l Knal^h|
4. g^hl v^h is^hg : iesl`m Eqy s^hlv`d, pj`bl w^hlvristl, pitE`l`|
5. grbcn is^hg q`il b, (s^h.) s^hr dy kw p^hnk D^hm, pj`bl w^hlvristl, pitE`l`|
6. David F. Hindson, *History of Israel*, ISPCK, Kashmiri Gate, Delhi.
7. John Bright, *History of Israel*, Lucknow Publishing House, Lucknow.
8. *Christianity*, Panjabi University, Patiala.
9. John Foster, *The First Advance Church History*, ISPCK, New Delhi.
10. K. Ali, *A Study of Islamic History*, Idarah-i-Adaboiyat, Delhi.
11. *Islam*, Punjabi University, Patiala.

12. P.K. Hitti, *History of Ardas*, Macmillan Education Ltd.
13. M.M. Pickthal, *The Meaning of the Glorious Koran*, Mentor Classics, New York.
14. Alfred Guillaume, *Islam*, Lion Square, London.
15. Denmise E. Clark, *Jesus Christ—His Life & Teachings*, 1654, Madarsa Road, Kashmiri Gate, Delhi.
16. Duncan Greenless, *The Gospel of Zorathustra*, Adyar Publication, Madras.
17. N. Dhalla, *History of Zoroastrianism*, K.R. Cama, Orient, Longman, Delhi.

ਧਰਮ ਅਧਿਐਨ**ਪੇਪਰ-ਬੀ**

(ਮਧਕਾਲੀਨ ਅਤੇ ਆਧੁਨਿਕ ਧਾਰਮਿਕ ਲਹਿਰਾਂ)

ਸਮਾਂ : 3 ਘੰਟੇ

ਕੁੱਲ ਅੰਕ : 100

ਲੈਕਚਰਾਂ ਦੀ ਗਿਣਤੀ : 75

ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 35%

ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

ਪੇਪਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ : ਓ, ਅ, ਏ, ਸ ਅਤੇ ਹ। ਭਾਗ ਓ, ਅ, ਏ ਅਤੇ ਸ ਵਿੱਚੋਂ 2-2 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਇੱਕ-ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੋਵੇਗਾ ਅਤੇ ਹਰ ਇੱਕ ਪ੍ਰਸ਼ਨ ਦੇ 15 ਅੰਕ ਹੋਣਗੇ। ਕੁਲ ਅੰਕ 60 ਹੋਣਗੇ। ਭਾਗ 'ਹ' ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ, ਜਿਹੜੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿੱਚੋਂ ਹੋਣਗੇ ਅਤੇ ਉਨ੍ਹਾਂ ਦੇ 40 ਅੰਕ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 4-4 ਅੰਕ ਹੋਣਗੇ।

ਪ੍ਰੀਖਿਆਰਥੀ ਲਈ ਹਦਾਇਤਾਂ :

ਭਾਗ ਓ, ਅ, ਏ, ਸ ਵਿੱਚੋਂ ਕੇਵਲ ਇੱਕ-ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੈ ਅਤੇ ਭਾਗ 'ਹ' ਦੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਜ਼ਰੂਰੀ ਹਨ।

ਭਾਗ (ਓ) : ਭਗਤੀ ਲਹਿਰ

1. Bgq l ihr : aqq qyivk's
2. ਉੱਤਰੀ ਭਾਰਤ ਦੀ ਨਿਰਗੁਣ ਅਤੇ ਸਰਗੁਣ ਭਗਤੀ ਪਰੰਪਰਾ
3. ਭਗਤੀ ਲਹਿਰ ਦੇ ਪ੍ਰਮੁੱਖ ਭਗਤਾਂ ਦੇ ਜੀਵਨ ਨਾਮਦੇਵ, ਕਬੀਰ, ਰਵਿਦਾਸ

ਭਾਗ (ਅ) : ਸੂਫੀ ਮੱਤ

1. ਆਰੰਭ, ਵਿਕਾਸ ਅਤੇ ਇਸਲਾਮਿਕ ਪਿਛੋਕੜ
2. ਸੂਫੀ ਮੱਤ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ, ਹਾਲ ਅਤੇ ਮੁਕਾਮ ਦੇ ਹਵਾਲੇ ਸਹਿਤ।
3. ਚਿਸ਼ਤੀ ਸਿਲਸਿਲਾ ਤੇ ਬਾਬਾ ਫਰੀਦ-ਜੀਵਨ ਤੇ ਸਿੱਖਿਆਵਾਂ

ਭਾਗ (ਏ) : ਪ੍ਰਮੁੱਖ ਧਰਮ ਪ੍ਰਵਰਤਕ

1. ਚੈਤੰਨਯ ਮਹਾਪ੍ਰਭੂ : ਜੀਵਨ ਤੇ ਸਿੱਖਿਆਵਾਂ
2. ਸ਼ੰਕਰ ਦੇਵ : ਜੀਵਨ ਦੇ ਸਿੱਖਿਆਵਾਂ
3. ਮੀਰਾਂ ਬਾਈ : ਜੀਵਨ ਤੇ ਸਿੱਖਿਆਵਾਂ

ਭਾਗ (ਸ) :**ਉਨੀਵੀਂ ਸਦੀ ਦੀਆਂ ਪ੍ਰਮੁੱਖ ਧਾਰਮਿਕ ਲਹਿਰਾਂ**

1. ਰਾਮਾ ਕ੍ਰਿਸ਼ਨ ਮਿਸ਼ਨ
2. ਬ੍ਰਹਮੋ ਸਮਾਜ
3. ਆਰੀਆ ਸਮਾਜ

ਭਾਗ (ਹ) : ਸੰਖੇਪ ਉਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ
ਸੁਝਾਈਆਂ ਪੁਸਤਕਾਂ ਦੀ ਸੂਚੀ :

1. ਪਰਸੁਰਾਮ ਚਤੁਰਵੇਦੀ, ਉਤਰੀ ਭਾਰਤ ਕੀ ਸੰਤ ਪਰੰਪਰਾ, (ਹਿੰਦੀ), ਭਾਰਤੀਯ (ਪੁਸਤਕ ਭੰਡਾਰ) ਲਹਿਰ ਪ੍ਰੈਸ, ਅਲਾਹਾਬਾਦ।
2. ਗੁਲਵੰਤ ਸਿੰਘ, ਇਸਲਾਮ ਤੇ ਸੂਫੀਵਾਦ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
3. ਮਨਮੋਹਨ ਸਿੰਘ, ਭਗਤੀ ਅੰਦੋਲਨ ਅਤੇ ਗੁਰੂ ਨਾਨਕ, ਮਨਦੀਪ ਪ੍ਰਕਾਸ਼ਨ, ਨਵੀਂ ਦਿੱਲੀ।
4. ਤਾਰਨ ਸਿੰਘ, ਬਲਬੀਰ ਕੌਰ, ਸ਼ੇਖ ਫਰੀਦ-ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
5. ਮਨਮੋਹਨ ਸਿੰਘ, ਭਗਤੀ ਸਿਧਾਂਤ ਦੇ ਆਧਾਰ ਸ਼੍ਰੋਤ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ਪਟਿਆਲਾ, 1991.
6. ਲਾਲ ਸਿੰਘ, ਭਗਤੀ ਕਾਵਿ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ, 1970.
7. ਗੁਰਸ਼ਰਨਜੀਤ ਸਿੰਘ (ਡਾ.) ਗੁਰੂ ਨਾਨਕ ਬਾਣੀ ਵਿਚਲੀ ਨੈਤਿਕਤਾ ਦਾ ਅਜੋਕਾ ਪ੍ਰਸੰਗ, ਭਾਈ ਚਤਰ ਸਿੰਘ ਜੀਵਨ ਸਿੰਘ, ਅੰਮ੍ਰਿਤਸਰ, 2007.
8. Bahadur Mal, *Dayanand and Study in Hinduism*, Sadhu Ashram, Hoshiarpur, 1962.
9. Darshan Singh, *Indian Bhakti Tradition and Sikh Gurus*, Lyall Book Depot, Ludhiana.
10. Ganda Singh (Ed), *Punajb Past and Present*, (Singh Sabha Issue) Punjabi University, Patiala.
11. J.N. Farquhar, *Modern Religious Movements in India*, Munshi Ram, Manohar Lal, Oriented Publishers, Delhi, 1967.
12. T.M.P. Mahadevan, *Ten Saints of India*, Bharti Vidya Bhawan, Bombay.
13. प्राणनाथ पंकज, *अबिनासी गिरधर की मीराँ*, रूपा एण्ड कम्पनी, नई दिल्ली, 2001.
14. स्वामी प्रभुपाद, भगवान श्री चैतन्य महाप्रभु, भक्तिवेदांत बुक ट्रस्ट, मुंबई, 2002.

MUSIC (INSTRUMENTAL)

Paper - A	Theory : 3 Hours Durations	Marks : 80
Paper - B	Practical : 20 Minutes	Marks : 100
	Project Work	Marks : 20
		Total Marks : 200

Teaching work load :**Theory : 3 Periods per week****Practical : 9 Periods per week****Note : There should not be more than ten students in one group of practical class.****Instructions given to the examiners are as under :**

1. There should not be more than ten students in a batch for practical examination.
2. While sending the syllabus to paper setter in theory the syllabus prescribed for the practical paper should also be sent.
3. Separate practical paper should be set for each class from practical paper-B prescribed syllabus.
4. The paper setter would set nine questions in all. Three in unit-I, four in unit-II & two in unit-III. The candidate may be asked to attempt five questions in all selecting at least one question from each part.
5. Candidate can take both subjects i.e. Vocal & Instrumental Music as an elective subjects.
6. Candidate can take Tabla subject along with Instrumental Music (mentioned below in Serial No. 7).
7. The practical paper will be of 100 marks for the private & regular candidates. 20 marks for the computer aided project report in the form of presentation relating to any field of music (approx. 3 to 5 pages) using computers. (MS-Office)

which will be evaluated by the external examiner at the time of examination. Separate marks sheet should be used for project report.

8. 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, Rabab, Saranda, Taus, Santoor and other Ins. Played on the basis of Indian Classical Music.

MUSIC (INSTRUMENTAL)**Paper-A (Theory)****Time : 3 Hours****Max. Marks : 80****Unit - I**

1. Historical developments of Indian Music during the medieval period i.e. from 12th to 15th century with special reference to Granths Gharanas & Shallies.
2. Computer & Music
3. The Life sketch and Contributions of the followings :-
 - a) Ustad Villyat Khan
 - b) Ali Akar Khan
 - c) Abdul Halim Zafar Khan
 - d) Shiv Kumar Sharma

Unit - II

1. Knowledge of the following :-
 - a) Youth & Classical Music
 - ii) Tuning of your instrument
 - iii) The contribution of stage music to the growth of popular music.
2. Importance of Gharana System in Indian music with its merits and demerits.
3. Descriptions and Notation of prescribed Ragas (Gats and Talas) Ragas :- Malkauns, Sohani, Assawari, Puriya, Bhimpalasi.
4. Talas : Ada-Chautal, Sultal, Rupaktal
5. Brief knowledge of the following Ragas : (Aaroh, Avroh, Palar etc.) Marwa, Bhairvi, Purvi, Jaunpuri, Chanderkauns.

Unit - III

1. Importance of Instrumental Music in Gurmat Sangeet.
2. Contribution of Guru Teg Bahadur Ji towards Indian Music.

MUSIC (INSTRUMENTAL)

Paper - B (Practical)

Time : 30 Minutes

Practical : Max. Marks 100

Project work : Marks 20

Total : 120

- (a) One Drut Gat with Alap, Jor, Tora and Jhalas in each of the prescribed Ragas : Malkauns, Assawari, Puriya, Bhimpalasi.
- (b) One Vilambit Gat with Alaps and Toras in any of the prescribed Ragas.
- (c) One Gat in Chautal (Dhrupad Style) in Single and double layakaries in any of the prescribed Ragas.
- (d) One Gat in Rupak Tal in Madhya laya with toras.
- (e) Ability to recite Ada-Chautal, Sultal and Rupak Tal; by hand in ekgun and dugun layakaries.
- (f) Use of the two Swaras Meend i.e., Sa Re Ga, Re Ga Ma etc.
- (g) Tuning of your instrument.
- (h) Ability to play Rupak Jhap Tal on Tabla.
- (i) Ability to play four Alankars based on Thats of prescribed Ragas in the course.
- (j) Brief knowledge of Ragas (Aaroh, Avroh, Pakar etc.) Marwa, Bhairvi, Purvi, Jaunpuri.

Books Recommended

1. Rag Parichaya H.C. Shrivastava (published by Sangeet Sadan Prakashan Allahabad) 2004.
2. Sangeet Visharad Sangeet Karayalaya, Hathras, 2004.

3. Hamare Sangeet Rattan Sangeet Karayalaya,
Hathras, 1978.
4. Gurmat Sangeet Dr. Gurnam Singh, Published by
Prabandh Ate Parsar Panjabi Uni., Patiala.
5. Nibandh Sangeet Sangeet Karayalaya, Hathras, 1989.

Project Work**M.M. : 20**

***It will be Based on computer aided Programme** in the form of presentation relating to any field of Music (Approx. 3 to 5 pages) using computers (MS-Office) which will be evaluated by the external examiner at the time of examination. Separate mark sheet should be used for project report.

MUSIC (VOCAL)

Paper - A	Theory : 3 Hours Durations	Marks : 80
Paper - B	Practical : 20 Minutes	Marks : 100
	Project Work	Marks : 20
		Total Marks : 200

Teaching work load :**Theory : 3 Periods per week****Practical : 9 Periods per week****Note : There should not be more than ten students in one group of practical class.****Instructions given to the examiners are as under :**

1. There should not be more than ten students in a batch for practical examination.
2. Harmonium will be allowed as an accompaniment in vocal music.
3. While sending the syllabus to paper setter in theory the syllabus prescribed for practical paper should also be sent.
4. Separate practical paper should be set for each class from practical paper-B prescribed syllabus.
5. The paper setter will set nine questions in all. Three in unit-i, four in unit-ii & two in unit-iii. The candidate may be asked to attempt five questions in all selecting at least one question from each unit.
6. The practical paper will be of 100 marks for the private & regular candidates. 20 marks for the computer aided project report in the form of presentation relating to any filed of music approx. 3 to 5 pages) using computers. (MS-Office) which will be evaluated by the external examiner at the time of examination. Separate marks sheet should be used for project report.
7. Candidate can take both subjects i.e. Vocal & Instrumental Music as an elective subject.
8. Candidate can take Tabla subject alongwith Music Vocal.

MUSIC (VOCAL)**Paper - A (Theory)****Time : 3 Hours****Max.Marks : 80****Unit-I**

1. Historical Development of Indian Music during the period i.e. from 14th to 17th century with special reference to Musicians, Granths & Changing Traditions of Music.
2. Definition of the following :-
Bol-Alaap, Bol-Bant, Upaj, Murki, Katka, Mukhra, Gamak, Varieties of Tan. Teaching & Learning Methods of Music.
3. Contributions in detail and life sketches in brief of the following great master :-
 - i) Rajan Sajan Mishra
 - ii) Reshid Khan
 - iii) Pt. Bhim Sen Joshi
 - iv) Kishori Amolker

Unit-II

1. Knowledge of the following :-
 - i) Laya and Tal in Folk Music
 - ii) Methods of tuning your instrument (Tanpura)
 - iii) The place of Harmonium in Vocal Music in present period.
2. Detailed knowledge of Dhrupad, Dhammar and Khayal Styles of Singing.
3. Description and notation of the prescribed ragas (Khayals) & Talas.

Ragas :- Miyan ki Sarang, Bhairvi, Poorvi, Jaunpuri
Malkuns.

4. Talas :- Tilwara, Deepchandi, Chautal.
5. Non detailed ragas :-
Dhanasari, Sorath, Chanderkaus, Asawari

Unit - III

1. Folk Gayan Shallies in Gurmat Sangeet.
2. Salient features of keertan chowki.

MUSIC (VOCAL)
Paper-B (Practical)

Time : 20 Minutes

Practical

Max. Marks : 100

Project work

Marks : 20

Total Marks : 120

1. One drut Khayal in each of the following ragas :- Bhairavi, Poorvi, Miyan ki Sarang, Jaunpuri Malkons.
2. One Vilambit Khayal in any ragas prescribed in the course with alap and tanas.
3. One Dhrupad with Duggen, Tigun and Chougun layakaries in any of the prescribed ragas.
4. One Shabad in Nirdhaat Raga with proper Gurmat Gayaki.
5. Ability to recite Tilwara, Deepchandi, Chautal by hand.
6. Notation of the khayals and talas prescribed in the syllabus.
7. Description of the ragas and talas prescribed in the syllabi.
8. Ability to demonstrate Teevra and Kehvra on Tabla.
9. Ability to Sing in meed.

Books Recommended

1. Sangeet Vishard Basant, Sangeet Karyalaya Hathras
2004
2. Rag Parichaya G.C.Srivastava 2004
Part-II (Sangeet Sadan Parkashan,
Allahabad)
3. Hamare Sangeet Sangeet Karyalaya Hathras 1978
Rattan
4. Gurmat Sangeet Dr. Gurnam singh Punjabi
Prabandh te Pasar University, Patiala, 2000
5. Nibandh Sangeet Sangeet Karayalaya, Hathras, 1989

INDIAN CLASSICAL DANCE**Paper - A Theory : 3 Hours Durations Max.Marks : 80****Paper - B Practical : 20 Minutes 100 Marks****Project Work 20 Marks****Total 200 Marks****Teaching work load****Theory 3 Periods per week.****Practical - 9 periods per week.****Note : There should not be more than ten students in a group of practical class.****Instructions given to the examiners are as under :-**

1. There should not more than ten students in a ten batch for practical examination.
2. Harmonium will be allowed as accompaniment to perform Nagma.
3. While sending the syllabus to paper setter in theory the syllabus prescribed for the practical paper should also be sent.
4. Separate practical paper should be set for each class from practical paper-'B' of prescribed syllabus.
5. The paper setter will set nine questions in all. Three in unit-i, four in unit-ii & two in unit-iii. The candidate may be asked to attempt five questions in all selecting at least one question from each part.
6. The practical paper will be of the 100 marks for the private & regular candidates. 20 marks for the computer aided project report in the form of presentation relating to any filed of music and dance approx. 3 to 5 pages) using computers. (MS-Office) which will be evaluated by the external examiner at the time of examination. Separate mark sheet should be used for project report.

INDIAN CLASSICAL DANCE**Paper A : - (Theory)****Unit-I****Time : 3 Hours****Max.Marks : 80**

1. Describe the historical development of Group Dance.
2. Historical development of dance in Indian theater.
3. Study of the following styles of Indian Classical Dance.
 - a) Manipuri Tradition in modern period
 - b) Kathkali on the modern stage
4. Study of the Natya Shastra with special reference to Indian Dance.

Unit-II

1. Knowledge of the Folk Dance of Punjab & Uttar Pradesh.
2. Knowledge of Solo Dance and Group Dance and their Comparison.
3. Biography and contribution of the following dancer in their respective field of specialization.
 - i) Uday Shankar
 - ii) Shambhu Maharaj
4. Essay on :
 - i) Nayak Nayika Bheda in Dance
 - ii) Importance of Gayan & Vadan in Dance
 - iii) Dancing : A door to devine
 - iv) The role of dances in Indian films

Unit-III

1. Notation & Discription of follwing Talas in Dugan, Tigin and Chaugan layakaries
Teen Tal, Jhap Tal, Dhamar, Ek-Tal, Rupak Tal
2. Notation of Nagama in Dhamar and Jhaptal

INDIAN CLASSICAL DANCE**Paper - B Practical****Time : 20 Minutes Practical Max.Marks : 100****Project Work Marks : 20****Total Marks : 120****1. Chutal (Matra-2)**

Simple Tatker with Dugun and Chaugan layakaries

- | | |
|--------------------|---|
| i) Tora | 1 |
| ii) Amad | 1 |
| iii) Salami | 1 |
| iv) Paran | 1 |
| v) Chakardar puran | 2 |

2. Ek-Tal (Matra-12)

- | | |
|---------------------|---|
| i) Amad | 1 |
| ii) Tora | 1 |
| iii) Paran | 2 |
| iv) Chakardar-Paran | 1 |
| v) Kavita | 1 |

3. Roopak (Matra-7)

- | | |
|-----------|---|
| i) Tatkar | 2 |
| ii) Tukra | 2 |
| iii) Amad | 1 |
| iv) Tora | 2 |

4. Practical knowledge of any two Gat Bhawa :

- | |
|---------------------|
| i) Holi |
| ii) Makhani Chori |
| iii) Goverdhan Lila |

5. Paranth of all the Tukra, Tora, Paran, Chakardar Paran by hand.**6. Theka of Teen Tal Jhap Tal, Dhamar, Ek-Tal Rupak Tal, Single, Dugun, and Chaugun layakaries by hand & ability to demonstrate Rupak, Dhamar Keherva on Tabla.**

7. **One Trana or Chutrang**
8. **Ability to play Nagma on Harmonium of the following Talas:-**
 - i) Jhaptal
 - ii) Dhamar
 - iii) Ek-Tal
9. **Practical demonstration any one form of Uttar Pradesh Folk Dances.**

Books Recommended :

1. Kathak Nritya Ka Prichey Subbashni Kapoor, Radha Publications New Delhi, 1997
2. Kathak Sundaryatmak Shashtriya Nritya Shikhakharey Knishka Publishers, New Delhi, 2006
3. Atihasik Pripekesh Mein Kathak Naritya Maya Talk Knishka Publishers, New Delhi, 2005
4. Nibandh Sangeet Laxmi Naryan Garg Sangeet Karyalaya Hathras, 2004

Project Work**Marks : 20**

***It will be Based on computer aided Programme** in the form of presentation relating to any field of Music and dance (Approx. 3 to 5 pages) using computers (MS-Office) which will be evaluated by the external examiner at the time of examination. Separate mark sheet should be used for project report.

TABLA

Paper-A	Theory : 3 Hours Durations	Max.Marks : 80
Paper-B	Practical	Marks : 100
	Project Work	Marks : 20

Total marks : 200

Teaching work load

Theory : 3 periods per week.

Practical : 9 period per week.

Note : There should not be more than ten students in one group of practical class.

Instructions given to the examiners are as under : -

1. There should not be more than twelve students in a batch for practical examination.
2. Harmonium will allowed as accompaniment to perform the Nagma.
3. While sending the syllabus to paper setter in theory the syllabus prescribed for practical paper should also be sent.
4. Separate practical paper should be set for each class from practical paper-B prescribed syllabus.
5. The paper setter will set nine questions in all. Three question in each unit. The candidate may be asked to attempt five questions in all selecting at least one question from each part.
6. The practical paper will be of the 100 marks for the private & regular candidates. 20 marks for the computer aided project report in the form of presentation relating to any filed of music (approx. 3 to 5 pages) using computers. (MS-Office) which will be evaluated by the external examiner at

the time of examination. Separate marks sheet should be used for project report.

7. Candidate can take Tabla subjects with Vocal & Instrumental music (Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai, Rabab, Saranda, Taus, Santoor and any other Swar Vadhya to be played on the basis of Indian Classical Music).

TABLA

Paper - A (Theory)

Time : 3 Hours

Max.Marks : 80

Unit-I

1. Define and explain the following terms : Uthan, Tabla Vada, Sangatkar, Rela laggi, Peshkzra, Chakradar.
2. Ten Parans of Tala.
3. Popular Gharanas of Tabla and Pakahawaj, Vadan i.e. Delhi, Lucknow, Punjab and Ajara.
4. Writing Method of Dvigun, Trigun and Chaugun Layakaries Tokaras, Parans and Tihaias.

Unit-II

1. Life sketch of Shri Kanthe Maharaj, Shri Anokhe Lal and Pt. Santa Parsad.
2. Define the following terms in context of Gurmat Sangeet : Jori, Makao, Sath.
3. The place of Tabla in different musical compositions.

Unit-III

1. Notation and description of the following :-
 - i) Jhaptal : One quaida, one peshkar, one gat and rela, paran
 - ii) Rupak: Peshkar, gat, Two qaida, Paran and Chakardar Paran
 - iii) Choutal : Saath, Paran, Chukari
2. Notation of the above mentioned Talas with dugun and Chugan layakaries
3. Lagi in Dadra Tal

TABLA

Paper - B (Practical)

Time : 20 Minutes	Practical	Max.Marks : 100
	Project Work	Marks : 20
		Total Marks : 120

- a) Tala Prescribed : Rupak, Tivra, Jhaptal, Sultal, Deep Chandi and Jhumra.
- b) Proper Barhat of the following Talas by hand on Tabla or Pakhawaj-Rupak, Tivra, Jhaptal, Sultal.
- c) Two laggies in Dadra and two in Kehrava.
- d) Theka of Jhumra Tal Vilambit Laya.
- e) Sultal-Tukras, Paran Bedam, Tehai, Damdar Tehai Chakradar Paran and Relas.
- f) Jhaptal : One quaida, one peshkar, one gat and rela, paran.
- g) Rupak : Peshkar, gat, Two quaida, Paran and Chakardar Paran

Books Recommended :

Sangeet Visharad	Basant, Sangeet Karyalaya Hathras, 2004
Tal Prabandh	Pt. Chhote Lal Misher, Knishka Publisher, New Delhi, 2006
Bharti Sangeet Vadhya	Lal Muni Misher, Bhartiya Gayan Peeth Parkashan, 1973
Hamare Sangeet Rattan	Sangeet Karyalaya Hathras, 1978
Tal Martand	Sataya Narayan Vishesht, Sangeet Karyalaya Hathras, 1994

Project Work

Marks : 20

***It will be Based on computer aided Programme** in the form of presentation relating to any field of Music (Approx. 3 to 5 pages) using computers (MS-Office) which will be evaluated by the external examiner at the time of examination. Separate mark sheet should be used for project report.

FINE ART

(Drawing and Painting)

Note :

- (a) 60 marks for the theory paper and 40 marks per practical papers and 20 marks for internal assessment on the basis of session work submitted by the student shall be assessed by the teacher concerned.
- (b) The question paper will cover the entire syllabus.
- (c) Questions should be based on world famous paintings and sculptures whose slides are easily available.
- (d) Question paper should cover the syllabus uniformly.
- (e) The paper setter should set the paper in three sections, Section A, B and C.
- (f) The division of the marks will be as under :-

Section A—20 marks for 10 short answer questions. Each question carries 2 marks.

Section B—20 marks 4 questions. The examiner will be set 6 questions; the candidate will attempt 4 questions of 5 marks each.

Section C—20 marks for essay type questions. The examiner will be set 4 questions; the candidate will attempt 2 questions of 10 marks each. Compartment candidates in the subject of Fine Arts will appear only in theory paper during the supplementary examinations. Previous Marks of Practical papers will be considered for the aggregate.

FINE ART**Paper-A (Theory)****Time : 3 Hours****Max. Marks : 60****Part-A****Sculpture**

Classical Sculpture—The Guptas—Mathura and Sarnath,
Post-Classical Sculpture—Ellora, Elephanta, Mahabalipuram
Chola Bronzes—Parvati, Shiva Natraja, Vishnu and Kali

Suggested Readings

1. Indian Art A Concise story : Roy C. Craven; Thomas & Hudson, London, 1997.
2. Bharti Murti Kala : Rama Nath Mishra,. Publication Division, Delhi, 1978.
3. Bhartiya Murti Kala : Dr. Rama Nath Mishra, New Delhi, MacMillan, 1978.
4. The Heritage of Indian Art : Vasudeva Agarwala; *Publication Divison*, New Delhi, 1964.
5. Rowland and Benjamin, The Art and Architecture of India.
6. Saraswati S.K., A Survey of Indian Sculpture.
7. Abninish Bahadur Verma, Bhartya Chitrakala Ka Itihas.

FINE ART

Part—B Painting

Early Indian Miniature Painting—Eastern School and Western School.

Mughal School of Art—Akbar, Jahangir and Aurangzeb.

Rajasthani School of Art—Mewar, Kishangarh, Bundi and Kota.

Pahari School of Art—Kangra and Basohli.

Suggested Readings

- | | |
|-------------------|--|
| Barret, D.& Gray, | Painting of India, |
| B.Brown Percy | Indian Painting under the Great Mughals |
| Chandra, Moti | Mewar Painting |
| Karl Khandalwala | Pahari Miniature Painting, |
| Majumdar, | Bhartya Vidya Mandir Series : |
| R.C. (Editor) | The History and Culture of Indian
People, Vol. V, Sculpture and Painting
Section only. |
| Randhawa, M.S. | Kangra Paintings. |
| Chandra, Moti | Indian Painting |
| L.C. Sharma, | Brief History of Indian Painting,
Merut : Geol Publication, 2002. |
| A. B. Verma | Bhartitya Chitra kala ka Ithas,
Bareli Parkash Book Dept, 1996. |
| Chandra Moti | Indian Painting. |
| Sharma L.C. | Indian Painting. |

FINE ART**Paper-B****(Practical) Poster/Book Cover****Time : 5 Hours****Max. Marks : 40**

Prepare creative posters for advertisement study of letter writing in number of colors.

At least six works (04 posters & 02 book covers) will be prepared for internal assessment.

Medium—Poster Colors

Size—½ Imperial

Book Cover Design

Block lettering, Roman lettering, and free hand brush lettering.

To design book cover with illustration title, author's name etc. in any colors number of colors.

Medium—Poster colors

Size—½ Imperial

FINE ART

Paper-C

Head Study

Time: 5 Hours.

Max. Marks : 40

Rendering of human head from life/caste in monochrome colors. Emphasis should be given on structure, volume, proportion, light shade and texture.

Medium—Oil, Pastel Colors and Watercolors.

Size—½ Imperial

Five selected works will be assessed by the teacher concerned.

FINE ART**Paper-D****Landscape Painting (on the spot)****Time: 5 Hours****Max. Marks : 40**

Arrangement of shape based on subjects like human forms and animal forms in landscape settings, emphasis should be given on perspective, color its application in harmony.

Medium—Oil, Postel Colors, and Watercolors

Size— $\frac{1}{2}$ Imperial

At least six works will be prepared for internal assessment (3 realistic landscapes and 3 stylized landscapes based on any traditional Indian style of painting).

50 sketches of the size $\frac{1}{4}$ th imperial based on paper B, C and D in any medium will be submitted.

HISTORY OF ART

Paper-A

Time: 3 Hours

Max. Marks : 100

Part-A

Note:

- i) The question paper, should cover the entire syllabus. It may contain very specific short-answer questions.
- ii) The paper-setter should set 30 questions in all and students shall attempt 20 questions.
- iii) The question can be repeated from the previous question papers.

History of Indian Painting from C. 9th century A. D. to C. 1800 A.D. Development of miniature painting : Eastern India, Western India, Mughals, Rajasthan - Mewar, Bundi, Kishangarh, Pahari-Basohali, Guler, Gandharas, Kangra.

Part-B

History of Indian Sculpture under the Sunga Gandhara and Guptas—Mathura, Somnath, Deogarh, Ajanta.

HISTORY OF ART

Paper - B

Time : 3 Hours

Max. Marks : 100

Note:

- i) The question paper should cover the entire syllabus. It may contain very specific short-answer questions.
- ii) The paper-setter should set 30 questions in all and the students shall attempt 20 questions.
- iii) The question can be repeated from the previous question papers.

Part-A

History of European Painting and Sculpture from C. 1300 A.D. to 1850 A.D.

Renaissance-Masaccio Michelangelo, Raphael, Titian. Donatello, Leonardo-Da-Vinci, Michelangelo, Raphael, Titian. Baroque Caravaggio, Rubens, Rembrandt.

Landscape - Claude Lorraine, John Constable, W. Turner Painters.

Part-B

Theory and Principle of Art Appreciation. Definition of the term miniature, six limbs of Indian Painting and their manifestations in actual works : Indian concept of primary colours and their symbolic meaning. Indian theory of rasa, bhava and beauty.

COMMERCIAL ART**Paper-A**

Theory (Art appreciation & Advertising)	60 Marks
Paper : Layout	60 Marks
Paper C: Poster	60 Marks
Internal Assessment	20 Marks

Paper-A : Theory**Time : 3 Hours****Max. Marks : 60****Note:**

- (i) The question paper should cover the entire syllabus. It may contain very specific short answer type questions.
- (ii) The paper-setter should set 30 questions in all. Students will attempt 20 questions.
- (iii) The question can be repeated from the previous question papers.

Meaning of Advertisement. Different Medias of Advertising. Art and Commercial Art. Commercial Art and Society. Advertising Agency. TV and Newspaper advertisement, Calligraphy. Printing Process. Blocks, Half tone photos and line drawing.

COMMERCIAL ART

Paper - B Layout (Practical)

Time : 5 Hours

Max. Marks : 60

Medium : Layout & Illustrations (Coloured)

Size : Newspaper 4 columns x 25cms.

Magazine 8 $\frac{1}{2}$ " x 11" Illustration 1/4 imperial

Prepare commercial and educational layouts for newspaper in Black and White and for Magazine coloured Layouts. Use of Screens and Transfer letters are allowed.

Prepare illustrations based on stories, human beings in groups, birds and animals, different scenes etc.

Limited references while preparing rough visual are also allowed.

COMMERCIAL ART

Paper - C

Time : 5 Hours

Max. Marks : 60

Poster : or Packing (Practical)

Medium : Poster and Pastel Colours

Size : 1/2 imperial

Maximum 4 colours (Tones can be used for each colour).

Prepare commercial and educational posters for advertisement. Purpose with creative approach. Atleast 5 works will be prepared for internal assessment.

Packaging subjects : Cosmetics, colours, toys etc.

SCULPTURE

Outlines of Test

Paper-I (Theory)

Time : 3 Hours.

Max. Marks : 60

Paper-II (Practical)

Time : 10 Hours.

Max. Marks : 60

Paper-III (Practical)

Time : 8 Hours.

Max. Marks : 60

Internal Assessment

Marks : 20

Total Marks : 200

Syllabus and Courses of Reading

Paper - A (Theory)

Time : 3 Hours

Max. Marks : 60

Note:

- i) The question paper should cover the entire syllabus. It may contain very specific short-answer type questions.
- ii) The paper-setter should set 30 questions in all and students shall attempt 20 questions.
- iii) The question can be repeated from the previous question paper.

A brief History of Sculpture, Indus Valley, Mauryan period, Bharhut, Sanchi, Bodhgaya, Mathura and Gandhara under Kushan period, Gupta Period, Amaravati and Nagar Junikonea sculptures.

SCULPTURE

Paper-B (Practical)

Time : 10 Hours

Max. Marks : 60

Note : Every student, will submit two portraits done in the class as a sessional work. Sessional work will be assessed by the teacher concerned and will be submitted to the University through the Principal of the college.

Head study in clay, modelling from life in life size, these works should be produced in Plastic cast.

Books Recommended :

- | | |
|--------------------------|------------------------------|
| 1. S.K. Sarswati | A Survey of Indian Sculpture |
| 2. Stella Krmisch | Indian Sculptures |
| 3. B.M. Barua | Bharhut |
| 4. S.M. Asgar Ali Kadvi | Moorti Kala Ka Itihas |
| 5. Benjamin Rowland, | The Pelican History of Art |
| 6. Dr. Gyacharu Tripathi | Prachin Bharat Ki Kala |

**STILL PHOTOGRAPHY
&
AUDIO PRODUCTION
(Vocational)**

Scheme of Study

Paper-I : Photo Journalism	Theory 50 marks Practical 60 marks
Paper-II : Still Photography & Camera Accessories	(Including Viva of 10 marks & Internal Assessment of 10 marks)
Paper-III : Photo Lab Techniques	Practical 60 marks
Paper-IV : Project Work	(Internal 30 marks on the job training)
	Total 200 marks

Instructions :

- i) Paper II & III above are Practical Papers & on the spot subject will be given by the external examiner.

STILL PHOTOGRAPHY & AUDIO PRODUCTION

Paper-I Photo Journalism Theory & Technique

Time : 3 Hours

Max. Marks: 50

Note : Instructions for the paper setter :-

Each question paper will consist of three sections as follows:

Section-A will consist of 10 very short answer type questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry one mark; total weightage being 10 marks.

Section-B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry three marks. The total weightage of the section shall be 24 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry eight marks; total weightage of the section being 16 marks.

1. Scope of Photo Journalism
Importance of Picture & Magazine in news Program.
2. Reporting through photos.
(news of parliament sports, development stories, features and interviewing etc).
3. Photo-Visualisation of audience tastes, needs and newsfall.
4. Equipment for Photo-Journalism (Choice of right equipment i.e. lens, Camera, flash raw stock for a particular assignment).

5. Introduction and practice of rapid development finishing, drying.
6. Photographing the right moment (rapid focussing technique: auto focussing of camera (a) lenses (b) range finding (c) Hyper focal distance.
7. Retrieval methods: Photo C.D., Computer C.D. access system, photo Catalogue.
8. Photo editing—continuity, Cropping, Captions, size, placement.
9. Digital Imaging.
10. Photo-Print technology, quality control, Printing techniques, half tones, colour.

STILL PHOTOGRAPHY & AUDIO PRODUCTION

Paper-II

Still Photography and Camera Accessories

(Practical)

(30 periods)

Time : 4 Hours

Max. Marks : 60

1. Shutter types - Their limitations.
2. Circle of confusion its effect on sharpness/blue.
3. Techniques of photographing action.
4. Aperture and its effect, aberration, resolution, depth of field, depth of focus.
5. Lenses/optical materials, lens coating, plastics/glass, normal standard, tele lens, wide, zoom, micro, macro lens, laws governing depths of field.
6. Supplementary lenses.
7. Basic reprography.
8. Flash-type, working, exposure.
9. Exposure: method of estimations, types of exposure meters & their comparison, reciprocity failure.
10. Types of films & their characteristics filters: types, use, optical limitation, filter factor.

STILL PHOTOGRAPHY & AUDIO PRODUCTION

Paper-III

Photo lab techniques, Computerised Photo finishing, Colour photography and Lighting (Practical)

Processing and Printing

Time: 4 Hours

Max. Marks : 60

Processing and Printing

1. Photolab techniques

5 Periods

- types of enlarger.
- types of light sources for enlarger.
- working of an enlarger
- condens lens vs diffuser enlarger.
- lenses for enlarger.

2. Computerised Photo finishing

5 Periods

3. Constituents of developers

10 Periods

- i) Techniques of development
- ii) Types of developers.
- iii) Effect of over/under development.
- iv) Effect of temperature on development.
- v) Effect of agitation on development.
- vi) Types of printing papers, grades, Textures/weights colour/surfaces.
- vii) Mono bath development.
- viii) Instant Photography.

4. Special Effects in Printing

5 Periods.

5. Special Effects in Processing

5 Periods.

Colour Photography and Lighting

30 Periods

- 1. Colour temperature (Mired & Kelvin Scale)**
 - Tripac film
 - Colour additive process.
 - Colour subtractive process.
- 2. Filter for colour**
 - U.V. filter.
 - Polarising
 - Sky lighting
 - Colour compensation filter
 - Colour conversation filter.
- 3. Lighting**
 - Shortcoming of single flash unit.
 - their correction.
- 4. Advance printing techniques**
 - removal of residue
 - use of Water/chemical etc.
 - Toning.
 - Basic sensitometry.
 - optical density.
 - characteristic curves.
 - deniteineteur etc.
- 5. Flash techniques, Lighting the subject, Light source, Quality of light, Meters**

STILL PHOTOGRAPHY & AUDIO PRODUCTION

Paper-IV Project Work

Max. Marks: 30

On the job training:

**Project work based on Social and
Educational topics, like**

- 1) Photo essay.
- 2) Social Landscape.
- 3) Advertising.
- 4) Dance & Stage Photography.
- 5) Effects of filters on colour films.
- 6) Shooting on different lighting conditions.

On the job training is totally based on Internal Assessment.

Marks will be given by the internal examiner (Project Incharge).

DRAMATIC ART

Subject : Theatre Art

Time : 3 Hours	Max. Marks : 200
Theory	Marks :100
Practical	Marks : 100
Internal Assessment	Practical : 20
External Assessment	Theory : 100
	Practical : 80

Instructions for the Paper Setters :

1. Paper Setter will set 10 questions.
2. The candidate may be asked to attempt 5 questions.
3. All questions carry equal marks.

Theory	Paper-A	Marks:100
---------------	----------------	------------------

1. Introduction to Indian & Asian Theatre
2. Regional Dramatic History - both professional and Amateur:-
3. Introduction to Folk Theatre forms of India Jatra, Tamasha, Nautanki, Ramlila and Bhavai.
4. Drama as an integrated and inter disciplinary art form

Practical	Paper-B	Marks :100
------------------	----------------	-------------------

1. Definition of Acting.
2. Body Exercises,
Yoga in relation to theatre -10 postures, Exercises pertaining to eye, Abhinaya Mime and improvisations.
3. Make-up
Straight and Character make-up.
4. Make up in different Media -Stage, T.V., Films,

5. Principles of Colour Design, Colour symbolism
6. Designing costumes for one mythological and social play.
7. Pitch and volume
8. Dialogue Delivery - rising and falling inflections
9. Tongue twisting exercises and breathing exercises
10. Voice modulation -weeping, coughing, shouting, yelling etc.
11. Speech - Narration,Commentary, News reading, addressing audience, story telling, poetry recitation.

- | | | |
|--------|---------------------|---|
| (ii) | Hardness | Definition
Moh's scale of hardness
Application in Gemology +
Lapidary work |
| (iii) | Specific Gravity | Definition
Determination of
specific gravity by heavy liquid
method |
| 6. | Gemology - | Its optical properties |
| (i) | Nature of Light | |
| (ii) | Reflection of Light | Laws of reflection, Lusture,
Screen, cat's eye effect, star a
Effect |
| (iii) | Reflection of Light | Reflection Index, total internal,
reflection, double Refraction and
brefringence, fire-effect in
Gemstones |
| (iv) | Color of gemstone | |
| (v) | Absorption | |
| (vi) | Dichrosim | |
| (vii) | Absorption Spectrum | |
| (viii) | Play of color | |
| 7. | Cuts of Gemstone - | Designing a cut |
| | | - Catachon-cut |
| | | - Step-cut |
| | | - Scissors-cut |
| | | - Rose-cut |
| | | - Faceted-beads |

GEMOLOGY AND JEWELLERY DESIGN**Paper-B****Practical****Marks : 100****Internal Assessment : 40****Annual work : 20****Time : 6 Hrs.****Project Work : 20**

Development of a design of a bangle, bracelet, pendent, ring, broache, armlet etc. using mark-making, sawing, soldering, tube-making, bead-making, twisting, stone-setting techniques.

Exercises on

- (i) Mark-Making
- (ii) Filing
- (iii) Sawing
- (iv) Soldering
- (v) Puzzles-work
- (vi) Tube-making
- (vii) Bead-making
- (viii) Twisting
- (ix) Different styles of stone-setting like prong, bezel, channel etc.
- (x) Identification of gems.

Development of Designs of bangles, bracelets, Pendants, rings, broaches, armlets etc. using above Techniques.

COMMERCE

Paper: A Banking and Insurance

Paper: B Salesmanship

Each paper carries 100 Marks. It is required that the candidate passes each paper separately.

Paper A

Banking & Insurance

Time : 3 Hours

Max. Marks : 100

Note : 1. The candidates are allowed to use simple (Non-scientific) calculators.

2. The question paper covering the entire course shall be divided into three sections as follows :

Section A : It will consist of 10 very short answer type questions with answers to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section B : It will consist of short answer type question with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section C : It will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks, total weightage of the section being 32 marks.

Teaching hours : 80 periods of 45 minutes each.

Introduction to Banking Definition, types and functions of Banks. Brief outlines of the history of Indian Banking, Banker customer relations. Deposit mobilisation. Types of deposits, Procedure of opening a bank account. Types of account holders, Trends in deposit mobilisation in india.

Loans and advances : Forms of loans, overdraft, cash credit, joint financing, Hire purchase advances, Bills purchased/discounted. Principles of sound lending. Application for a bank loan. Analysis of credit worthiness of borrower, security and margin requirements. Modes of creating charges. Pledge, hypothecation, simple and equitable mortgages, Guarantees and indemnities. Trends in bank lending in India, Credit creation system by commercial bank.

Negotiable instruments, cheques-crossing and endorsements, payments of cheques, stop payment instruction, role of clearing house, Collection of cheques. Dishonour of cheques, Bills of Exchange-Discounting of Bills, Inland Remittances. Demand Draft, mail transfers, Telegraphic transfers etc.

Definition of insurance, advantages of insurance, kinds of insurance and forms of insurance organisation. Essentials of insurance contract, basic principles of insurance. Utmost good faith, insurable interest, indemnity subrogation, contribution, proximate cause.

Introduction to general insurance-growth of general insurance, functions of insurance and contracts of insurance, Basic principles. Fire insurance, Introduction, standard form policy, scope of cover.

Books Recommended

1. Dorfman, "Introduction to Risk Management and Insurance", 8th Edition, Prentice Hall of India, 2007.
2. Rejda, "Principles of Risk Management and Insurance", Pearson Education, 2007.
3. Tripathy and Pal, "Insurance and Risk Management", Prentice Hall of India, 2007.
4. Gupta P.K. "Insurance and Risk Management", Himalaya Publishing House, 2007.
5. Paul Justin and Suresh Padamalatha, "Management of Banking and Financial Services", Pearson Education, 2007.
6. Shekhar K.C. and Sekhar Lakshmy, "Banking Theory and Practice", Vikas Publications, 2007.

COMMERCE

Paper B Salesmanship

Time : 3 Hours

Max. Marks : 100

Note: i) The candidates are allowed to use simple (Non-scientific) calculators.

ii) The question paper covering the entire course shall be divided into three sections as follows :

Section A : It will consist of 10 very short answer type questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section B : It will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section C : It will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks, total weightage of the section being 32 marks.

Theory : Teaching Hours : 60 periods of 45 minutes each.

Selling- The concept, role of society, careers in selling, characteristics of sales careers, types of selling jobs; types of sales people
Salesmanship-Definition, nature and scope; origin and development; salesmanship a science or an art.

Salesman-qualities-physical and mental, salesman's duties and responsibilities, role in the organisation.

Features, qualities and work performed by counter salesman
travelling salesman, speciality of salesman, staple salesman,
Manufacturers salesman, wholesaler's salesman, Exporters

Salesman, service salesman and Missionary Salesman. Strengths and limitation of personal selling. Salesman and his territory; co-ordination of selling efforts.

Significant aspects of human behaviours, buying motives, the art of persuasion, difference between prospects and customer.

A brief introduction to selling theories, selling process, Determining selling objectives, Prospecting-definition, nature and methods, some prospecting system.

Planning the sale, objective, sources of information, sizing up the prospect, the approach-importance and objectives gaining the interview, methods of approaching prospect making approach effective. Sales-presentation-objective and strategies of presentation. Demonstration nature, importance and timing, essentials of good demonstration.

Handling objection-types of objections, methods of handling objections. Closing the sales call tactics and methods, ethical problems in selling.

Recruitment and selection of salesman, training, compensation, performance, Appraisal of salesman, Salesforce information system.

Suggested Readings :

1. Gosney and Bolhm, "Customer Relationship Management", Prentice Hall of India, 2007.
2. Dasgupta, "Sales Management : In the Indian Perspective", Prentice Hall of India, 2007.
3. Kapoor Ramneek, "Fundamentals of Sales Management", Mac Millan of Indian Ltd., 2007.
4. Coughlan, "Marketing Channels", Person Education, 2007.
5. Sahu P.K. and Raut Kishore C., "Sales and Distribution Management", Vikas Publications, 2007.

ECONOMICS

Paper-A

Macroeconomics

Time : 3 Hours

Max. Marks : 100

Note : (i) The Candidates are allowed to use simple (Non-Scientific) calculators.

(ii) Each question paper will consist of three sections as follows :

Section-A : It will consist of 10 very short questions with answer to each question upto *five lines* in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B : It will consist of short answer questions with answer to each question upto *two pages* in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C : It will consist of essay type questions with answer to each question upto *5 pages* in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Distinction between-Micro and Macro Economics. Determination of Income and Employment. Classical and Keynesian models; Say's Law of Market and aggregate demand and supply.

Consumption functions; average (short-run and long run); average and marginal propensity to consume; static and dynamic multipliers. Marginal Efficiency of Capital. Investment : Meaning, Demand schedules and factors affecting investment decision.

Trade cycles-meaning, characteristics and phases. Accelerator and multiplier-accelerator interaction. Samuelson and Hicks Models.

Money : Its functions and role. Money and Capital Markets (Introductory). Quantity Theory of Money. Fisher's and Cambridge's equations. Liquidity preference theory.

Banking : Definitions of banks. Credit creation and credit control.

Inflation : Concept, causes and cures. Monetary and Fiscal Policies for stabilisation. Inflation-unemployment Trade-off (only Phillips' contribution).

Recommended Texts :

1. Shapiro, E. Macroeconomic Analysis, Harcourt, Brach and World, New York, 1978.
2. Dernaburg, T.F. and MC Dougall D.M., Macroeconomics : the Measurement, Analysis and Control of Aggregate Economic Activity, McGraw-Hill, Kogakusha, Tokyo, 1972.
3. Gupta, S.B. Monetary Economics : Institutions, Theory and Policy, S. Chand, New Delhi, 2000.

ECONOMICS

Paper-B

International Economics and Public Finance

Time : 3 Hours

Max. Marks : 100

Note : (i) The candidates are allowed to use simple (Non-Scientific) calculators.

(ii) Each question paper may consist of three sections as follows :

Section-A : It will consist of 10 very short answer questions with answer to each question upto *five lines* in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B : It will consist of short answer questions with answer to each question upto *two pages* in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C : It will consist of essay type questions with answer to each question upto *5 pages* in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry sixteen marks. The total weightage of the section being 32 marks.

International Trade : Internal and External Trade. Classical and Heckscher. Ohlin Theories, Gains from Trade, Terms of Trade, (gross, net and income terms of trade). Trade and economic development.

Commercial Policy : Free trade vs. protection, rationale of a protectionist policy in less developed area. GATT & WTO (Introductory).

Balance of Payments : Meaning and components of balance of payments, Methods for correcting adverse balance of payments, devaluation and direct control.

Rate of exchange : Meaning and determination, Fixed and flexible exchange rates.

International Economic Institution—IMF, and World Bank— their working and achievements.

Public Finance : Nature, scope importance.

Public Expenditure : Meaning, principles, importance, effect of public expenditure on production and distribution.

Taxes : Meaning, classification, features of a good taxation system, canons of taxation, incidence and impact of taxation.

Public Debt : Meaning, objectives, importance, its burden.

Recommended Texts

1. Sodersten, B.O. : International Economics, Macmillan, London, 1980.
2. Salvatore, B. : International Economics (1990), Macmillan Publishing Company, New York, 1975.
3. Maclean and Snowdown : International Institutions in Trade and Finance (1981).
4. Aggarwal, M.R. : International Institutions and Development in Developing Countries, Deep & Deep Publications, New Delhi, 2001.

QUANTITATIVE TECHNIQUES

Paper A

Time : 3 Hours

Max. Marks : 100

Note :i) The candidates are allowed to use simple (Non-Scientific) calculator.

ii) Each question paper may consist of three sections as follows :

Section A : It will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section B : It will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section C : It will consist of essay type questions with answer to each question upto five pages in length. Four questions will be set by the examiner and candidate will be required to attempt two. Each question will carry sixteen marks. The total weightage of the section being 32 marks.

Differentiation : Maxima and minima of functions, partial derivatives, higher order partial derivatives.

Integration : Indefinite integrals. Integration by partial fractions. Integration by substitution, Integration by parts, definite integrals. Application of Integration in consumer surplus and producer surplus.

Matrices : Definition, types, addition, subtraction and multiplication of matrices, scalar multiplication, transposition, determinants and their properties, minors and co-factors, Inverse of matrix, Cramer's rule for solution of simultaneous system of equations.

Linear programming : Formulation of problem, assumptions, Graphical solution, simplex method. Use of artificial variables, Dual Simplex Method.

Input-Output Analysis : Basic concepts, Input-output tables for closed and open economies, Leontief basic input-output model, applications of Input-Output analysis.

Note : Economic Applications of the above techniques may also be asked.

Recommended Texts

1. Yamane Taro : Mathematics for Economics, Prentice Hall of India, New Delhi, 1995.
2. Allen R.G.D. : Mathematical Analysis for Economists, ELBS and Macmillan Press, 1971.
3. Chaing, A. : Fundamental Methods of Mathematical Economics.

QUANTITATIVE TECHNIQUES

Paper-B

Time: 3 Hours

Max. Marks: 100

Note :i) The Candidates are allowed to use Simple (Non-scientific) Calculators.

ii) Instructions for the paper setter :-

Each question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer type questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Multiple regression, concepts, estimation, Non-Linear regressions.

Partial and multiple correlation; concepts derivations, various growth curves, (modified exponential, Gempertz, logistic).

Analysis of variance: Introduction, assumptions techniques of analyzing variance, analysis of variance in one-way and two way classification.

Random variables: Concept, type, probability density and mass functions, expectation (meaning and properties), moments, moment generating function and characteristic function.

Probability Distributions : Introduction to Binomial, Poisson and normal distribution. Properties, applications, fitting of these distributions to given data.

Books Recommended

- | | |
|-----------------------------|---|
| 1. Mood Graybill and Boes | Introduction to the Theory of Statistics (1974) |
| 2. Snedecor and Cochran | Statistical Methods |
| 3. Croxton Cowden and Klein | Applied General Statistics (I 973). |
| 4. Kapur and Gupta | Fundamentals of Mathematical Statistics |
| 5. Murray R. Spiegel | Theory and Problems Statistics (1972). |

INDUSTRIAL ECONOMICS

Paper-A

Theory of Firm and Market Structure

Time: 3 Hours

Max. Marks : 100

Note : (i) The candidates are allowed to use Simple (Non-scientific) Calculators.

(ii) Instructions for the paper setter :-

Each question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer type questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Theory of the firm, Pricing in theory-pricing. under collusive and non-collusive oligopoly.

Pricing in practice, full cost pricing, Marginal cost pricing and limit pricing.

Organisational forms of the firm, ownership, control and alternative objectives of the firm.

Growth of the firm, Acquisition, diversification, merger, innovation. Constraints on growth, managerial and financial.

Market Structure: sellers concentration, product differentiation entry conditions and economies of scale.

Recommended Texts

1. Devine. P.A. et. al. An Introduction to Industrial Economics.
2. Koutosoyianinis. A. Modern Microeconomics.
3. Barthwal R.R. Industrial Economics,
An Introductory text Book.

INDUSTRIAL ECONOMICS

Paper-B

INDUSTRIAL PATTERNS, POLICY AND CONTROLS

Time: 3 Hours

Max. Marks : 100

Note :(i) The Candidates are allowed to use Simple (Non-scientific) Calculators.

(ii) Instructions for the paper setter :-

Each question paper may consist of three sections as follows:

Section-A will consist of 10 very short answer type questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Theories of Industrial Location : Contribution of Weber Sargent Florence and Plander. Factors affecting industrial location.

Patterns of industrialization, Centralised versus Balanced regional development.

Location policy in India since independence. Industrial concentration and dispersal in India.

Measures to control industrial concentration; licensing, control of capital issue, controlling monopolies and restrictive trade practices.

Foreign exchange regulation Act. Nationalization, price controls, incentives and disincentives.

Recommended Books:

1. Barthwal, R.R. Industrial Economics—An Introductory Text Book.
2. Kuchhal, S.C. The Industrial Economy of India.
3. Chemilam, F. Industrial Economics: Indian Perspective.

AGRICULTURAL ECONOMICS AND MARKETING

Paper - A

Time : 3 Hours

Max. Marks : 100

Note : (i) The Candidates are allowed to use Simple (Non-scientific) Calculators.

(ii) Instructions for the paper setter :-

Each question paper will consist of three sections as follows :

Section-A will consist of 10 very short answer type questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry sixteen marks; total weightage of the section being 32 marks.

Institutional Changes, land reforms, consolidation of holdings abolition of intermediaries, ceiling on land-holdings-need, nature and evaluation with special reference to India.

New Agricultural Technology, its nature, role adoption and impact on out-put, employment and income distribution.

Agricultural Price-Policy demand and supply of Agricultural products, evolution of price policy, function objectives, instruments, determination, impact on income, output and employment, price

agriculture and non-agricultural price policy in India. Institution and Policy in Agriculture.

Agricultural Finance-Need for agricultural credit agencies, role of finance in developing agriculture, role of co-operative commercial banks RRBS, role of NABARD.

Self help groups, joint liability groups. Private Sector, Public Sector, Service Area Approach Lead Bank scheme, Kisan Credit Card. Growth in Agricultural credit, Repayment performance, Principals of credit worthiness.

Agricultural taxation case for agriculture taxation, case for special treatment, effect of agricultural taxation on economic development agricultural taxation in India.

Readings :

1. A.S. Kahlon and D.S. Tyagi Agricultural Price Policy in India, Allied Publishers, New Delhi (1983).
2. Rajbans Kaur Agricultural Price Policy in Economic Development, Kalyani Publishers, New Delhi (1975).
3. P.C. Josh Land Reforms in India - Trends and Perspectives, Allied Publishers, Bombay (1976).
4. C.B. Memoria Agricultural Problems of India, Kitab Mahal (1985).

AGRICULTURAL ECONOMICS AND MARKETING

Paper-B

Time : 3 Hours

Max. Marks : 100

Note :(i) The candidates are allowed to use simple (Non-Scientific) calculator.

(ii) Each question paper may consist of three sections as follows :

Section A : It will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section B : It will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry six marks. The total weightage of the section shall be 48 marks.

Section C : It will consist of essay type questions with answer to each question upto five pages in length. Four questions will be set by the examiner and candidate will be required to attempt two. Each question will carry sixteen marks. The total weightage of the section being 32 marks.

Concept of Marketing; marketed and marketable surplus, structure conduct and performance of agricultural marketing, supply chain.

Marketing margin spread and various channels of markets of different food grains supply chain.

Food grains marketing system in India with special reference to Punjab.

Title Agri./Marketing - Efficiency and Institutions.

Stage, intervention in food grains, marketing, role of different agencies (FCI, PUNSUP, MARKFED, State Deptt.) and the impact on market efficiency.

Financing of agricultural markets, Role of Directorate of Marketing and inspection. Role of State Marketing Board, Public Private Partnership in Marketing.

Recommended Texts

1. Moore, J.R., Johl, S.S. and Khusro, A.M. : *Indian Foodgrains Marketing*, 1973.
2. Memoria, C.B. : *Principles and Practice of Marketing in India*, 1979.
3. Kainth, G.S. : *Foodgrains Marketing System in India, Structure and Conduct*, Associated Publishing House, 1982.
4. Jain, S.C. : *Principles and Practice of Agricultural Marketing in India*.
5. Acharya, S.S. and Aggarwal, N.L. : *Marketing of Farm Product in India*, Oxford & IBM Publication.

RURAL DEVELOPMENT

Paper A

Rural Marketing, Exports, Indebtedness & Banking

Time : 3 Hours

Max. Marks : 70

Instructions for the paper setter :-

Note : i) The candidates are allowed to use simple (Non-Scientific) calculators.

ii) Each question paper may consist of three sections as follows :

Section A is compulsory and shall consist of 10 short answer type questions of 1½ marks each with a total weightage of 15 marks. The candidates are required to answer each question in/upto five lines.

Section B shall consist of 12 questions and the candidates will be required to attempt any eight. Each question will carry four marks with a total weightage of 32 marks. The candidates are required to answer each question in/upto two pages.

Section C shall consist of four questions and the candidates will be required to attempt any two. Each question shall carry 1½ marks with a total weightage of 23 marks. The candidates are required to answer each question in/upto five pages.

Marketing concept and types, importance and features; Defects and consequences; Co-operative Marketing; Government and Marketing; Sales Promotion.

Agricultural Exports : Agro Processing; Present Position, Problems and Policy.

Agriculture Prices : Market forces and Government intervention; Trends and causes of Rise and Fluctuations; Stabilisation and policy - Buffer-Stocks and Imports.

Rural Indebtedness : Nature, magnitude and consequences; causes and remedial measure. Commercial Banks, Magnitude of help, assessment of performance; Regional Rural Banks.

Cooperative Credit : Importance and Growth, Weaknesses and Improvements.

Students would be given an elementary exposure to the subject.

Suggested Readings :

1. A.N. Aggarwal : *Problems, Progress and Prospects*, Indian Agriculture 419 to 465 pages on marketing.
2. A.N. Aggarwal & Kundan Lal : Rural Economy of India
3. Sadhu and Singh : *Fundamentals of Agricultural Economics*, 227 to 251 pages on Agricultural Marketing
4. K.B. Mukherjee : *Agricultural Marketing in India*
5. Kohl, Richard L. : *Marketing of Agricultural Products*, Prentice Hall of India, 2002.
6. S.S. Acharya & N.D. Aggarwal : *Agricultural Marketing in India*, Third Edition, Oxford and ivh publishers, New Delhi, 1999.

Rural Development
Paper-B
Crop Husbandry and Principle Practices

Time : 3 Hours

Max. Marks : 70

Instructions for paper setter :

Note :i) The candidates are allowed to use simple (Non-Scientific) calculators.

ii) Each question paper may consist of three sections as follows :

Section A is compulsory and shall consist of 10 short answer type questions of 1½ marks each with a total weightage of 15 marks. The Candidates are required to answer each question in/upto five lines.

Section B shall consist of 12 questions and the candidates will be required to attempt any eight. Each question will carry four marks with a total weightage of 32 marks. The candidates are required to answer each question in/upto two pages.

Section C shall consist of four questions and the candidates will be required to attempt any two. Each question shall carry 1½ marks with a total weightage of 23 marks. The candidates are required to answer each question in/upto five pages.

Agronomy - Definition and its scope. Classification of field crops. Crops rotations/essential nutrients for plant growth inorganic and organic measures including green manuring.

Weeds and losses caused by the Common Kharif and Rabi. Weeds and methods of their control.

Role of water in crop production for irrigation requirement of important crops.

Scientific production of food crops, rice, maize, wheat and gram with special reference to their varieties, seed bed preparation, seed rate, method of sowing, weed control, irrigation and fertilizer requirement.

Scientific production of other crops, cotton, groundnut, sugarcane, raja and barseem harstem with special reference to their varieties, seed bed preparation, seed rate, method of sowing, weed control, irrigation and fertilizer requirement.

Practicals

Total Teaching Periods : 75 Max. Marks : 60

Identification of crops and their seeds. Familiarisation with common weeds, fertilizers, farm hand tools and implements, Demonstration of rural operations in different crops.

Note : 6 period per week will be devoted each to theory and practicals. Each period will be at least of 45 minutes duration.

Suggested Readings

1. Thakur, C. : Scientific Crop Production, Vol. I.
2. Indian Council of : Hand Book of Agriculture
Agricultural Research
3. Yawlker, K.B., : Manures and Fertilizers
Aggarwal,
J.P. & Bokde, S.
4. S.S. Acharya & : Agricultural Marketing in India,
N.D. Aggarwal Oxford

DAIRY FARMING**(Vocational)****Paper-A****Theory****Time : 3 Hours****Max. Marks: 100****Periods per week : Theory : 6****Instructions for the paper setters :**

1. Question paper should be set strictly according to the syllabus and in Punjabi Language.
2. The Language of questions should be straight and simple.
3. Theory paper shall consist of three parts :-
 - (a) Ten short compulsory questions of two marks each requiring short replies up to five line each. (Total marks $10 \times 2 = 20$ marks)
 - (b) Ten questions of six marks each requiring short replies shall be asked. The candidate has the choice to attempt eight questions (Total marks $8 \times 6 = 48$)
 - (c) Four questions of descriptive type requiring five pages for each answer shall be asked. The candidate has the choice to attempt two questions (Total marks $16 \times 3 = 32$)
4. The question paper should cover the whole syllabus

General

Factors affecting quality and quantity of milk production. Essentials of clean milk production. Sources of contamination of milk. Milking machine. Importance of milk chilling.

Management

Breeding cycle; castration of male calves; methods and advantages of castration; control and restraining of animals, casting of animal. Estimation of age and body weight of animals; dry period; methods of milking, loose and stall feeding, grazing, use of water in

dairy farming; water requirements of dairy animals; factors affecting water intake. Routine dairy farm operations, labour requirement for various farm operations.

Housing

The main objectives of housing, advantages of proper housing, factors affecting construction of dairy farm building, methods of housing dairy animals; advantages and disadvantages of various methods of housing; housing requirements of dairy animals.

Feeding

Food nutrients, functions of various nutrients in animal body. Energy value of feeds, Factors affecting nutritive value of feeds. Requirements of nutrients in different stages of age, production, season and pregnancy. Formulation of rations, feed, pellets, Transportation and storage of cattle feed, hay and wheat bhusa enrichment. Availability of forages in different seasons. Schedule of feeding dairy animals.

Breeding

Importance of sire and dam. Pedigree selection, heredity, twins and free. Detection of heat in cows and buffaloes. Economic value of age at first calving and calving interval. Sterility and infertility, factors affecting infertility, causes of sterility in male and female. Merits and demerits of artificial insemination. Infections caused by natural service and artificial insemination. Factors affecting success in artificial insemination. Principles of upgrading of cattle. Various systems of breeding, i.e. inbreeding, outbreeding.

DAIRY FARMING (Vocational)**Paper-B****Practical****Time : 3 Hours****Max.Marks : 100****Periods per week :4****Practical : 80****Internal Ass. : 20****Distribution of Marks**

Assignment	20 Marks
Practical Note Book	20 Marks
Four Visits to Dairy Farm	20 Marks
Oral Examination	10 Marks
Written test	10 Marks
Internal Assessment	20 Marks
Total :	100 marks

Syllabus :

Note: Preparation of practical notebook on the basis of work done in the laboratory practical, Weekly write-up of daily job assignments is compulsory.

1. Visits to Dairy farms having machine milking, fodder harvesting, feed mixing etc., Veterinary hospitals, Milk collection centre and milk plant.
2. Identification of various feedstuffs, medicines, chemicals, equipment, instruments, photographs related to dairy farming.
3. Revision of work done during previous session.
4. Practice in age determination, body weight, disbudding, casting, cream separation, use of lactometer. Fat and S.N.F. estimation of milk sample.

**OFFICE MANAGEMENT AND SECRETARIAL
PRACTICE
(Vocational)**

Year	Paper	Marks		
		Th.	Pract.	Int. Ass
2nd Year	III (Office Practice)	40	40	20
	IV (Type writing & Shorthand in English only)	40	40	20

On the Job Training of 4 weeks

1. The following pattern of setting of question paper shall be observed :
 - (a) For Papers-I,II,IV & VI : The question paper will be divided into two parts. In part-I, 12 short questions will be set and candidates will be expected to attempt 10 questions. Each question will carry 2 marks. In Part-II 8 questions will be set and the candidates will be expected to attempt 4 questions. Each question will carry 5 marks.
 - (b) For Papers : III & V : The question paper will be divided into two parts. In part-I, 10 very short answer type questions will set and the candidates will be expected to attempt 10 questions. Each question will carry 2 marks. In Part-II, 8 essay type questions will be set and candidates will be expected to attempt 4 questions. Each question will carry 5 marks.
2. The Internal Assessment in respect of theory papers shall be based on tests, assignment and quizzes. In case of practical papers it will be based on maintainance of records, actual conduct of practical performance etc.

3. A consolidated report "**On the Job Training**" after Ist year and II Year shall be prepared by every student and must be submitted in the college concerned upto Sep. 30. The consolidated report will be evaluated by the external examiner and shall be given the grades as follows :
- O - Outstanding
 - A - Very good
 - B - Good
 - C - Average
 - D - Unsatisfactory

In case, the Training Report is rated as unsatisfactory, the candidate shall have to submit it again in incorporating the changes suggested by the examiner within one month from the date of intimation to the candidate by the concerned college.

Paper - III
Office Practice

Time : 3 Hours

Max. Marks (Theory) : 40

(Pract) : 40

Int.Ass. : 20

Note : The candidates are allowed to use simple (Non-Scientific) calculators.

Part-I

Office-meaning, function, importance, concept of an organisation Centralisation Vs. decentralisation of office services, Principal departments of a modern office-correspondence, typing and duplicating, filing, mailing, general office.

Filing and Indexing :

Filing—meaning and importance, essentials of a good filing system, centralised Vs. decentralised filing system, methods of filing equipments.

Office Applications and Machines :

A study of various types of commonly used appliances and machines-duplicator, accounting mechanism calculator addressing machines, punch card machines, franking machines, weighing and folding machines, sealing machine, dictaphone cheque protector, cash register, coin sorter, time recorder and such other machines.

Modern Office Machines :

Photocopier, Computer Word Processor, Scanner their operation and use in the office set up. Introduction of computer-importance, history and types of computers, hardware and software, computer operation. Word Processor-Concept of word processing, creating and editing documents, taking print out DO'S and DON'T'S in details from application point of view. Scanner-Introduction of Scanner, its importance and use in offices.

Part-II

Mailing Department :

Meaning and importance of mail, centralisation of mail, handling of work-its advantages, mail room equipment, sorting table and racks, letter openers, time and date stamps, postal franking machine, addressing machine, mailing scales, post offices guide.

Handling Mail :

Inward Mail-Receiving, sorting, opening, recording, marking, distributing.

Outward Mail :

Folding of letters, preparation of envelopes, sorting, scaling, weighing, stamping, entering, letter sent book or peon book. Despatching rail parcel service, air mail service, courier service.

Office Correspondence :

Essentials of a good letter, drafting of business letter, Enquiry, quotation, order, advice, making payment, trade reference, complaints, circular letters, follow up letters, official letters, semi officials.

Assisting Visitors :

Office etiquetes, effective use of language, preparation of appointment schedules and maintaining visitors' diary furnishing desired information, instructing co-workers.

Practical

Office Practice

1. Filing and Indexing :

Practice in filing and indexing-alphabeticals numerically, arranging files subjectwise, searching a particular file, transforming of old files for future references, weeding out of records, developing card indexing system for the college library.

2. Computer Software as MS Office, Windows-98 etc. be obliqued with typewriter e-mail for practical on Recording of Inward outward mail.....

3. Recording of inward/outward mail—e-mail.

4. Or Windows-98/Electric Typewriter.

5. Drafting of the following (on the basis of actual information)

- Application for a job
- Interview letter
- Appointment letter
- Letter of enquiry
- Office notes
- Office order
- Issue of tenders

6. Recording of inward/outward mail.

OFFICE MANAGEMENT AND SECRETARIAL PRACTICE

Paper-IV

Typing & Shorthand in English Only

Time : 3 Hours

Max. Marks : (Theory) : 40

(Pract) : 40

(Int.Assmt) : 20

Part-I

Carbon Manifolding

Carbon papers and their kinds, carrying out corrections on carbon copies : use of eraser, eraser, erasing shield, white correcting fluid etc. squeezing and spreading, carbon economy.

Stencil Cutting and duplicating

Techniques of stencil cutting, correction of errors on stencil papers use of correcting fluid, graft methods and use of gumcoated paper method signatures and lining on stencil paper with the help of stylus pen and backing sheet.

Duplicator-kinds of duplicators taking out copies on duplicators, duplicating ink.

Electric and electronic typewriters

Importance and use of electric typewriters.

Advantages of electric typewriters.

Salient features of Electronic typewriters.

Correspondence

-Bux Business

-Official

Practical

Carbon Manifolding

Taking out copies with the help of carbon papers. Carrying out corrections on carbon copies, carrying out corrections with squeezing and spreading methods, correction of drafts.

Stencil Cutting and Duplicating

Stencil cutting, carrying out corrections on stencil papers with different methods. Cyclostyling.

Electric and electronics typewriters.

Practice on above typewriters.

Correspondence

Typewriting of business letters.

Typewriting of official letters.

Part-II

Paper : Shorthand

Extended use of certain consonant :

The Aspirate, tick and dot 'H'

Downward and upward 'R' upward 'sh'

Compound consonants, Medical Semi-circles.

Halving and doubling principle :

Halving-general principles and their exception, use of halving-principle in phraseography, doubling-general principles and their exception, use of doubling, principle in phraseography.

Prefixes, Suffixes, Contractions and Intersections :

Prefixes and Suffixes—meaning and uses, list of prefixes and suffixes, contractions : general rules and list of contractions.

Intersections—meaning and uses, list of intersections, writing of figures in shorthand.

Note : Taking techniques and transcription on typewriter.**Practicals****Paper : Short Hand**

1. Practising the use of halving and doubling principles, prefixes, suffixes from text book.
2. Repeated practice of contraction and intersection.
3. Taking dictation of passages for five minutes at a speed of 60 w.p.m. and transcription of the same on typewriter.
4. Taking dictation from tape-recorder.
5. Taking dictation from different voices.
6. Recording class lectures.

Probable work-sites where On-the-job Training may be organised

- Government Department Offices.
- Business/Commercial Organisation.
- Industrial Establishments
- Hospitals.
- Educational-Institutions.
- Railways, Airlines and other Transport undertakings
- Banking and Insurance Organisation.
- Parliament and State Assemblies.
- Job-work Centres.

This is tentative list. Principal may be given the complete freedom in selecting any organisation. However, While selecting the institution care should be taken to select such institution who show willingness to accept the trainees and have the scope for providing variety of experiences in Office Practice and stenography area.

Suggested Department/Section for On-the Job training at the end of first year :

Department/Section	No. of weeks
1. Reception/inward and out ward mail	1
2. Office establishment/filing/office equipment and production	1
3. Stenography work and typing with various executives and sections.	1
4. Sales, Advertising and Publicity, stores and accounts	1
	4 weeks

Suggested Department/Section for on-the-job training at the end of Second Year.

Department/Section	No. of weeks
1. Private Secretaries of various executives in different departments of the organisation.	1
2. Office establishment/company. Secretary. Share Department	1
3. Accounts Department/Time Office/Reception.	1
4. Typing Pool/Advertising/Publicity.	1
	4 weeks

Note : The purpose of the on-the-job training is to expose the student to the world of work and provide professional experience in real situation. The student shall have to maintain a diary and submit a detailed report of his activities which shall be certified by a responsible officer of the establishment. However, the teacher will also supervise the on-the-job training programme.

Suggested Reading Materials

(a) Shorthand/Books

Title	Publisher
1. Pitman Shorthand Dictionary	A.H.Wheeler & Company.
2. Pitman Shorthand Reading and Dictation Exercises	Pitman Shorthand School New Delhi.
3. Shorthand made easy for beginners with key	O.P. Kathiall
4. Hoo to start shorthand Speed building	-do- & Edger Thrope
5. How to avoid confusion in outline in pitman shorthand	-do-
6. A comprehensive List of Granalongues & contractions	-O.P. Kuthall

(b) Type Writing :

Title	Publisher
1. H.A. Mehta Typewriting complete course Wadala (East)	Mehta Publishing Corporation, Basant Mahal. Bombay-4000037
2. H.A. Mehta Typewriting Office Practice set	Mehta Publishing Corporation, Basant Mahal. Wadala (East) Bombay-4000037
3. H.A. Mehta Business Letter typing sets	Mehta Publishing Corporation, Basant Mahal. Wadala (East) Bombay-4000037
4. Typewriting by Md. Khan Dictation Exercises	Chittoor Publishing House, Chittoor, A.P.
5. Layouts and Forms in Typewriting	State Board of Technical Education, Hyderabad – 500022

- | | | |
|-----|---|---|
| 6. | 20th Century Typewriting | South-Western Publishing Company, Cincinnati, Ohio, USA. |
| 7. | Typewriting Drills for speed and accuracy | Gregg Publishing Corporation, USA. |
| 8. | Principle of Typewriting | O.P. Bhatia, S.S. Sangal |
| 9. | Typewriting speed & accuracy | O.P. Kuthials & Thorpe |
| 10. | Typewriting Theory Practicle | R.C. Bhatia |
| 11. | Type writing speed & Accuracy-I | O.P. Kuthiall |
| 12. | -do- | B-II -do- |
| 13. | Typewriting Office Practice | Mehta Publishing set by H.A.Mehta Corpn., Basant Mahal, Wadala (East), Bombay - 400037. |
| 14. | Business letter typing sets by H.A.Mehta | Mehta Publishing Corpn., Basant Mahal, Wadala (East), Bombay - 400037. |
| 15. | Typewriting
Md. Khan Dictation Exercises | Chittoor Publishing House, Chittoor, Chittoor, A.P.State |
| 16. | Lay outs and forms in Typewriting | State Board of Technical Education, Hyderabad - 500022 |
| 17. | 20th Century Typewriting | South-Western Publishing Company, Cincinnati, Ohio, U.S.A. |
| 18. | .Typewriting Drills for Speed and Accuracy | Gregg Publishing Corporation, U.S.A. |

(b) Office Practice

1. Office Practice Made Simple W.H. Allen Publishers, By G.Whitehead 1974.
2. Office Management and Commercial Correspondence,. by Balraj Duggal 1998. Published by Kitab Mahal.
3. Office Management and Secretarial Practice, Gyan Publishers House,Delhi by V.P.Singh
4. Business Correspondence and Office Practice by Thakkar Publication, Bombay, Nagamia and Bhal
5. Business Communication by Doctor and Doctor Seth Publication, Bombay-4
6. Commercial Correspondence by Majumdar.
7. Modern Commercial Correspondence by R.S.Sharma.
8. Modern Commercial Correspondence by Chandgadkar & Tele. Vikas Publications, Pune.
9. Secretarial Practice by A.H.Mehta & others.
10. Office Management and Commercial Correspondence,. by Balraj Duggal 1998. Published by Kitab Mahal, 1998.
11. Office Procedure & Secretarial Practice, O.P. Kuthiala, Pritam Publications.
12. Office Management R.K. Sharma, Sharma K. Gupta-Kalayni Publishers L. Sush (Nayar, 2003).
13. Office Management R.K. Choopra, Himalaya Publishing House, 2000.
14. Drafing & Office Procedure, Edgar Thrope.
Office Management by Marityen Juled Manning Crisp Publications, 2001.
Comprete Office Handbook : Third Edition by Suson Jaderstrom, 2002.

TOURISM AND TRAVEL MANAGEMENT

Year	Paper	Periods per week		Marks	
		L	T	Ext.	Int.
2nd Year III.	(Tourism & Marketing)	3	3	50	50
	IV. (Travel Agency, Tour Agency & Accommodation)	3	3	50	50

On the Filled Trip of 3 weeks.

1. In each paper 10 questions will be set and the candidates will be expected to attempt 5 questions. Each question will carry 10 marks.
2. The Internal Assessment shall be based on periodical tests, written assignment and class-participation.
3. A consolidated report on '**on the Filled Trip**' after Ist year and IInd year shall be prepared by every student and must be submitted in the college concerned upto September 30. The consolidated Report will be evaluated by the external examiner and shall be given the grades as follows :

- O - Outstanding
- A - Very Good
- B - Good
- C - Average
- D - Unsatisfactory

In case, the training report is rated as unsatisfactory, the candidate shall have to submit it again incorporating the changes suggested by the examiner within one month from the date of intimation to the candidate by the concerned college.

TOURISM MARKETING

Paper-III

Time : 3 Hours

Max. Marks : (External) : 50

(Internal) : 50

Note : The candidates are allowed to use simple (Non-Scientific) calculators.

Introduction

This course covers analysis of the Markets and their possible developments. Backing of the products, pricing policies and their publicity and advertising in the Media-print and Electronic. A study of the marketing and publicity aids like Books, periodicals, brochures, posters, hand cut press release, Audio visuals. The paper would also include Promotional and public relations methods employed in Tourism Marketing.

Part-I

1. The concept marketing, nature, classification and characteristics of services and their marketing implications developing marketing strategies for services firms. Linkages in tourism and other sectors (Travel, Agency, Accommodation, Food, Nutrition, Catering).

Part-II

2. Tour Packaging : Concept, characteristics, methodology consideration and pricing of tour packing, designing and printing of tour brochure.

Suggested Readings

1. Kotler, Philip Marketing Management, Universal Publications, New Delhi, 2006.
2. Maccarthy, D.K.J. Basic Marketing-A Management Approach, 2005.
3. Douglas Foster Travel and Tourism Management, 1985.
4. Negi, M.S. Tourism and Hotelling, 1997.

5. Wahab, S. Grampter, L Tourism Marketing : Tourism International Press & Roth Fibbs. London, 1976.
6. Stephan F. Witt & Louis Tourism Marketing and Management Handbook, Moutinch Prentice Hall, New York 1985.
7. Renal, A, Nykiel Marketing in Hospitality Industry (2nd Ed.) Van Nostrend Reinhold, 1986.
8. Hunter Mountaining Monument (Tourism in Your Business), Canadian Hotel and Restaurant Ltd., 1984.

TRAVEL AGENCY & TOUR OPERATIVE BUSINESS

Paper - IV

Time : 3 Hours

Max. Marks (External) : 50

(Internal) : 50

Note : The candidates are allowed to use simple (Non-Scientific) calculators.

Introduction

The study includes the functions, differentiation regulations organisations, recognition of Travel Agents, Tour Operators and Excursion Agents.

The role in details of sectors like airline-International, domestic, Air Taxies, Ticketing, Cargo, Railway-Transport operations the allied business of Travel Agencies has been included in the course. A study of types of accommodations, their organisations and management.

Part-I

1. Definition. Main functions, organisational structure of a Travel Agency and the Tour operators. Different types of travel agents and (their responsibilities, procedures for becoming a travel)agent and tour operator in India.

Part-II

2. Role of Indian Airlines, Indian Railways, Air India and Vayudoot in the growth of travel agency and tour operators business.
3. Accommodation-types organisation and management.

Suggested Readings

1. Merrissean Jame, W. Travel Agents and Tourism
2. David H.Howel Principles and Methods of
Scheduling Observations (National
Publishers) 1987.

3. Agarwal, Surinder Travel Agency Management
(Communication India 1983)
4. Geo, Chack Professional Travel Agency
Management, Prentice Hall,
London 1990.
5. Bhatia, A.K. Tourism Development principles
and Policies, Sterling Publishers,
1991, New Delhi
6. National Publishers The world of Travel, National
Publishers, Delhi, 1979.

TOURISM AND HOTEL MANAGEMENT
(Vocational)
Paper-A

Time : 3 Hours

Max.Marks : 100

Theory : 80

Int. Ass. : 20

Instructions for the paper setters:

Section A will consist of 8 very short answer questions with answers to each question upto 5 lines in length. All questions will be compulsory. Each question will carry two marks, total weightage to this section being 16 marks.

Section B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry four marks. The total weightage of the section shall be 32 marks.

Section C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry 16 marks, total weightage of the section being 32 marks.

Introduction : This paper is for the basic understanding of Tourism and Hospitality Industry and Hotel Management. Relationship between Tourism, Airlines and hospitality Industry and for the basic understanding of Hotel Management.

TOURISM AND HOTEL MANAGEMENT

(Vocational)

(a) Front Office

1. Types of Hotels
2. Pre-registration activities, Registration, Post registration activities.
3. Front Office Salesmanship.
4. Front Office procedures for Emergencies.
5. Calculation of Room position.
6. Job description of Front Office Cashier.
7. Job description of Front Office Assistant
8. Foreign Currency.
9. Night Auditor and its duties

(b) House Keeping

1. Role of Housekeeping in hospitality industry.
2. Classification of Equipments.
3. Cleaning Agents and Types.
4. House Keeping Supervision—Importance, Checklist, typical areas usually neglected where special attention is required.
5. Storage facilities and conditions.
6. Cleaning procedures—Cleaning of occupied room, Cleaning of just vacated room, Inspection, Second Service, Replenishment of supplies and lines, Room checklist.

(c) Food and Beverage Service

1. Sectors of Food & Beverage.
2. French Classical Menu.

3. Food and their Accompaniments.
4. Restaurants and their subdivisions—Coffee Shop, Room Service, Bars, Banquets, Discotheques, Grill Room, Snack Bar, Night Club.
5. Back area of Food and Beverage service—Still Room, Wash Up, Plate Room, Kitchen Stewarding.
6. Classification of Crockery, Cultery, Glassware, Hollowware, Flatware.
7. Maintenance of Equipments.

(d) Food and Beverage Production

1. Classification of Raw Materials.
2. Foundation ingredients—Meaning, Action of Heat on Carbohydrates, Fats, Proteins, Minerals and Vitamins.
3. Preparation of Ingredients.
4. Classification of Equipments.
5. Stocks—Meaning, Uses, Types, Points to be observed while preparing stocks.
6. Sauces—Meaning, types and Recipes.
7. Staff Arrangement in Kitchen.

Industrial Training for one month.

TOURISM AND HOTEL MANAGEMENT
(Vocational)
Paper-B

Time : 3 Hrs.

Max.Marks : 100

Theory : 80

Int. Ass. : 20

Instructions for the paper setters:

Section A will consist of 8 very short answer questions with answers to each question upto 5 lines in length. All questions will be compulsory. Each question will carry two marks, total weightage to this section being 16 marks.

Section B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry four marks. The total weightage of the section shall be 32 marks.

Section C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiners and the candidates will be required to attempt two. Each question will carry 16 marks total weightage of the section being 32 marks.

1. Role of Various agencies in growth of Tourism like Central and State Government and Private Players.
2. Positive and Negative impact of Tourism.
3. Tourism Products—Meaning or concept, how they are different from other consumer products.
4. Facilities—Hostels, Transport—Air, Rail, Road and Water.
5. Technical Terminology of Tourism.
6. Tourist attractions—Tourist destinations or places and tourist spots having tourist value from heritage spots, having tourist value from heritage or historical points of view or sports and recreational point of view, dance, fair festivals, trade fair, conferences and exhibitions, etc.

7. Tourism Promotions—The Price of the Product, Tourist Markets, Characteristics of the Travel Market, Classification of Travellers, Obstacles of Travel Trade, The Demand for Travel, Tourism Marketing in India, Tourist Transport, Travel Trade, Hotel Marketing, Tourist Destinations.
8. Domestic Tourism—Benefits of Domestic Tourism, Domestic Tourism in India, Hotels and Domestic Tourism, Difficulties of Domestic Tourism boosting Domestic Tourism.

INCOME TAX PROCEDURE AND PRACTICE

Year	Paper	Periods per week		Marks	
		L	T	Ext.	Int.
2nd Year III	(Income Tax Procedure & Practice)	3	3	80	20
	IV (Wealth Tax & Gift Tax Procedure & Practice)	3	3	80	20

1. The following pattern of setting of question paper shall be observed.

The question paper covering the entire course shall be divided into three sections as follows :

Section A : This section will consist of 7 very short answer type questions with answers to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks, total weightage to this section being 14 marks.

Section B : This section will consist of short answer type questions with answer to each question upto two pages. Nine questions will be set by the examiner and the candidates will be expected to attempt six questions. Each question will carry six marks, total weightage to the section being 36 marks.

Section C : This section will consist of essay type questions with answer to each question upto 5 pages. Four questions will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 15 marks, total weightage of this section being 30 marks.

2. The Internal assessment shall be based on periodical tests, written assignments and class-participation.
3. A consolidated Report on '**On the Job Training**' after Ist year and IInd year shall be prepared by every student and must be submitted in the college concerned upto September 30th. The consolidated Report will be evaluated by the external examiner and shall be given the grades as follows :
 - O - Outstanding
 - A - Very Good
 - B - Good
 - C - Average
 - D - Unsatisfactory

In case, the training report is rated as unsatisfactory, the candidate shall have to submit it again incorporating the changes suggested by the examiner, within one month from the date of intimation to the candidate by the concerned college.

INCOME TAX-PROCEDURE & PRACTICE**Paper - III****Time : 3 Hours****Max.Marks : (External) : 80****(Internal) : 20****Total : 100**

Note : The candidates are allowed to use simple (Non-Scientific) calculators.

Detailed contents :

Section-A

1. Regulatory framework-An overview of Income Tax Act, 1961 and Income Tax Rules, 1962.
 2. Income Tax Authorities.
 3. Important Definitions, Basis of charge and Incidence of Tax.
 4. Permanent Account No. Procedure for obtaining Permanent account No.(PAN)-Filling and filing of application under Form No.49A.
 5. Computation of total income Heads of Income, Deductions under Chapter VIA; Computation of Tax in case of individual, Hindu Undivided Family, firm, Companies.
 6. Payment of Tax : Tax deducted at source, Advance Tax, Self Assessment Tax.
- (A) Tax deducted at source : Filling and filing of applications from for obtaining TDS number under Form No.49B-obligation of the person making payment, who and when the person is liable to deduct tax at source. Procedure and rate of Tax deducted at source on various payments.

Employers Obligations :

Stage I : Certificate to be issued to the recipient's-filing and issue of the various TDS Forms (16,16A and 16B).

Stage II : Deposit of tax deducted at source-filing and filing of the challan and deposit of tax.

Stage III : Submission of returns of TDS under Form No.24, Form No.26,26A,26B,26C,26D,26E.

Recipient's Obligations :

To obtain TDS certificate from payer; filling and filing of relevant certificates for lower or no deduction of tax at source (Form No.13C,14,14B,15,15A,15AA,15B,15D,15E,15F,15G,15H,15I).

(B) Advance Tax-Who is liable to pay advance tax, computation of advance tax, instalment and due date of Advance Tax, Interest payable by the assessee. Filing of challan and deposit of Advance Tax.

Section-B

Return of income : Who is liable to file return of income, time limit, return of loss, Belated Return, Revised Return, Defective Return, Return by whom to be signed, filling and filing of Return of Income Tax under :

Assessment Procedures : Inquiring before assessment.

Assessment under Section 143 (1), Self-assessment Tax, Regular Assessment under Section 143 (2), Best Judgement assessment, income escaping Assessment, issue of notice where income has escaped assessment. Time limit for Notice, Time limit for completion of assessment and reassessment.

Post Assessment Procedures :

A. Refund : Who can claim refund, Form No.30 for Refund, Time Limit for claiming refund, Refund of appeal, interest on refunds.

B. Rectification of mistake (s).

- C. Appeals and revisions : When an assessee can file appeal, appellate authorities, procedure for filing appeal, filling and filing of Form No.35, Form No.36, Time limit for filing appeal, Revision by Income-Tax Commissioner.
- D. Penalties & Procedure : Procedure for imposing penalties, waiver of penalty, nature of default and penalties imposed. Transfer of moveable property; Filing and filing of Form No.37EE, Form No.37G, Form No.37-I. Tax clearance certificate and exemption certificate-procedure and filling and filing of Form No.31.

References :

1. Gaur, V.P. and D.B. Narang (2007), Income-Tax Law & Practice, Kalyani Publications, Ludhiana.
2. Prasad, Bhagwati (2006), Direct Taxes Law & Practice, Vishwa Prakashan, New Delhi.
3. Sinha, V.K. and K. Sanghvi (2007) Direct Taxes Law and Practice Taxmann Publications (P) Ltd. New Delhi, 2004.
4. Shrivastava M. (1981) Physical Policy & Economic Development in India, Chugh Publications, Alahabad.
5. Mehrotra H.C. and P. Mehrotra 2007. Income Tax Law & Accounts, Sahitya Bahawan Publications, Agra.
6. Taxman's in Director Tax Law as amended by Finance Act 2007. Taxman allied Services (P) Ltd. New Delhi, 2004.
7. www.incometaxindia.gov.in.

INCOME TAX-PROCEDURE & PRACTICE**Paper-IV****Wealth Tax & Gift Tax—Procedure & Practice****Time : 3 Hours****Max. Marks : (External) : 80****(Internal) : 20****Note : The candidates are allowed to use simple (Non-Scientific) calculators.****Section-A****Wealth Tax**

1. Regulatory framework—An overview of wealth Tax Act, 1957 and Wealth Tax Rules, 1957.
2. Wealth Tax Authorities.
3. Important terms and definitions—Valuation date, assessment year, meaning of assets, net wealth, debt, deemed assets, exempted assets,
4. Exempted Assets, Valuation of invaluable property & jewellery computation of Net Wealth, Computation of Wealth Tax, Filing of Challan for payment of Wealth Tax and Deposit Tax.
5. Return of Wealth Tax, limit for filing return filling and filing of return of wealth under Form A & B.
6. Assessment and Post Assessment procedure in brief.

Section-B**Gift Tax**

1. Regulatory framework—An overview of Gift Tax Act, 1958 and Gift Tax Rules, 1958.
2. Gift Tax Authorities.
3. Important Terms and Definition—Donee and doner.
4. Charge of Gift Tax—Deemed gifts, exempted gifts, valuation/amount of gifts.
5. Return of Gift—Filling and filing under the prescribed form; time limit for filing the return, computation of gift tax.

6. Assessment and Lost Assessment procedure.
7. Rebate on advance payment of Gift Tax.

References :

1. Datey, V.S. (2006), Taxmann's Indirect Taxes Law & Practice, Taxmann Publications Pvt. Ltd., New Delhi.
2. Taxmann's Indirect Tax Laws As amended by Finance Act, 2007. Taxmann Allied Services (p) Ltd., New Delhi, 2004.
3. www.incometaxindia.gov.in

ADVERTISING, SALES PROMOTIONS AND SALES MANAGEMENT

Year	Paper	Periods per week		Marks	
		L	T	Ext.	Int.
2nd Year	III (Advertising-II)	3	3	80	20
	IV (Personal Selling & Salesmanship)	3	3	80	20

On the Job Training of 4 weeks.

1. The following pattern of setting of question paper shall be observed.

The question paper covering the entire course shall be divided into three sections as follows :

Section A : This section will consist of 7 very short answer type questions with answer to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks, total weightage to this section being 14 marks.

Section B : This section will consist of short answer type questions with answer to each question upto two pages. Nine questions will be set by the examiner and the candidate will be expected to attempt six questions. Each question will carry six marks, total weightage to the section being 36 marks.

Section C : This section will consist of essay type questions with answer to each question upto 5 pages. Four questions will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 15 marks, total weightage of this section being 30 marks.

2. The Internal assessment shall be based on periodical tests, written assignments and class-participation.
3. A consolidated Report on '**On the Job Training**' after Ist year and IInd year shall be prepared by every student and

must be submitted in the college concerned upto September 30th. The consolidated Report will be evaluated by the external examiner and shall be given the grades as follows:

- O - Outstanding
- A - Very Good
- B - Good
- C - Average
- D - Unsatisfactory

In case, the training report is rated as unsatisfactory, the candidate shall have to submit it again incorporating the changes suggested by the examiner, within one month from the date of intimation to the candidate by the concerned college.

ADVERTISING, SALES PROMOTIONS AND SALES MANAGEMENT

Paper - III Advertising -II

Time : 3 Hours **Max. Marks : (External) : 80**

Internal : 20

Note : The candidates are allowed to use simple (Non-Scientific) calculators.

Part-I

- Advertising Media, Types of Media; Print Media (News Paper and Magazines, Pamphlets, posters and brochures), electronic media (Radio, Television, Audio Visuals, Cassettes), other Media (Direct Mail outdoor media), their characteristics, merits and limitations. Media scene in India. Problems of reaching rural audience and markets. Exhibitions and mela. Press Conference.
- Media Planning - Selection of Media category. Their reach, frequency and impact. Cost and other factors influencing the choice of media.
- Media scheduling.

Part-II

- Evaluation of advertising effectiveness. Importance and difficulties. Methods of measuring advertising effectiveness. Pre-testing and post-testing. Communication effect. Sales effects.
- Regulation of advertising in India. Misleading and deceptive advertising and false claims.
- Advertising agencies. Their role and importance in advertising. Their organisation patterns, Functions, Selection of advertising agency. Agency commission and fee.
- Advertising Department. Its functions and organisation.

Suggested Reading :

Same as for paper-2 (relevant chapters).

ADVERTISING, SALES PROMOTIONS AND SALES MANAGEMENT

Paper - IV

Personal Selling and Salesmanship **Time : 3 Hours**

Max. Marks : (External : 80

Internal : 20

Note : The candidates are allowed to use simple (Non-Scientific) calculators.

Part-I

- Nature and Importance of personal selling. Door to door selling situation where personal selling is more effective than advertising. Cost of advertising Vs. Cost of personal selling.
- AID A model of selling. Types of selling situations. Types of sales persons.
- Buying motives. Types of markets. Consumer and Industrial markets, their characteristics and implications for the selling function.
- Process of effective selling : Prospecting, Pre-approach, approach, presentation and demonstration, handling and objections. Closing and sale post-sale activities.

Part-II

- Qualities of the successful sales person with particular reference to consumer services.
- Selling as a career, advantages and difficulties. Measures for making selling an attractive career.
- Distribution network-relationship.
- Reports and documents; sale manual, order desk, cash memo, tour diary, daily and preiodical reports.
- Other problems in selling.

A. Tentative Suggested Readings :

1. Manning, G.L. & B.L. Reece, Setting Today Building Quality Partnerships, PHI, 2002.
2. Still, Richard R., Edward N. Gndiff and Norman A.P. Govoni, Sales Management : Decisions, Strategies & Cases, PHI 5th Ed., 2000.

BIOINFORMATICS (Vocational)

Paper-A

Basic Bioinformatics

Time : 2 Hrs.

Max. Marks : 40

Note for the paper setters/examiners :

Each question paper will consist of three sections as follows:

Section A : 8 very short answer questions are to be set. Two from each unit. The maximum length of answer can be about 1/3 of a page. All questions are compulsory. Each question will carry one mark, total weightage being 8 marks.

Section-B : This section will comprise of 8 questions. Five questions to be attempted and maximum length of answer can be upto two pages. Each question will carry four marks, total weightage being 20 marks.

Section-C : This section will comprise of four essay type questions. Two questions to be attempted. Maximum length of answer can be upto 5 pages. Each question will carry 6 marks, total weightage being 12 marks.

Unit-I

Prokaryotic and Eukaryotic genome : Structure and composition of DNA/RNA, types of DNA, organization of DNA in chromosome in Pro/Eukaryotes, Heterochromatin/Euchromatin, Unique and repetitive sequences.

Unit-II

Gene expression and regulation : Overview of gene transcription, splicing of RNA, genetic code, translation, *Level of gene expression* : Transcription control, RNA processing control, mRNA transport control, mRNA translation control, mRNA and protein degradation control, Gene regulation in development and expression.

Unit-III

Basic molecular biology, restriction digestion, PCR, cloning etc. Evolution of genome and basic phylogenetics Genetic engineering and transgenic organisms, Genome sequencing methods and analysis. Human genome sequencing project. Functional genomics.

Unit-IV

Proteomics; Basic concept and analysis, comparative genomics: definition and applications, Pharmacogenomics and population genomics : Principle and methods.

Unit-V

Introduction to Biological databases, Protein sequence databases : Swiss prot, Singal peptide databank, EMBL nucleotide sequence databank, AIDS virus sequence databank etc. Entry and retrieval of data from public databases. Other bioinformatics resources in the NET.

List of Books :

1. Brooker, R.J. Genetic Analysis and Principles. Addison Wisely Longman, N.Y. (2001).
2. Pevzner, J. Introduction to Bioinformatics. John Wiley and Sons, Y.N. (2003).
3. Baxevanis A.D. Bioinformatics: A practical guide to the analysis of Gene and Proteins (2nd Edition) 2001.
4. Lodish H, Berk A, Zipursky, S.L., Baltimore, D. Darnel, J. Molecular Cell Biology. W.H. Freeman and Company, USA (2000).

BIOINFORMATICS (Vocational)

Paper-B

Fundamentals of Computers, Web Technology and Networking

Time : 2 Hrs.

Max. Marks : 40

Note for the paper setters/examiners :

Each question paper will consist of three sections as follows:

Section A : 8 very short answer questions are to be set. Two from each unit. The maximum length of answer can be about 1/3 of a page. All questions are compulsory. Each question will carry one mark, total weightage being 8 marks.

Section-B : This section will comprise of 8 questions. Five questions to be attempted and maximum length of answer can be upto two pages. Each question will carry four marks, total weightage being 20 marks.

Section-C : This section will comprise of four essay type questions. Two questions to be attempted. Maximum length of answer can be upto 5 pages. Each question will carry 6 marks, total weightage being 12 marks.

Unit-I

Introduction to computer, History of Computers: Evolution, Generation of computers (I, II, III, IV, V), Classification of computers (Notebook, Personal Computers, Workstation, Mainframes, Minicomputers, Microcomputers Supercomputers)—comparison with memory, power, cost, size-then and now.

Unit-II

Digital Circuits and Computer Architecture: Transistors—and Integrated Circuits (LSI, VLSI), Operation of processor; Number Systems and Digital Circuits; ALU; Memory Chips (ROM, RAM, DRAM), Storage Devices, Memory Hierarchy; I/O Devices; Bus Systems; Computer Organization and Architecture; Microprocessor; Moore's Law.

Unit-III

MS-Word : Introduction to word, Introduction to parts of window (title bar, menu bar, tool bar, ruler, status bar), Creating, opening, saving and printing a document, Editing a document, Copy move and replace the text, text formatting, Page Setup, Margins, Gutters, text alignment, Line spacing, Page break, header and footers, spell checking. Creation and Manipulation of tables, Mail Merge.

MS-Powerpoint: Introduction, Power point Elements, Exploring Power Point Menu: opening and closing menu, working with dialog box, adding text, title. Moving and resizing text, starting a slide show, opening, saving and printing a slide show.

Views: Slide view, sorter view, notes view, online view, Formatting Text, Enhancing Text by using bullets, fonts style, font size, effect and color, Displaying slide show and adding multimedia.

MS-Excel : Introduction, format of electronic worksheet, adding data in worksheet, cell addressing, saving, opening and printing a worksheet, Ranges and different type of ranges, applying formula, copying formula, various, mathematical function, statistical functional and date functions, charts.

Unit-IV

Network Architectures-Layered protocols-local area networks, Repeaters, bridges, Routers and structured cabling.

Computer Networks: Network communication infrastructure; Protocols; Wireless LAN and Mobile Computing.

Unit-V

Loading Linux on a PC, launching various services like web server, email server and proxy server. Setting network on Linux machine.

Web Technology : HTML and Web pages; The Internet and Intranet; WWW; Java Script and Dynamic Web Pages; Multimedia Application; Computer Network Security; e-Commerce and m-Commerce.

Recommended Books :**MS Office**

- * Kapila H. (2003). PC Computing Window Based computer system. *Dinesh Publishers, Jalandhar.*
- * Grauer B. (2005). Exploring Microsoft Office 2003 (Volume I). *Prentice Hall, New Jersey.*

Computing Fundamentals

- * Norton's P. (2001). Introduction to Computing Fundamental. *McGraw Hill Education, New Delhi.*
- * Sinha P.K. (2001). Fundamental of Computers. *BPB Publication, New Delhi.*

HTML and Visual Basic

- * Harriger R. Alka (1999). Introduction to Computer Programming with Visual Basic 6, Prentice Hall Publications, New Jersey.
- * Bayross I. (2002). Programming in Visual Basic 6.0. *BPB Publication, New Delhi.*
- * Deborah S. Ray, Eric J. Ray (2002) Mastering HTML and XHTML, Sybex Inc.
- * HTML Complete, 3rd Edition (2003), Sybex Inc.

BIOINFORMATICS (Vocational)

Paper-C

Introduction to Database Management System

Time : 2 Hrs.

Max. Marks : 40

Note for the paper setters/examiners :

Each question paper will consist of three sections as follows:

Section A : 8 very short answer questions are to be set. Two from each unit. The maximum length of answer can be about 1/3 of a page. All questions are compulsory. Each question will carry one mark, total weightage being 8 marks.

Section-B : This section will comprise of 8 questions. Five questions to be attempted and maximum length of answer can be upto two pages. Each question will carry four marks, total weightage being 20 marks.

Section-C : This section will comprise of four essay type questions. Two questions to be attempted. Maximum length of answer can be upto 5 pages. Each question will carry 6 marks, total weightage being 12 marks.

Unit-I

Introduction, Characteristics of Data base approach, Database users, Intended uses of databases, Implication of database approach.

Database System Concepts and Architecture, Data Models, Schemes and Instances, DBMS Architecture and data independence, database languages, Classification of DBMS.

Unit-II

Database Design: Informal Design guidelines for relation Schemes, Functional Dependencies, Normal forms based on primary keys, General Definition of 2nd and 3rd Normal Forms, BCNF, Need of further Normalization.

Unit-III

Data Modeling using ER diagram, ER Model Concepts, Notation for ER Diagrams. The relational Model, Relational Model Concepts, Relational Model Constraints, Introduction to Relational Algebra.

Unit-IV

SQL: Introduction, Data Definition in SQL, Queries in SQL, Update statement in SQL, Views SQL, Simple programs in PL/SQL.

Unit-V

Data Mining, Definition, Data Mining and KDD, Data Mining on relational databases, Data Warehouses, Transactional Databases etc. Data Mining Functionalities, Pattern Mining. Association Analysis, Classification and Prediction, Cluster Analysis, Evolution Analysis, Data Mining on Biological data.

Recommended Books:

1. Fundamentals of Database Systems by Elmasari and Navathe, Prentice Hall (India), 2001.
2. Data Mining Concepts and Techniques-Jiawei Han, Micheline Kamber, Morgan Kaufmann Publisher, 2001.

BIOINFORMATICS (Vocational)

Paper-D

Lab in Database Management System & Computer Fundamentals, Web Technology

Time : 6 Hrs.

Max. Marks : 80

Practical

MS-WORD

1. To create, open, close a document and toolbars operations.
2. Practical based on page setup, print a document.
3. To add headers, footer, pagebreak.
4. Table handling Mail Merge.

MS-POWERPOINT

1. Concept of slide, presentation, custom animation.
2. To insert pictures and sound file to slide.
Slide Transition.

MS-EXCEL

1. To create, open, close worksheet.
 2. To add numeric as well as character data in a cell.
 3. To develop formulas, modify charts.
- * **Installation of LINUX**
 - * Basic Exercises on HTML.
 - * **Exercises to understand RDBMS: Oracle, SQL etc.;**
Usage of important Commands/instructions.

Paper-E

On Job Training

Time : 2 Hrs.

This should be taken up during summer vacations over a period of one month in Bioinformatics/Computer.

BOTANY

Distribution of Marks and Time

Paper-A	75 Marks	3 Hrs.
Paper-B	75 Marks	3 Hrs.
Practical-A	25 Marks	3 Hrs.
Practical-B	25 Marks	3 Hrs.

Instructions for the paper setters:

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer-type (3-4 lines). No multiple choice questions, answer of one-word answer type be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt 1 question from each of the 4 units. All question including Question No. 1 will have equal marks.

Paper-A

Diversity of Seed Plants and Their Systematics

Time : 3 Hrs. Max. Marks	Theory : 75
	Practical : 25
	Total : 100

Unit I

1. Characteristics of seed plants; evolution of the seed habit; Distinguishing features of angiosperms and gymnosperms.
2. Major contribution of cytology, phytochemistry and taximetrics to taxonomy.

Unit II

3. General features of gymnosperms and their classification; evolution and diversity of gymnosperms including fossil and living gymnosperms; geological time scale and fossilization.
4. Morphology of vegetative and reproductive parts; anatomy of root, stem and leaf; reproduction and life cycle of Pinus, Cycas, Epherda and Ginkgo.

Unit III

5. Angiosperms : Origin and evolution. Some examples of primitive angiosperms.

6. Angiosperm taxonomy; brief history, aims and fundamental components (alpha-taxonomy, omega-taxonomy, holotaxonomy); identification, keys. Taxonomic literature.
7. Botanical nomenclature : taxonomic ranks; type concept; principle of priority.

Unit IV

8. Classification of angiosperms; salient features of the systems proposed by Bentham and Hooker, Engler and Prantl.
9. Diversity of flowering plants as illustrated by members of the families Ranunculaceae, Brassicaceae, Rutaceae, Fabaceae, Apiaceae, Acanthaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Lamiaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae and Poaceae.

Note for teachers

The students should be made familiar with the families listed at Serial No. 9 only in the practical classes with representative species or any other that may be available locally. See the list for practical classes. However, questions pertaining to these may be asked in the theory examination.

The teachers should prevent students from collecting plants from the wild and submitting them for the practical examination. Instead, the students should be asked to prepare field reports.

Suggested Readings

1. Bhatnagar, S.P. and Moitra, A. 1996. Gymnosperms, New Age International Limited, New Delhi.
2. Davis, P.H. and Heywood, V.H., 1963, Principles of Angiosperm Taxonomy, Oliver and Boyd, London.
3. Gifford, E.M. and Foster, A.S., 1988, Morphology and Evolution of Vascular Plants, W.H. Freeman & Company, New York.
4. Jeffrey, C. 1982, An Introduction to Plant Taxonomy, Cambridge University Press, Cambridge, London.

5. Jones, S.B., Jr. and Luchsinger, A.E., 1986, Plant Systematics (2nd edition), McGraw-Hill Book Co., New York.
6. Radford, A.E., 1986, Fundamental of Plant Systematics, Harper and Row, New York.
7. Singh, G. 1999, Plant Systematics : Theory and Practice, Oxford and IBH Pvt. Ltd., New Delhi.
8. Sporne, K.R., 1965, The Morphology of Gymnosperms, Hutchinson & Co. (Publishers) Ltd., London.

Suggested Laboratory Exercises

Angiosperms

The following species are suitable for study. This list is only indicative. Teachers may select plants available in their locality.

1. Ranunculaceae : Ranunculus, Delphinium
2. Brassicaceae : Brassica, Alyssum, Iberis, Coronopus.
3. Malvaceae : Hibiscus, Abutilon.
4. Rutaceae : Murraya, Citrus.
5. Fabaceae : Faboideae : Lathyrus, Cajanus, Melilotus, Trigonella, Caesalpinioideae : Cassia, Caeslpainia, Mimosoideae : Prosopis, Mimosa, Aeacia.
6. Apiaceae : Coriandrum. Foeniculum, Anethum.
7. Acanthaceae : Adhatoda, Peristrophe.
8. Apocynaceae : Vinca, Thevetia, Nerium.
9. Asclepiadaceae : Calotropis.
10. Solanaceae : Solanum, Withania, Datura.
11. Euphorbiaceae : Euphorbia, Phyllanthus.
12. Lamiaceae : Ocimum, Salvia.
13. Chenopodiaceae : Chenopodium, Beta.
14. Liliaceae : Asphodelus, Asparagus.

15. Poaceae : Avena, Triticum, Hordeum Poa, Sorghum. The students should be made familiar with the use of identification keys including use of computers in taxonomy.

Gymnosperms

Cycas

- i) Habit, armour, of leaf bases on the stem (if specimen is not available show photography), very young leaf (circinate vernation) and old foliage leaves, sclae leaf, bulbils, male cone (specimen); Microsporophyll, megasporophyll mature seed.
- ii) Study through permanent slides—normal root (T.S.), stem (T.S.) (if sections are not available show photographs), ovule (L.S.).
- iii) Study through hand sections or dissections-coralloid root (T.S.), rachis (T.S.), leaflet (V.S.), microsporophyll (V.S.) pollen grains (W.M.).

Pinus

- i) Habit, long and dwarf shoot showing cataphylls and scale leaves, T.S. wood showing growth rings, male cone, 1st year, 2nd year and 3rd year female cones, winged seeds.
- ii) Study through permanent slides-root (T.S.), female cone (L.S.) ovule (L.S.), embryo (W.M.) showing polycotyledonous condition.
- iii) Study through hand sections or dissections-young stem (T.S.), old stem (wood) (T.L.S. and R.L.S.), needle (T.S. male cone (L.S.), male cone (T.S.), Pollen grains (W.M.).

Ephedra

- i) Habit and structure of whole and female cones.
- ii) Permanent slides-female cone (L.S.).
- iii) Hand sections/dissections-node (L.S.), internode (T.S.), macerated stem to see vessel structure; epidermal peel mount of vegetative parts to study stomata, male cone (T.S. and L.S.), pollen grains.

BOTANY**Paper-B****Structure, Development and Reproduction in Flowering Plants****Time : 3 Hrs.****Hours of Teaching : Theory : 60 Max.Marks Theory : 75****Practical : 100 Practical : 25****Total : 160 Total : 100****Instructions for Paper Setter :**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice, one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

Unit-I

1. The basic body plan of a flowering plant-modular type of growth.
2. **The Shoot System** : The shoot apical meristem and its histological organization; meristematic and permanent tissue, formation of internodes, branching pattern; monopodial and sympodial growth; canopy architecture; cambium and its functions; formation of secondary xylem; a general account of wood structure in relation to conduction of water and minerals; characteristics of growth rings, sapwood and heart wood; role of woody skeleton; secondary phloem-structure-function relationships; Periderm.

Unit-II

3. Diversity in plant form in annuals, biennials and perennials; trees-largest and longest-lived.
4. **Leaf** : origin, development, arrangement and diversity in size and shape; internal structure in relation to photosynthesis and water loss; adaptations to water stress; senescence and abscission.

Unit-III

5. **The Root System** : The root apical meristem; differentiation of primary and secondary tissues and their roles; structural modification for storage, respiration, reproduction and for interaction with microbes.
6. **Vegetative Reproduction** : Various methods of vegetative propagation. Detailed study and types of grafting and budding, economic aspects.
7. **Flower** : A modified shoot; structure, development and varieties of flower; functions; structure of anther and pistil; the male and female gametophytes; types of pollination; attractions and rewards for pollinators; (sucking and foraging types); pollen-pistil interaction self incompatibility; double fertilization: formation of seed endosperm and embryo : fruit development and maturation.
8. **Significance of seed** : Suspended animation; ecological adaptation; unit of genetic recombination with reference to reshuffling of genes and replenishment; dispersal strategies.

Note for teachers :

Wherever required, role of environment and hormones in plant development and reproduction should be emphasized.

Suggested Readings

1. Bhojwani, S.S. and Bhatnagar, S.P. 2000. The Embryology of Angiosperms, 4th revised and enlarged edition. Vikas Publishing House, Delhi.
2. Hartmann, H.T. and Kestler, D.E., 1976, Plant Propagation: Principles and Practices, 3rd edition, Prentice Hall of India Pvt. Ltd., New Delhi.
3. Mauseth, J.D., 1988, Plant Anatomy, The Benjamin/Cummings Publishing Company Inc., Menlo Park, California, USA.
4. Peau, K., 1977, Anatomy of Seed Plants, 3rd edition. John Wiley & Sons, New York.

5. Pegeri, K. and Vander Pijl 1979, The Principles of Pollination Biology, Pergamon Press, Oxford.
6. Raven, P.H., Evert, R.F. and Eichhorn, S.E., 1999, Biology of Plants, 5th edition. W.H. Freeman and Co., Worth Publishers, New York.
7. Thomas, P., 2000, Trees : Their Natural History, Cambridge University Press, Cambridge.

Suggested Laboratory Exercises

1. Study of any commonly occurring dicotyledonous plant (for example *Solanum nigrum* or *Kalanchoe*) to the body plan, organography and modular type of growth.
2. Life forms exhibited by flowering plants (by a visit to a forest or a garden, Study of tree-like habit in cycads, bamboo, banana, traveller's tree (*Revenala madagascariensis*) and yucca and comparison with true trees as exemplified by conifers and dicotyledons.
3. L.S. Shoot tip to study the cytohistological zonation and origion of leaf primordia.
4. Monopodial and sympodial types of branching in stems (especially rhizomes).
5. Anatomy of primary and secondary growth in monocots and dicots using free hand razor technique (*Solanum*, *Boethaevi Helianthus*, *Mirabilis*, *Nyctanthus*, *Draceana*, *Maize*) hand sections (or prepared slides). Structure of secondary phloem and xylem. Growth rings in wood, Microscopic study of wood in T.S., T.L.S. and R.L.S.
6. Field study of diversity in leaf shape, size, thickness, surface properties. Internal structure of leaf. Structure and development of stomata (using epidermal peels of leaf).
7. Anatomy of the root. Primary and secondary structure.
8. Examination of a wide range of flowers available in the locality and methods of their pollination.

9. Structure of anther, microsperogenesis (using slides) and pollen grains (using whole mounts). Pollen viability using in vitro pollen germination.
10. Structure of ovule and embryo sac development using serial sections) from permanent slides.
11. Nuclear and cellular endosperm. Embryo development in monocots and dicots (using permanent slides/dissections).
12. Simple experiments to show vegetative propagation (leaf cuttings in Bryophyllum, Sansevieria, Begonia; stem cuttings in rose, salix, money plant, Sugarcane and Bougainvillea).
13. Germination of non-dormant and dormant seeds.

Suggested Readings (for laboratory exercises)

1. Bhojwani, S.S. and Bhatnagar, P., 2000, The Embryology of Angiosperms (4th revised and enlarged edition), Vikas Publishing House, New Delhi.
2. Mauseth, J.D., 1988, Plant Anatomy, The Benjamin/Cumminas Publishing Co., Inc., Mehlo Park, California, USA.
3. Raven, P.H., Evert, R.F. and Eichhorn, S.E., 1992, Biology of Plants (5th Edition). Worth Publishers, New York.
4. Steeves, T.A. and Sussex, I.M., 1989, Patterns in Plant Development (2nd Edition). Cambridge University Press, Cambridge.

ZOOLOGY

Paper	Maximum Marks	Hours or Equivalent periods per week	Examination duration hr.
Paper A*	75	3 Hours	3 Hours
Paper B**	75	3 Hours	3 Hours
Practical-I (related to Paper-A)	25	2¼ Hours	3 Hours
Practical-II (related to Paper-B)	25	2¼ Hours	3 Hours

***Paper-A : Evolution & Biodiversity-III (Chordates)**

Section-I Evolution

Section-II Biodiversity-III (Chordates)

****Paper-B : Biochemistry & Animal Physiology**

Section-I Biochemistry

Section-II Animal Physiology

ZOOLOGY**Paper-A****Evolution & Biodiversity-III (Chordates)****Examination Time : 3 hrs.****Maximum Marks : 75****Section-I****Evolution**

- Concepts and evidences of organic evolution.
- Theories of organic evolution.
- Origin of life.
- Concepts of micro, macro and mega-evlution.
- Concepts and Species.
- Fossils and evolutionary rate.
- Evolution of man.

Section-II**Biodiversity-III (Chordates)**

- | | |
|--------------|--|
| Chordates | - Origin. |
| Prochordates | - Urochordata-Type study- <i>Herdmania</i> ,
Cephalochordata-Type study- <i>Amphioxus</i> . |
| Cyclostomata | - External Characters of <i>Petromyzon</i> &
affinities of Cyclostomata |
| Pisces | - Type study- <i>Labeo</i> ,
Scales & fins. Migration & Parental Care. |
| Amphibia | - Type study-Frog,
- Origin & Parental Care. |
| Reptilia | - Type study- <i>Uromastix</i> ,
Origin & Extinct reptiles,
Poisonous and non-Poisonous Snakes,
poison apparatus. |

- Aves - Type study-Pigeon,
Flight adaptation & Bird migration.
- Mammals - Type study-Rat
Adaptive radiation, Dentition.

Characteristics of vertebrata and its groups

Classification of the animals up to orders relating to the following groups along with brief ecological notes of the following:

- Prochordates : *Herdmania, Molgula, Pyrosoma, Doliolum, Salpa, Oikopleura & Amphioxus*
- Cyclostomata : *Myxine, Petromyzon & Ammocoetus* larva.
- Chondrichthyes : *Zygaena* (hammer head shark), *Pristis* (saw fish), *Narcine* (electric ray), *Trygon*, *Rhinobatus* and *Chimaera* (rabbit fish).
- Actinopterygii : *Polypterus, Acipenser, Lepidosteus, Muraena, Mystus, Catla, Hippocampus, Syngathus, Exocoetus, Anabas, Diodon, Tetradon, Echeneis and Solea.*
- Dipneusti (Dipnoi) : *Protopterus* (lung fish)
- Amphibia : *Uraeotyphlus, Necturus, Amphiuma, Amblystoma* its Axoloti Larva, Triton, Salamandra, *Hyla, Rhacophorus.*
- Reptilia : *Chelone* (turtle) and *Testudo* (tortoise), *Hemidactylus* (wall lizard), *Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Bungarus, Naja, Hydrus, Vipera, Crocodilus. Gavialis* and Alligator.
- Aves : *Ardea, Milvus, Pavo, Tyto, Alcedo, Eudynamis* and *Casuaris.*

Mammalia : *Ornithorhynchus*, *Echidna*, *Didelphis*,
Macropus (kangaroo), *Loris*, *Macaca*,
Mains (scaly ant eater) *Hystrix* (porcupine),
Funambulus (squirrel), *Panthera*, *Canis*,
Herpestes (mongoose), *Capra*, *Pterous*.

Note for the paper setters :

- Nine questions are to be set in all.
- Question No. 1 is compulsory consisting of short/multiple answer type questions covering the whole syllabus. It will have 10 parts of 1½ marks each.
- Three Questions from Section-I & Five questions/long answers are to be set from section-II, the Questions can have sub-parts.

Instructions for the students :

- **Four** questions/long answers are to be attempted, at least **one** from section-I and two from section-II, the fourth can be attempted from either of the section.
- In all, **Five** questions are to be attempted including compulsory one.

ZOOLOGY

Paper-B

Biochemistry & Animal Physiology

Examination Time : 3 hrs.

Maximum Marks : 75

Section-I

Biochemistry

- Biochemistry and its scope;
- Carbohydrates, proteins, Lipids and nucleic acids : their classifications and functions.
- Enzymes : Nature, their classification and coenzymes.
- Carbohydrates metabolism : The Embden Meyerhoff, Parnas Pathway (glycolysis) the tricarboxylic acid cycle, the hexose monophosphate shunt, glycogenesis and glycogenolysis.
- Lipid metabolism : β -Oxidation of fatty acids, rate of glycerol and gluconeogenesis, interaction of carbohydrates and lipids, lipogenesis in tissues, ketosis.
- Protein metabolism : Protein metabolism of amino acids (oxidative deamination, transamination and decarboxylation, hydrolysis of proteins and ornithine cycle).

Section-II

Animal Physiology

- Digestion** : Digestion of dietary constituents, regulation of digestive processes and absorption. Types of nutrition, feeding mechanisms, extra and intra cellular digestion, enzymatic digestion and symbiotic digestion.
- Blood** : Composition and functions of blood and lymph. Molecular structure and function of haemoglobin, blood clotting. Blood groups including Rh factor, haemopoiesis and haemostasis.
- Heart** : Origin and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, fluid pressure

and flow pressure in closed and open circulatory systems, blood pressure and micro-circulation.

Respiration : Transport of O₂ and CO₂, Oxygen dissociation curve of haemoglobin, Bohr effect, chloride (-) shift, Haldane effect and control of breathing.

Excretion : Urine formation and osmoregulation.

Muscles : Ultrastructure, chemical and physiological basis of skeletal muscle contraction.

Neural integration : Structure of neuron, resting membrane potential, origin and propagation of impulse along the axon, synapse and myoneural function.

Physiology of Behavior : Taxes and reflexes, instinctive and motivate learning and reasoning

Endocrine : Structure and physiology of thyroid, parathyroid, adrenal, hypothalamus, pituitary, pancreas and gonads.

Note for the paper setters :

- Nine questions are to be set in all.
- Question No. 1 is compulsory consisting of short/multiple answer type questions covering the whole syllabus. It will have 10 parts of 1½ marks each.
- Three questions from Section-I and Five Questions/long answers are to be set from section-II, the Questions can have sub-parts.

Instructions for the students :

- **Four** questions/long answers are to be attempted, at least **one** from section I and **two** from section II, the fourth can be attempted from either of the section.
- In all, **Five** questions are to be attempted including compulsory one.

Suggested Readings

1. Parker, T.J. and Haswell, W.A, Text Book of Zoology, Vol. II (Vertebrates), ELBS and Macmillian Press Ltd., 1981.
2. Dobzhansky, Ayala, Stebbins & Valentine, Evolution W.H. Freeman, 1952.
3. Colbert. E.H., Evolution of Vertebrates, II Edition, Wiley Eastern Ltd., 1989.
4. Dhami, P.S. & Dhami J.K., Vertebrates, R. Chand & Co., New Delhi, 1998.
5. Taneja, S.K., Biochemistry & Animal Physiology, Trueman Book Co., 1997.
6. Guyton, A.S., Text Book of Medical Physiology, 7th Edition, W.B. Saunders Company, 1994.
7. Robert, K., Murray, Mayes Daryl, K. Granner, Victor, W., Woodwell, Harper's Biochemistry, 22nd Edition, Prentice Hall International Inc., 1990.
8. Lehninger, A., Principles of Biochemistry, Worth Publishers, Inc., USA, 2000.
9. Bhamarah, H.S., Juneka K., Cytogenetics & Evolution, Anmol Publication Pvt. Ltd., 1993.

Practical-I (Related to Paper A)**Maximum Marks : 25****Examination Time : 3 hrs.**

1. Classification up to order level, except in case of Pisces and Aves where classification up to subclass level, habits, habitat, external characters and economic importance (if any) of the following animals is required :

- Urochordata : *Herdmania, Molgula, Pyrosoma, Doliolum, Salpa & Oikopleura.*
- Cephalochordata : *Amphioxus.*
- Cyclostomata : *Myxine, Petromyzon & Ammocoetes Larva.*
- Chondrinchthyes : *Zygaena (hammer head shark), Pristis (saw fish), Narcine (electric ray), Trygon, Rhinobatus and Chimaera (rabbit fish).*
- Actinoptergii : *Polypterus, Acipenser, Lepidosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Tetradon, Echeneis and Solea.*
- Dipneusti (Dipnoi) : *Protopterus (african lung fish)*
- Amphibia : *Uraeotyphlus, Necturus, Amphiuma, Amblystoma and its Axolotl Larva, Triton, Salamandra, Hyla, Rhyacophorus*
- Reptila : *Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Vipera, Crocodilus, Gavialis, Chelone (turtle) and Testudo (tortoise)*
- Aves : *Casuaris, Ardea, Anas, Milvus, Pavo, Eudynamics, Tyto and Alcedo.*
- Mammalia : *Ornithorynchus, Echidna, Didelphis, Macropus, Loris, Macaca, Manis, Hystrix, Funambulus, Panthera, Canis, Herpestes, Capra, Pteropus.*

2. Examine and dissect the following animals :

- Herdmania* : - General anatomy
- Labeo* : - Digestive and reproductive systems, heart, afferent and branchia arteries, cranial nerves and internal ear.
- Chick : - Digestive, arterial, venous and urino-genital systems.
- White Rat : - Digestive, arterial, venous and urino-genital systems.

Make temporary preparations of the following :

Temporary preparation of Spicules of *Herdmania*.

Permanent preparation of whole amount of Pharynx of *Herdmania* and *Amphioxus*.

Cycloid scales of *Labeo*, blood smear of mammal.

Guidelines for conduct of Practical-I Examination

1. Dissect the animal provided so as to expose its-----system. Make labeled sketch of the dissection and demonstrate the same to the Examiner. (6)
2. Make temporary mount of the material A. Identify and make labeled sketch. Show the preparation to the Examiner. (4)
3. Identify and classify the specimens B to F upto orders. Write short note on habitat, special features of G & H, feeding habits and economic importance of specimen. (2x5=10)
4. **Viva-Voce+Note Book** (4+1=5)

ZOOLOGY**Practical-II****(Related to Paper-B)****Maximum Marks : 25****Examination Time : 3 hrs.**

1. Study of the skeletal of *Rana* (frog), *Scoliodon*, *Varanus*, *Gallus* and *Oryctolagus* (Rabbit).
2. Study of the following prepared slides :
T.S. *Amphioxus* through various regions.
Spicules & Pharynx of *Herdmania* & Pharynx of *Amphioxus*.
Histology of rat/rabbit (compound tissues)
3. Identification of food stuffs: starch, glucose, proteins and fats in solution.
4. Demonstration of osmosis and diffusion.
5. Demonstrate the presence of amylase in saliva, denaturation by pH and temperature.
6. Determination coagulation and bleeding time of blood in man/ rat/rabbit.
7. Determination of blood groups of human blood sample.
8. Recording of blood pressure of man.
9. Analysis of urine for urea, chloride, glucose and uric acid.
10. Estimation of haemoglobin content.
Field study : Visit to a fossil Park/Lab.
Familiarity with the local vertebrate fauna.

Guidelines for conduct of Practical-II Examination

1. Identify the given bones A & B. Make labeled sketches of their respective—views (6)
2. Minor experiment of Physiology such as blood groups determination/identification of some food stuffs/presence of chloride or glucose in urine etc. (5)
3. Perform the given physiology experiment, write the procedure and show it to the examiner. (5)
4. Identify the slides C & D giving two reasons for each identification. (4)
5. Viva-voce+Note Book (4+1)=5

MICROBIAL & FOOD TECHNOLOGY

Paper-A

Basic Food Microbiology

Time: 3 Hours

Max. Marks : 75

Instructions for Paper Setter :

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

Unit-I

Food as a substrate for microorganisms, intrinsic and extrinsic factors affecting the growth of various microorganisms in foods. Microorganisms important in food microbiology-bacteria, yeasts and molds, sources of contamination in Foods.

Unit-II

Fermented foods, origin of fermentation as a method of preparing indigenous foods, bread, dahi, dosa, idli, dhokla, etc.

Unit-III

Principles of food preservation and spoilage, asepsis, anaerobic conditions, aseptic packaging, preservation methods, high temperature, low temperature, drying, chemical preservatives.

Unit-IV

Spoilage of various milk and milk products, cereal and cereal products, vegetable and fruits, meat and meat products, canned foods. Food poisoning and food infection, staphylococcal, Clostridium and Salmonella intoxications.

Books Recommended

- * Frazier, W.C. and Westhoff, D.C. 1978. Food Microbiology, Tata McGraw Hill Publishing Co., Ltd., New Delhi.
- * Banwart, G.J., 1987. Basic Food Microbiology. CBS Publishers and Distributions, New Delhi.
- * Power, C.B. and Dagniwals, H.F. 1992. General Microbiology. Volume II. Himalaya Publishing House, New Delhi.

MICROBIAL & FOOD TECHNOLOGY**Paper-B****Principles of Food Nutrition****Time: 3 Hours****Max. Marks : 75****Instructions for Paper Setter :**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

Unit-I**Introduction to Nutrition**

Food as a source of nutrients. functions of foods, Malnutrition.

Food guide—Basic five food groups, Concept of Balanced diet.

Energy requirement of the body.

Unit-II**Food Chemistry**

Composition, metabolism & functions of carbohydrates, proteins & fats.

Vitamins & Minerals : Sources, Bioavailability, Functions & deficiency.

Water : Sources, Requirement, functions, water-balance, effects of deficiency.

Unit-III**Meal Planning**

Basic principles of meal planning objectives

Steps in meal planning food cost.

Planning normal diets for following age groups :

- a) Adult male & female
- b) Pregnancy & weaning
- c) Infancy & school going
- d) Adolescence
- e) Old age

Unit-IV

Therapeutic diets

In following conditions :

- a) Diarrhea
- b) Hypertension
- c) Constipation
- d) Fever

Recommended Books

Swaminathan M. Essentials of Food & Nutrition. Vol. I, Bangalore Printing & Publishing Ltd.

Swaminathan M. Essentials of Food & Nutrition. Vol.II, Bangalore Printing & Publishing Ltd.

Meyer L.H. Food Chemistry. CBS Publishers & Distributors

MICROBIAL & FOOD TECHNOLOGY

Practical-II

Time: 4 Hours

Max. Marks : 50

1. Determination of calorific value of a given food.
2. Preparation & Calculation of calories, proteins, carbohydrates, fats & fiber of the diets for the following age groups :
 - a) Adult male & female
 - b) Pregnancy & weaning
 - c) Infancy & school going
 - d) Adolescence
 - e) Old age
3. Preparation & calculation of calories, proteins, fats, carbohydrates & fiber of therapeutic diets in the following conditions.
 - a) Diarrhea
 - b) Hypertension
 - c) Constipation
 - d) Fever
4. To study microbiological quality of raw milk, pasteurized milk & dry milk by methylene blue reduction test & standard plate count.
5. To examine the micro flora of various foods like bread, raw milk, cheese, fruits & cereals.
6. To prepare the fermented food sauerkraut & study its microbiology & spoilage characteristics.
7. To isolate & recognize the microorganisms responsible for the fermentation of yoghurt.
8. To determine & compare the effect of deep freezing & refrigeration on the viability of microorganisms.

MICROBIOLOGY (Vocational)**Paper-A****Microbial Nutrition and Metabolism****Time : 3 Hours****Max. Marks : 75****Instructions for Paper Setter :**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

Unit-I

1. Nutrition, requirements for growth of Microorganisms, Nutrients and accessory constituents, medium designing.

Unit-II

2. Transport of nutrients across the cell membrane, active transport, passive transport, diffusion and group translocation for the transport of nutrients across the membrane.

Unit-III

3. Growth and metabolism, catabolism and energy, Pathways, for breakdown of glucose (glycolysis, Krebs's cycle fermentation, pentose phosphate pathways), gluconeogenesis, assimilation of nitrogen energy metabolism in aerobic and anaerobic microorganisms, metabolism of starch & cellulose by bacteria.

Unit-IV

4. Laws of thermodynamics, entropy, enthalpy and free energy of reaction standard, oxidative phosphorylation, Electron transport, respiratory chains of bacteria. Biosynthesis of nucleic acids, for synthesis of purine and pyrimidine

nucleotides. Enzymes, kinetics, Michaelis Menten equation and allosteric enzymes.

Books Recommended

1. Pleczar, M.J., Chan, E.C.S. Krieg. N.R., 1993, Microbiology, Tata McGraw Hill Publishing Co, Ltd., New Delhi.
2. Stanier, R.Y., Ingraham, J.L., Wheelis, M.L. and Painter, P.R., 1986, General Microbiology, MacMillan Education Ltd., Publishers.
3. Power, C.B. and Dangniwala, H.F. 1992, General Microbiology Volume I and II, Himalaya Publishing House, New Delhi.
4. Sharma, P.D. 1997, Microbiology, Rastogi Publications, Meerut.

MICROBIOLOGY (Vocational)**Paper-B****Microbial Ecology****Time : 3 Hours****Max. Marks : 75****Instructions for Paper Setter :**

There will be a total of nine questions. Question No 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

Unit-I

1. Diversity of microbial habitats : Environmental selecting factors, physical, chemical and biological types of microbial habitats, atmospheric, aquatic and terrestrial environments.

Unit-II

2. Microbial interactions, Competition for survival in nature (for nutrients, space, oxygen), antagonism, commensalism, symbiosis, parasitism miscellaneous associations in nature.

Unit-III

3. Role of microorganisms in geochemicals cycles : Carbon cycle, nitrogen cycle, phosphorus cycle. Sulphur cycle, microbial toxins in the environment: Types of Microbial toxins, ecological consequences of microbial toxins as insectical agents, bioinsecticides.

Unit-IV

4. Microbiological aspects of pollution caused by domestic and industrial sewages, water pollution, air pollution, potable and non-potable water, concept of BOD and COD, effluent treatment by primary, secondary and tertiary methods, biofertilizers bioinsecticides.

Books Recommended

1. Edmonds, P., 1978, Microbiology : An environmental perspective, MacMillan Publishing Co., Inc., New York.
2. Powar C.B. and Danganwala, H.F., 1992, General Microbiology, Volume II, Himalaya Publishing House, New Delhi.
3. Sharma, P.D., 1997, Microbiology, Rastogi Publication, Meerut.
4. Pleczar, M.J., Chan, E.C.S. and Krieg N.R., 1993, Microbiology, Tata McGraw Hill Publishing Co., Ltd., New Delhi.
5. Patel, A.H., 1984, Industrial Microbiology, Macmillan India Ltd., Delhi.

MICROBIOLOGY (Vocational)

Practicals-II

Time : 4 Hours

Max. Marks : 50

1. Isolation and enumeration of total bacteria from soil by pour plating and spread plating.
2. Isolation of yeasts from fermented foods.
3. Isolation and enumeration of fungi from soil and air.
4. Isolation of symbiotic and non-symbiotic nitrogen fixing bacteria.
5. Distinction between fermenting and non-fermenting microorganisms.
6. Effects of various concentrations of carbon source on microbial growth.
7. Effects of various concentrations of nitrogen source on microbial growth.
8. Effect of temperature on microbial growth.
9. Effect of pH on microbial growth.
10. Determination of bacteriological quality of drinking water.
11. Determination of COD in water sample.
12. Determination of dissolved oxygen in water sample.

INDUSTRIAL MICROBIOLOGY

(Vocational)

Paper-A

Microbial Physiology

Time : 3 Hours

Max. Marks : 75

Instructions for Paper Setter :

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice, one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

Unit-I

Brief account of forms (viz. cell wall, cell membrane, nucleus ribosome) and their function in microbes, salient properties of water as biological solvent, pH homeostasis, buffers.

Unit-II

Structural properties of membranes. Transport across cell membrane diffusion, gaseous, exchange, osmosis, plasmolysis, passive and active transport, biochemical factors regulating the transport, role of ionophores, group translocation across membrane. Laws of thermodynamics, entropy, enthalpy and free energy of reaction standard Redox potential, hydrolysis of energy rich intermediates and ATP. Respiratory electron transport and proton-pump chemiosmotic theory. Oxidative phosphorylation (ATP synthesis).

Unit-III

Photosynthetic microbes, oxygenic/non oxygenic reaction centres, electron transport, photophosphorylation, Calvin Cycle, (dark reaction), phosphoenol carboxylase photorespiration and it's

significance. Effect of light, temperature, pH, CO₂ concentration, on photosynthesis, Measurement of net photosynthetic yield. Respiratory pathway, breakdown of carbohydrates through glycolysis, Krebs's cycle fermentation, pentose phosphate pathways, oxidative and substrate level phosphorylation, significance of Krebs's cycle, gluconeogenesis, regulation of glycogenesis and glycogenolysis.

Unit-IV

Nitrogen fixation in symbiotic and free living system, photosynthetic and non photosynthetic system, oxygen and hydrogen regulation of nitrogen fixation, nitrification, denitrification and ammonifying bacteria, pathway of nitrate assimilation in photosynthetic and non photosynthetic system, transamination and deamination reactions.

Books Recommended

1. Microbial Physiology (2004) by Moat, A.G. and Foster, J.W., John Wiley and Sons.
2. Comprehensive Biotechnology, 1984, Vol.I to IV, Ed., Moo Young, Pergamon Press. Microbial Technology, 1977, Ed., H.J.Peppler, Reinhold Publishing Company, New York.
3. Pelezar, M.J.Reid, R.D. and Chan, E.C.S., 1993, Microbiology, 5th Edition, McGraw Hills.
4. Lehninger, A (2002), Biochemistry, Worth Publication, U.S.A.
5. Peppler, H.J. and Periman, D., 1976, Microbial Technology, Vol.I., Microbial Processes Academic Press.

INDUSTRIAL MICROBIOLOGY**(Vocational)****Paper - B****Microbial Biochemistry****Time : 3 Hours****Max. Marks : 75****Instructions for Paper Setter :**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

Unit-I

1. Classification of carbohydrates, optical properties, chemical properties of carbohydrates, chemical structure and properties of starch, cellulose, glycogen. Saturated and unsaturated fatty acids, biosynthesis of fatty acid, distribution and function of lipids and microorganism. Degradation of lipids by alpha, beta and omega oxidation, lipid peroxidation.

Unit-II

2. Properties of proteins (acids base property and solubility), Primary, secondary, tertiary structures of proteins. Amino acids classification of essential amino acids. Hendersen and Hasselbalch equation for ionisation of amino acids and Zwitterions property. Synthesis of peptides.

Unit-III

3. Enzymes Classification, coenzyme, cofactor, thermodynamics Explanation of enzyme catalysis, reaction order, derivation of Michaelis-Menten equation, transformation of Michaelis-Menten Kinetics to line weaver-Burke Plot, competitive, uncompetitive and non competitive inhibition, kinetics of

allosteric regulation of enzyme. Isozymes, factors contributing to catalytic efficiency of enzymes (Mode of catalysis).

Unit-IV

4. The general structure of DNA, RNA (mRNA,tRNA), synthesis of RNA in Eukaryotes and prokaryotes, concept of operon, promoters and repressor, post transcriptional processing of RNA, regulation of gene expression, (positive and negative control).

Books Recommended

1. Cohn E. E and Stumph P.K., (1988). Outline of Biochemistry, John Wiley and Sons.
2. Lehninger, A., (1978), Biochemistry, Worth Publication, U.S.A.
3. Pepler, H.J. and Periman, D., 1979, Microbial Technology, Vol.I, Microbial Processes, Academic Press.
4. Microbial Physiology, (1981) by Moat, A.G. and Foster, J.W., John Wiley and Sons, Third Edition.
5. General Microbiology, Vol.I by Power and Dagainawala, Himalayan Publisher.

INDUSTRIAL MICROBIOLOGY (Vocational)

Practicals

Time : 3 Hours

Max. Marks : 50

1. Growth curve of Bacteria and fungi in shake flask using, Optical density, Biomass and Cell numbers
2. Effect of pH on the growth of Bacteria and fungi.
3. Effect of temperature on the growth of fungi/bacteria.
4. Estimation of Extracellular Protein in cell culture.
5. Estimation of sugars in cell culture broth.
6. Extraction and identification of lipids by thin layer chromatography.
7. Isolation of micro organisms from air.
8. Isolation of micro organisms from soil.
9. Isolation of micro organisms from water.
10. Paper chromatographic separation of amino acid and pigments by one way descending.
11. Measurement of Mutation frequency in bacteria.
12. Mutant isolation by gradient plate technique.
13. Effect of UV light on mutation frequency in Bacteria.

BIOTECHNOLOGY (Vocational) Scheme

		Credit Hrs.	Marks
Paper A	Biophysics and Molecular Biology	3	60
Paper B	Immunology and Animal Tissue Culture	3	60
Paper C	Practicals		
	Immunological and Animal Tissue Culture Techniques	6	60
	On Job Training	-	20
	Total		200

Paper-A Biophysics and Molecular Biology

Time : 3 Hrs.

Periods-3

Marks-60

Note for the paper setters/examiners:

Each question paper will consist of three sections as follows:

Section A: 10 very short answer type questions are to be set, two from each unit. The maximum length of answer can be about 1/3 of a page. All questions are compulsory. Each question will carry 1½ marks, total weightage being 15 marks.

Section B: This section will comprise of 8 questions. Five questions to be attempted and maximum length of answer can be upto two pages. Each question will carry five marks, total weightage being 25 marks.

Section C: This section will comprise of four essay type questions. Two questions are to be attempted. Maximum length of answer can be upto 5 pages. Each question will carry 10 marks, total weightage being 20 marks.

Biophysics

Unit-I

Energetics of a living body. Sources of heat limits to temperature, Heat dissipation and conservation, Lambert-Beer law, General spectroscopy-UV-vis, fluorescence, IR, Raman spectra.

Unit-II

Radioisotopic techniques : Base concepts of radioisotopy, theory and applications of Geiger-Multer tube, solid and liquid scintillation counters, primary and secondary flours. Safety rules for radioisotopic studies.

Electrophoresis : Basic principles, theory and application of native, SDS-Page and Agarose Gel electrophoresis. Introduction to IEF, (Iso-electric focusing) 2-D gel. Applications in biology for isolation of biomolecules based on charge and molecular weight.

Chromatography : Theory, principle and application of column, paper, thin layer, ion-exchange affinity chromatography, GLC, HPLC.

Unit-III

Molecular basis of life, Structure of DNA, DNA replication in prokaryotes and eukaryotes, DNA recombination : molecular mechanisms in prokaryotes and eukaryotes. Insertion elements and transposons.

Unit-IV

Structure of prokaryotic genes, Prokaryotic transcription, Prokaryotic translation, Prokaryotic gene expression (lac, his, trp operons, catabolic repression).

Unit-V

Structure of eukaryotic genes, Eukaryotic transcription, Eukaryotic translation, Eukaryotic gene expression, transcription factors etc., Gene expression in yeast, Gene expression in protozoan parasites, Gene organization and expression in - mitochondria, chloroplasts, Post-translation regulation of gene expression, Development and environmental regulation of gene expression.

Books Recommended:

1. Damal. J, Lodish, H., and Baltimore, D. (1990), Molecular Cell Biology, 2nd, .. Scientific American Books, Distributed by W. H. Freeman and Co., New York.

2. Freifelder, D., (1982), *Physical Biochemistry, Application to Biochemistry and Molecular Biology*, 2nd ed., W. H. Freeman and Company, San Francisco.
3. Friefelder, D. 2nd ed. Jones & Bartlett Publishers, Inc. Boston.
4. Lewin, B., (1997), *Gene VI*, Oxford University Press.
5. R. W. Old and S. B. Primerose (1989): *Principles of Gene Manipulation: An Introduction to Genetic Engineering*, Black Well Scientific Publications.
6. William, B.L. and Wilson, K., (1986), *A Biologist Guide to Principles and Techniques Practical Biochemistry*, 3rd ed., Edward Arnold Publisher, Baltimore, Maryland (USA).

BIOTECHNOLOGY (Vocational)**Paper B****Immunology and Animal Tissue Culture****Time: 3 hrs.****Periods-3****Marks : 60****Note for the paper setters/examiners:****Each question paper will consist of three sections as follows:**

Section A: 10 very short answer questions are to be set. Two from each unit. The maximum length of answer can be about 1/3 of a page. All questions are compulsory. Each question will carry $\frac{1}{2}$ marks, total weightage being 15 marks.

Section B: This section will comprise of 8 questions. Five questions to be attempted and maximum length of answer can be upto two pages. Each question will carry five marks, total weightage being 25 marks.

Section-C: This section will comprise of four essay type questions. Two questions are to be attempted. Maximum length of answer can be upto 5 pages. Each question will carry 10 marks, total weightage being 20 marks.

Immunology**Unit-I**

The Immune system and Immunity along with historical perspective, Antigen-antibody and their structure. The organs and the cells of the immune system and their function, Antigen-antibody interaction.

Unit-II

Humoral and cell mediated immunity (role of MHC and genetic restriction), Origin of diversity in the immune system, Effector mechanisms, Immunity to infectious diseases, vaccines.

Animal Tissue Culture**Unit-III**

History of development of cell cultures, The natural surroundings of animal cells, Metabolic capabilities of animal cells, Simulating natural conditions for growing animal cells, Importance of growth factors of the serum.

Unit-IV

Primary cultures, Anchorage dependence of growth, Non-anchorage dependent cells, Secondary cultures, Transformed animal cells, Established/continuous cell lines, Commonly used animal cell lines-their origin and characteristics, Growth kinetics of cells in culture.

Unit-V

Applications of animal cell culture for studies on gene expression, Organ culture, Transfection of animal cells : Selectable markers, HAT selection, antibiotic resistance etc., Cell fusion, Transplantation of cultured cells, Differentiation of cells.

Books Recommended:

1. Austyn, J. M. and Wood, K. J., (1993), Principles of Cellular and molecular Immunology, Oxford University Press Inc., New York
2. Butler, M., (1987), Animal Cell Technology-Principles and Practices, Oxford University Press.
3. Butler, M., (1991), Mammalian Cell Biotechnology—A Practical Approach, IRL, Oxford University Press.
4. Buller, M., (1996), The Animal Cell Culture and Technology, IRL, Oxford Uni. Press
5. Freshney R. T., (1994), Culture of Animal Cells, John Wiley and Sons, New York.
6. Gareth, E. J., (1996), Human Cell Culture Protocols, Humana Press.
7. Kubly, J., (1992), Immunology, W. H. Freeman and Company, New York.
8. Paul, W.E., (1995), Fundamental Immunology, 3rd ed., Raven Press, New York. Applications Wiley Liss
9. Roitt, I.M., Brostoff, J and Male, D. K. (1989), Immunology, Grower Medical Publishing, New York.
10. Strites D. P., Terr. A.I. & Parslow T.G., (1997), Medical Immunology, 9th ed., PHI, Cambridge.

BIOTECHNOLOGY (Vocational)
Paper-C (Practicals)
Immunological and Animal Tissue Techniques

Time: 3 hrs.

Periods- 6

Marks : 60

Cytological preparations :

- Fixation, dehydration and staining.
- Squash in stain.
- Embedding and sectioning.

Measurements with the help of light microscope :

- Calibration of ocular micrometer.
- Finding out average cell size.
- Chromosome length.

Methods for cells lysis: rupture Osmotic/Chemical/Enzymatic lysis, of cell followed by centrifugation. Monitoring cells lysis by release of cellular material and by change in light scattering etc.

Preparation of Hanks Balanced salt solution

Preparation minimal essential growth medium

Isolation of lymphocytes for culturing

Isolation of rat macrophages from peritoneum for culturing

Primary lymphoid culture

Isolation of mononuclear cells from spleen and their culture

Separation of the constituent molecules of the extract in aqueous buffer :

- Gel filtration.
- Ion exchange chromatography.

Immunological Methods

Cell counting methods :

- The haemocytometer and other aides.
- Separation of cell types (from blood)

Purification of Antibodies.

Hemagglutination assay

Raising polyclonal antibodies.

Conjugation and labelling of antibodies.

Enzyme-linked immunoassay .

Radial immunodiffusion analysis.

Separation of serum from the blood.

Books Recommended:

1. Birch, J.R., Lennox, E.S., (1995), Monoclonal Antibodies: Principles and Applications, John Willey & Sons Inc., New York.
2. Celis, J.E., (1998), Cell Biology: A laboratory handbook Vol-I to IV, Academic Press, U.K.
3. Maniatis, T., E.F. Fritsch, and J. Sambrook, 1982, Molecular cloning: A laboratory manual, 1st edition, Cold Spring Harbour Laboratory, Cold Spring Harbour, New York.
4. Stevens, C.D., (1996), Clinical Immunology and Serology: A laboratory perspective, F.A. Davis Company, Philadelphia.

Biotechnology (Vocational) -Part -II

Marks : 20

On Job Training

This should be taken up during summer over a period of one month preferably in an immunology/veterinary/virology Institute or a laboratory using recombinant DNA methods.

Scheme of B.Sc. Human Genetics

Part-II				
Fundamentals of Human Growth, Physique and Body Composition	75	-	75	60
Human Evolution and Population Genetics	75	-	75	60
Fundamentals of Human Growth, Physique and Body Composition (Practical)	-	50	50	50
	Total		150	50 200

B.Sc. Human Genetics

Paper-I

Fundamentals of Human Growth, Physique and Body Composition

Time : 3 Hours

Max. Marks : 75

Total Hours : 60

Unit-I

Definition and scope of growth and development, Periods of growth, Laws of growth, Methods of studying growth, growth curves, Assessment of physical growth, Developmental milestones, Behavioral and cognitive development, Factors affecting growth and development.

Unit-II

Human foetal growth, Adolescent growth spurt, Precocious puberty, Delayed puberty, Sex differences in rate of growth, Ageing and morphological changes with age.

Unit-III

Definition and approach to the study of human physique and body composition, Body composition changes with growth, Dysplasia, Gynandromorphy.

Unit-IV

Disorders of growth like short stature, gigantism, and chromosomal disorders. Obesity and growth patterns in chronic diseases. Measures of maturity i.e. skeletal maturity, dental maturity, sexual maturity, morphological maturity.

Books Recommended :

Ghai, O.P., Gupta, P. and Paul, V.K. (2005). Essential Pediatrics. CBS Publishers and Distributors, New Delhi.

McArdle, W.D., Katch, F.I. and Katch, V.L. (2006). Essentials of Exercise Physiology, Lippincott Williams and Wilkins, Baltimore.

Singh, I.P. and Bhasin, M.K. (1998). Anthropometry. Kamla-Raj Enterprises, New Delhi.

Singh, S.P. and Malhotra, P. (1989) Kinanthropometry. Lunar Publications, Patiala.

Ulijaszek S.J., Johnston and Preece, M.A. (1998). Human Growth and Development: The Cambridge Encyclopedia. Cambridge University Press.

Wiener, J.S. and Lourie, J.A. (1981) Practical Human Biology. Academic Press, London.

B.Sc. Human Genetics**Paper-II****Human Evolution and Population Genetics****Time : 3 Hours****Max. Marks : 75****Total Hours : 60****Unit-I**

Introduction and application of population genetics. Frequency of genes and genotypes; Hardy-Weinberg Law. Application of Hardy-Weinberg law for autosomal genes (one locus and two alleles and one locus multiple alleles) and sex-linked loci (co-dominant sex-linked alleles and dominant and recessive sex-linked alleles).

Unit-II

Systematic changes of gene frequency, Mutation (recurrent and non-recurrent), Kinetics of mutation pressure, Estimation of mutation rates. Selection, change of gene frequency against recessive and dominant genes. Genetic load and selection coefficient. Balance between mutation and selection. Kinetics of migration and genetic drift.

Unit-III

Biological effects of mating systems, consanguineous mating. Calculation of inbreeding coefficient of an individual and population. Inbreeding and genetic load. Sampling, Effective population size. Founder effect, Migration and population diversity.

Unit-IV

Modern synthetic theory and the neutral theory of molecular evolution and its conflict. Stages of human evolution like Australopithecine stage, Pithecanthropine stage, Neanderthal and Modern stage. Characteristics of Modern man. Classification and significant characteristics of living primates.

Books Recommended :

Brace, C.L. (1990). The Stages of Human Evolution. Prentice Hall, New Jersey.

Cavalli-Sforza, L.L. and Bodmer, W.F. (1970). *The Genetics of Human Population*. W.H. Freeman and Co., San Francisco.

Hartl, D.L. and Clark, A.G. (1997). *Principles of Population Genetics*, Sinaur Associates, Inc. Massachusetts.

Hedrick, P.W. (2000). *Genetics of Population*. Jones and Bartlett Publishers, Massachusetts.

Strickberger, M.W. (2000). *Evolution*. Jones and Bartlett Publication, USA.

Vogel, F. and Motulsky, A.G. (1997). *Human Genetics: Problems and Approaches*. Springer-Verlag, Berlin. 3rd ed.

Fundamentals of Human Growth, Physique and Body Composition (Practical)

Time : 3 Hours

Max. Marks : 50

Definition and location of various landmarks on body, technique of various anthropometric measurements, Growth curves direction of growth curve assessment of growth status and growth rate. Somatotyping by Sheldon's, Heath and Carter's method, Anthropometric determination of body composition by various predication equations (i.e. body density, percent body fat and lean body mass).

MATHEMATICS

Paper-I Calculus-II

Time : 3 Hours

Max. Marks : 65

- Note :**
1. Questions paper will be consist of two sections. Each section will consist of five questions set from corresponding section of the syllabus.
 2. The students will attempt five questions in all selecting at least two questions from each Section.
 3. Teaching time for Mathematics would be five periods per week for each paper.

Section-A

Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion. Series of non-negative terms. Comparison tests. Cauchy's integral tests. Ratio tests. Cauchy's root test. Raabe's test logarithmic test. De'morgan's and Bertrand's tests. Kummer's test, Cauchy Condensation test, Gauss test, alternative series. Leibnitz's test. absolute and conditional convergence.

Section-B

Limit and Continuity of functions of two variables. Partial differentiation. Change of variables. Partial derivation and differentiability of real-valued functions of two variables. Schwartz's and Young's theorem. Statements of Inverse and implicit function theorems and applications.

Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. Jacobins.

Envelopes. Evolutes. Maxima, Minima and saddle points of functions of two variables. Lagrange's undetermined multiplier method.

Books Recommended :

1. Narayan, S.: A Course of Mathematical Analysis, Sultan Chand & Sons, New Delhi (2000).
2. Narayan S.: Differential Calculus, Sultan Chand & Sons. New Delhi (2005).
3. Malik, S.C.: Mathematical Analysis, Wiley Eastern Ltd. (1991).

MATHEMATICS

Paper-II

Integral Calculus

Time : 3 Hours

Max.Marks : 65

- Note :**
1. Questions paper will be consist of two sections. Each section will consist of five questions set from corresponding section of the syllabus.
 2. The students will attempt five questions in all selecting at least two questions from each Section.
 3. Teaching time for Mathematics would be five periods per week for each paper.

Section-A

Partitions, Upper and lower sums. Upper and lower integrals, Riemann integrability. Conditions of existence of Riemann integrability of continuous functions and of monotone functions. Algebra of integrable functions. Inequalities involving integrals. Improper integrals and statements of their conditions of existence. Test of the convergence of improper integral. Standard improper integrals of the first and second kinds. Beta and Gamma functions.

Section-B

Double and Triple Integrals, Change of Variables. Applications to evaluation of areas, Volume, Centre of gravity, and moments of inertia etc. Change of order of integration in double integrals.

Books Recommended :

1. Malik, S.C.: Mathematical Analysis, Wiley Eastern Ltd. (1991).
2. Apostol, T.M. : Mathematical Analysis, Addison Wesley Series in Mathematics (1974).
3. Narayan, S. : Integral Calculus, Sultan Chand & Sons.
4. Kreyszig, E. : Advanced Engineering Mathematics.
5. Shanti Narayan. : Course of Mathematics Analysis, Sultan and Company, (2008).

MATHEMATICS

Paper-III

Vector Calculus and Solid Geometry

Time : 3 Hours

Max.Marks : 70

- Note :**
1. Questions paper will consist of two sections. Each section will consist of five questions set from corresponding section of the syllabus.
 2. The students will attempt five questions in all selecting at least two questions from each Section.
 3. Teaching time for Mathematics would be five periods per week for each paper.

Section-A

Vector differentiation, Gradient, divergence and curl operators, line integrals, Vector identity, Vector integration, Theorems of Gauss, Green, Stokes and problems based on these.

Intersection of three planes : Condition for three planes to intersect in a point or along a line or to form a prism. Change of axes, Shift of origin, rotation of axes. Equation of surface of revolution obtained by rotating the curve.

$$f(x,y)=0 \text{ about the } Z\text{-axis in the form of } f(x^2+y^2, z)=0$$

Equation of ellipsoid, hyperboloid and paraboloid in standard forms. Surfaces (represented by general equation of 2nd degree $S=0$). Tangent lines tangent planes. Normal plane.

Section-B

Sphere, Section of a sphere by a plane, spheres of a given circle. Intersection of a line and a sphere. Tangent line, tangent plane, power of a point w.r. to a sphere, radical planes. Cylinder as surface generated by a line moving parallel to a fixed line and through fixed curve. Different kinds of cylinders such as right circular, elliptic, hyperbolic and parabolic in standard forms, Cone with a vertex at

the origin as the graph of homogeneous equation of second degree in x, y, z . cone as a surface generated by a line passing through a fixed curve and fixed point outside the plane of the curve, right circular and elliptic cones.

Books Recommended :

1. Narayan, S. : Analytical Solid Geometry, Sultan Chand & Sons (2005).
2. Kreyszig, E. : Advanced Engineering Mathematics.
3. Thomas, G.B. and Finney, R.L. : Calculus and Analytic Geometry.
4. Spiegel M.R. : Integration to Vector Calculus and Tensor.

STATISTICS

Paper A Probability-II

Time : 3 Hours

Max. Marks : 100

Note : 1. The candidates are allowed to use Non-Programmable calculators.

- 2. Question paper will consist of two sections. Each section will consist of five questions set from corresponding section of the syllabus.**
- 3. The student will attempt five questions in all selecting at least two questions from each section.**
- 4. Teaching time for Statistics would be five periods per week for each paper.**

Note : The paper setters may be asked to send solutions for the questions set in the question paper.

Section-A

Two dimensional random variables, their joint probability mass function and joint probability density function, marginal and conditional probability distributions, independent random variables, functions of two random variables, distribution of addition, subtraction Product and quotient of two independent random variables.

Expected value of real valued function of a two-dimensional random vector and properties of the expected value. Chebyshev's inequality and its applications.

The covariance, the correlation coefficient, conditional expectation and regression of the means.

The Multinomial distribution, its expected value and variance.

The bivariate normal distribution, the marginal and conditional probability distributions associated with the bivariate normal distribution.

Section B

Moment generating function of the sum of finite number of independent random variables. Reproductive properties of the Binomial, Poisson, Normal, and Gamma Distribution. Sequence of random variables, the correspondence between the limiting moment generating function of a sequence of random variables and the limiting cumulative distribution function.

The law of large numbers, Bernoulli's form of the law of large numbers, the difference between convergence in probability and the ordinary convergence of calculus, normal approximation to the Binomial distribution, the central limit theorem for independent identically distributed random variables and the outline of its proof using moment generating function. Applications of central limit theorem.

Books Recommended

Meyer, P.L. Introductory Probability and Statistical Applications, Addison—Wesley, (1970). Chapters : 6 (Excluding 6.6), 7 (7.3.,7.6, 7.8, 7.9, 7.10, 7.11 only). 8 (8.8 only), 9 (9.10 only) 10 (10.5, 10.6 only), 12 (excluding 12.5).

Books Suggested for Supplementary Reading

Biswal, P.C. Probability and Statistics, Prentice Hall of India, 2007.

Ross, S. A First Course in Probability, Pearson Education, 2007.

Miller, I and Miller, M. Mathematical Statistics with Applications, Seventh Edition, Pearson Education, 2007.

STATISTICS

Paper B

Estimation and Testing Hypothesis

Time : 3 Hours

Max. Marks : 100

Note : 1. The candidates are allowed to use Non-Programmable calculators.

- 2. Question paper may consist of two sections. Each section will consist of five questions set from corresponding section of the syllabus.**
- 3. The student will attempt five question in all selecting at least two questions from each section.**
- 4. Teaching time for Statistics would be five periods per week for each paper.**

Note : The paper setters may be asked to send solutions for the questions set in the question paper.

Section-A

Point estimation, estimator and estimates, criteria for good estimators- unbiasedness, consistency, efficiency and sufficiency (only the definitions and examples), Minimum variance unbiased estimator, Rao Blackwell Theorem, Scheffe's lemma Crammer, Rao Inequality (only statements and their applications). Methods of estimation: moments and maximum likelihood method of estimation, interval estimation and interval estimate of the mean of a normal distribution.

Neyman and Pearson's theory of testing hypothesis, the concepts of statistical hypothesis, two types of errors, critical region, significance level, power and power function. Most powerful test, The Neyman Pearson theorem (only the statement) and its applications for testing a simple hypothesis against a simple alternative.

Sampling distributions; Chi-square, t and F distributions; sampling distribution of the mean of a set of independent random observations from a normal population, sampling distribution of the sample variance of independent random observations from a normal population (derivation of sample variance distribution is excluded). Expectation and variance of sampling mean and variance.

Section-B

Tests for the independence of two attributes, tests, about the mean and variance of a univariate normal distribution, comparison of two univariate normal distributions through their means and variances. Testing the significance of the correlation coefficient.

Approximate tests for proportions and for Poisson Parameters, Z-transformation of the sample correlation, tests regarding the population correlation coefficient based on the Z-transformation and confidence limits for the coefficient based on it.

Chi-square tests for goodness of fit, for homogeneity and for independence of attributes, Simplified formula for Chi-square for testing homogeneity and for independence in 2x2 tables and kxb contingency tables. Yates correction for continuity in 2x2 tables.

Book Recommended :

Goon. A.M. Gupta. M.K. and Dasgupta B., Fundamentals of Statistics, Vol.I, World Press, 2005.

Books Suggested for Supplementary Reading :

Hogg. R.V. and Mckean, J.W. and Craig. A.T., Introduction to Mathematical Statistics, Pearson Education, 2007.

Miller, I and Miller, M. Mathematical Statistics with Applications, Pearson Education, 2007.

APPLIED STATISTICS

Note :

1. This Course shall not be opted for alongwith courses in B.A./B.Sc. Mathematics and for 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 are two papers code named, papers A and B in the subject of Applied Statistics in B.A./B.Sc. each of one credit and having a total of 100 marks. These are to be taught simultaneously throughout the year.

Paper - A

Mathematical Methods-II

Time : 3 Hours

Max. Marks : 100

Note : 1. The candidates are allowed to use Non-Programmable calculators.

2. **Question paper may consist of two sections. Each section will consist of five questions set from corresponding section of the syllabus.**
3. **The student will attempt five question in all selecting at least two questions from each section.**
4. **Teaching time for Statistics would be five periods per week for each paper.**

Note : The paper setters may be asked to send solutions for the questions set in the question paper.

Section-A

Coordinate Geometry of 3 dimensions : Cartesian, Cylindrical Spherical Coordinates, equations of line, plane, sphere, cone and cylinder.

Matrices and Linear Algebra : Determinants, algebra of matrices rank of a matrix, inverse of a matrix, symmetric skew symmetric,

hermitian and skew hermitian matrices (up to 4x4 matrices only), Eigen value, Eigen vector, Caley Hamilton Theorem, Quadratic form.

Section-B

Matrices and Linear Algebra : Systems of Linear equations and their solutions. Calculus of several variables : Functions of two variables, Partial derivatives, and double integrals, triple integral. Applications to evaluation of area and volume.

Books Prescribed

Bindra, J.S. & Gill, K.S., Applied Mathematics, S.K. Katria & Sons. 2003.

Grewal, B.S., Higher Engineering Mathematics, Khanna Publishers, 2007.

Books Suggested for Supplementary Reading

Babu, A.C. Seshan, C.R., New Engineering Mathematics, Narosa Publishers, 2006.

Strauss, M.J. Bradley, G.L. and Smith K.J., Calculus, third Edition, Pearson Education, 2007

APPLIED STATISTICS

Paper B

Statistical Methods

Time : 3 Hours

Max. Marks : 100

Note : 1. The candidates are allowed to use Non-Programmable calculators.

2. Question paper may consist of two sections. Each section will consist of five questions set from corresponding section of the syllabus.

3. The student will attempt five questions in all selecting at least two questions from each section.

4. Teaching time for statistics would be five periods per week for each paper.

Note : The paper setters may be asked to send solutions for the questions set in the question paper.

Section-A

Scope and limitation of statistics, collection, classification, tabulation and diagrammatic representation of statistical data, Concepts of statistical population random sample and frequency curve. Central tendency, measures of central tendency, dispersion, measures of dispersion, skewness and kurtosis and their measures. Two dimensional random variable, joint probability distribution, marginal and conditional probability distributions, conditional expectation, covariance and correlation coefficient.

Section-B

Measures of association and contingency, Bivariate data, scatter diagram, covariance, correlation coefficient and its properties, and line of regression involving two variables only. Bivariate normal distribution, marginal and conditional distributions.

Statement of weak law of large numbers and central limit theorem for independent and identical random variable and its application.

Sampling distributions, expectation and variance of mean, Chi-square, t and F in sampling from normal populations (without proof).

Book Recommended

Goon, A.M., Gupta M.K., and Das Gupta, B., Fundamentals of Statistics, Vol.I, World Press, 2005.

Books Suggested for Supplementary Reading :

Goon, A.M. Gupta, M.K. and Das Gupta B. Basic Statistics, World Press, 2005.

Gupta, S.C. Statistical Methods. Himalayan Publishing House, 2003.

Gupta, S.C. and Kapoor, V.K. Fundamentals of Mathematical Statistics, Sultan Chand and Company, 2007.

PHYSICS

Note :

1. There will be three papers of theory and one laboratory (practical) course.
2. The number of lectures per week will be three for each theory paper.
3. The number of lectures per week will be six for practical.
4. The examination time for each theory paper will be three hours.
5. The examination time for practical will be four hours.
6. The use of nonprogrammable calculator will be allowed in the examination centre but these will not be provided by the university/college.

Paper A	: Statistical Physics and Thermodynamics	50 marks	Total teaching hours 60
Paper B	: Optics and Lasers	50 marks	Total teaching hours 60
Paper C	: Quantum Physics	50 marks	Total teaching hours 60
	Physics Practicals	50 marks	Total teaching hours 90

Each theory paper will consist of Five Units.

Unit-I

There will be two questions from this unit. Each question will carry 10 marks. Only one question is to be attempted.

Unit-II

There will be two questions from this unit. Each question will carry 10 marks. Only one question is to be attempted.

Unit-III

There will be two questions from this unit. Each question will carry 10 marks. Only one question is to be attempted.

Unit-IV

There will be two questions from this unit. Each question will carry 10 marks. Only one question is to be attempted.

Unit-V

There will be Eight parts (each carrying 2 marks) of small answer type covering the syllabi of all these four units (units I-IV) out of these five parts are to be attempted.

PHYSICS

Paper A

Statistical Physics and Thermodynamics

Max. Marks : 50

Total Teaching Hours : 60

Pass Marks : 35%

Time Allowed : 3 hours

The Paper will consist of Five Units :

Unit-I There will be two questions from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-II There will be two questions from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-III There will be two question from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-IV There will be two questions from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-V There will be Eight questions from small answer type covering the syllabi of all the four units (I-IV). Five questions are to be attempted. Each question will carry two marks.

Unit-I

Basic ideas of statistical physics. Scope of statistical physics, Basic ideas about probability, distribution of four distinguishable particles in two compartment of equal size. Concept of macro states, microstates, thermodynamic probability. Effects of constraints on the system. Distribution of n particles in two compartments. Deviation from the state of maximum probability, equilibrium state of dynamic system. Distribution of distinguishable n particles in k compartments of unequal sizes.

Unit-II

Phase space and its division into elementary cells. Three kinds of statistics. The basic approach in the three statistics. Maxwell

Boltzman (MB) statistics applied to an ideal gas in equilibrium. Experimental verification of Maxwell Boltzman law of distribution of molecular speeds. Need for quantum statistics-Bose-Einstein (B.E.) statistics. Derivation of Planck's law of radiation. Deduction of Wien displacement law and Stefan's law from Planck's law, Fermi-Dirac (E.D.) statistics, Comparison of M.B., B.E. and F.D. statistics.

Unit-III

Statistical definition of entropy, Change of entropy of a system, Additive nature of entropy, Law of increase of entropy. Reversible and irreversible process and their examples. Work done in a reversible process, Examples of increase of entropy in natural processes, Entropy and disorder. Brief review of terms and laws of thermodynamics. Carnot's cycle, Entropy changes in Carnot cycle. Applications of thermodynamics to thermoelectric effect. Change of entropy along a reversible path in a P.V. diagram. Entropy of a perfect gas. Equation of state of an ideal gas from simple statistical consideration, Heat death of the universe.

Unit-IV

Derivation of Maxwell's thermo dynamical relations, Cooling produced by adiabatic stretching. Adiabatic compression, Change of internal energy with volume, specific heat and constant pressure and constant volume, Expression for Cr-Cy. Change of state and Claypron equation. Thermo dynamical treatment of Joule-Thomson effect. Use of Joule-Thomson effect, liquefaction of helium. Production very low temperature by adiabatic demagnetization.

Text Reference Books

1. Statistical Physics and Thermodynamic, V.S. Bhatia (Sohan Lal Nagin Chand, Jalandhar.

2. A Treatise on Heat, M.N. Saha & B.N. Srivastava (The Indian Press Pvt. Ltd., Allahabad), 1965.
3. Statistical Mechanics : An Introductory Text, Bhattacharjee, J.K., (Allied Pub., Delhi), 2000.
4. Statistical Physics, Bhattacharjee, J.K., (Allied Pub., Delhi) 2000.
5. Statistical Mechanics, B.B. Laud, (Macmillan India Ltd.) 1981.

PHYSICS**Paper B****Optics and Lasers****Maximum Marks : 50****Total Teaching Hours : 60****Pass Marks : 35%****Time Allowed : 3 hours****The Paper will consist of Five Units :**

Unit-I There will be two questions from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-II There will be two question from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-III There will be two question from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-IV There will be two question from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-V There will be Eight questions of small answer type covering the syllabi of all the four units(I-IV). Five questions are to be attempted. Each question will carry two marks.

Unit-I

Interference : Concept of coherence, Spatial and temporal coherence, Coherence time, Coherence length, Area of coherence. Conditions for observing interference fringes. Interfere length by wave front division and amplitude division. Michelson's interferometer—working, Principle and nature of fringes. Interference in thin films. Role of interference in anti-reflection and high-reflection dielectric coatings, Multiple beam interference, Fabry-Perot interferometer. Nature of fringes.

Unit-II

Diffraction : Huygens-Fresnel theory, half-period zones, Zone plates. Distinction between Fresnel and Fraunhofer diffraction.

Fraunhofer diffraction at rectangular and circular apertures. Effects of diffraction in optical imaging, resolving power of telescope. The diffraction grating, its use as a spectroscopic element and its resolving power, Polarization : Concept and analytical treatment of unpolarized, plane polarized and elliptically polarized light. Double refraction, Nicol prism, Sheet polarizer, Retardation plates. Production and analysis of polarized light (quarter and half wave plates).

Unit-III

Laser Fundamentals : Derivation of Einstein's relations. Concept of simulated emission and population inversion, Broadening of spectral lines, natural, collision, and Doppler broadening Line width, Line profile. Absorption and amplification of a parallel beam of light passing through a medium. Threshold condition, three level and four level laser schemes, elementary theory of optical cavity, Longitudinal and transverse modes.

Unit-IV

Laser systems : types of lasers, Ruby and Nd:Yag lasers He-Ne and CO lasers construction mode of creating population inversion and output characteristics. Semiconductor lasers, Dye lasers, Q-switching, Mode locking, Applications of lasers—a general outline, Basics of holography.

Text and Reference Books

1. Fundamentals of Optics, F.A. Jenkins and Harvey E. White, (McGraw Hill) 4th edition, 2001.
2. Optics, Ajoy Ghatak, (McMillan India) 2nd edition, 7th reprint, 1997.
3. Introduction to Atomic Spectra, H.E. White (McGraw Hill, Book Co., inc., New York).

4. Laser Fundamentals, W.T. Silfvast (Foundation Books), New Delhi, 1996.
5. Lasers and Non-linear Optics, B.B. Laud (New Age Pub.) 2002.
6. Optics, Born and Wolf, (Pergamon Press) 3rd edition, 1965.
7. Lasers, Svelto, (Plenum Press), 3rd Ed., New York.

PHYSICS
Paper C
Quantum Physics

Maximum Marks : 50 **Total Teaching Hours : 60**

Pass Marks : 35% **Time Allowed : 3 hours**

The Paper will consist of Five Units:

Unit-I There will be two questions from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-II There will be two question from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-III There will be two question from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-IV There will be two question from this unit. Each question will carry ten marks. Only one question is to be attempted.

Unit-V There will be Eight questions of small answer type covering the syllabi of all the four units (I-IV). Five questions are to be attempted. Each question will carry two marks.

Unit-I

Formalism of Wave Mechanics : Brief introduction to need and development of quantum mechanics, Wave-particle duality, de-Broglie hypothesis. Complimentarity and uncertainty principle, Gaussian wave packet, Schrodinger equation for a free particle. Operator correspondence and equation for a particle subject to forces. Normalization and probability interpretation of wave function. Superposition principle, Expectation value, Probability current and conservation of probability. Admissibility conditions on the wave function. Ehrenfest theorem, Fundamental postulates of wave mechanics. Eigen functions and eigen values. Operator formalism, Orthogonal systems, Expansion in eigen functions. Hermitian operators. Simultaneous eigen functions, Equation of motion.

Unit-II

Problems in one and three dimensions : Time dependent Schrodinger equation. Application to stationary states for one dimension. Potential sep. Potential barrier, Rectangular potential well. Degeneracy, Orthogonality, Linear harmonic oscillator. Schrodinger equation for spherically symmetric potential, Spherical harmonics, Hydrogen atom energy levels and eigen functions, Degeneracy, Angular momentum.

Unit-III

One Electron Atomic Spectra : Interaction of atom with radiation, Transition probability, Spontaneous transition. Selection rules and life times. Spectrum of hydrogen atom. Line structure, Normal Zeeman effect, Electron spin, Stern Gerlach experiment, Spin orbit coupling (electron magnetic moment, total angular momentum). Hyperfine structure, Examples of one electron systems, Anomalous Zeeman effect Lande-g factor (sodium D-lines).

Unit-IV

Many Electron System Spectra : Exchange symmetry of wave functions, exclusion principle, Shells, Sub shells in atoms, atomic spectra (Helium). L.S. coupling, Selection rules, Regularities in atomic spectra, Interaction energy ideas X-ray spectra. Mosley law, Absorption spectra, Auger effect, Molecular bonding, Molecular spectra, Selection rules, Symmetric structures. Rotational, vibrational electronic level and spectra of molecules, Magnetic resonance experiments. Raman spectra, Introduction to Raman spectra.

Text and Reference Books

1. A Text Book of Quantum Mechanics, P.M. Mathews and K. Venkatesan, (Tata McGraw Hill Pub. Co., Delhi) 2002.
2. Quantum Mechanics, J.L. Powell and B. Crasemann (Narosa Pub. House, N. Delhi) 1997.
3. Concepts of Modern Physics, Arthur Beiser (McGraw Hill Pub. Co., Delhi, 9th Ed.), 1995.

4. Elements of Modern Physics, S.H. Patil (McGraw Hill), 1998.
5. Quantum Mechanics, E. Merzbacher (John Wiley, 2nd Ed.).
6. Fundamental of Molecular Spectroscopy, C.N. Banwell (Tata McGraw Hill Pub. Co., Delhi), 2001.
7. Atomic Spectra, H.G. Kuhn (Longmans), 2nd Ed., 1969.
8. Introduction to Quantum Mechanics, L. Pauling and E.B. Wilson (Tata McGraw Hill Pub. Co., Delhi), 2002.
9. Quantum Mechanics, W. Greiner (Springer Verlag), 1994.

PHYSICS

Practical

Total Teaching Hours : 90 Hrs. Maximum Marks : 50

Pass Marks : 35% Time Allowed : 4 Hours

Guidelines for Physics Practical examination

1. The distribution of marks is as follows :
 - (i) One full experiment out of Unit-I equiring **20 marks**
the students to take some data, analyse it and draw conclusions. (Candidates are expected to state their results with limits of error.
 - (ii) Brief theory **05 marks**
 - (iii) One exercise based on experiment or computer programming (to be allotted by the external examiner at the time of examination) **10 marks**
 - (iv) Viva-voce **10 marks**
 - (v) Record (Practical file) **05 marks**
2. The examiner should take care that the experiment allotted to an examinee from Unit-I and exercise allotted from Unit-II are not directly related to each other.
3. Number of candidates in a group for practical examination should not exceed 12.
4. In a single group, no experiment be allotted to more than three examinees.

List of Experiments

I. Statistical Physics and thermodynamics

Activities

- (i) Adiabatic expansion of a gas.

- (ii) Thermal expansion of crystal using interference fringes.
- (iii) Thermal conduction in poor conductor (variation with geometry) by Lee's method.
- (iv) Thermo e.m.f. calibration comparison.
- (v) Total Stefan radiation law, temperature dependence of radiation.
- (vi) Probability distribution using coloured dice and coins.

II. Optics and Lasers

Activities

- (vii) To determine the refractive index of liquid using spectrometer.
- (viii) To determine the Cauchy's constants.
- (ix) To study the refractive index of a doubly refracting prism.
- (x) Study the rotation of plane of polarization with a polarimeter.
- (xi) Set up Newton's rings to determine wavelength of a given light using biprism.
- (xiii) To determine the wavelength and dispersive power using plane diffraction grating (use Hg source).
- (xiv) To determine the resolving power of a telescope.
- (xv) To determine the resolving power of a grating.
- (xvi) To measure an inaccessible height using sextant.
- (xvii) To determine the principal points of a lens system.
- (xviii) To determine the divergence and wavelength of a given laser source.

III. Quantum Physics

Activities

- (xix) Study the Photoelectric effect and determine the value of Planck's constant.
- (xx) To study the gas discharge spectrum of hydrogen.
- (xxi) To study the absorption spectra of iodine vapours.
- (xxii) To determine the ionization potential of mercury.

Exercises: Any exercise based on above given experiments.

OR

- (i) To measure the angle of rotation of plane of polarization for the given liquid.
- (ii) To measure the diameter of Newton's rings.
- (iii) To determine the least count and setup the spectrometer for minimum deviation position of prism.
- (iv) Study of variation of light intensity using photovoltaic cell/inverse square law.
- (v) To measure the thermo e.m.f.
- (vi) To determine the heating efficiency of an electric kettle with varying voltages.
- (vii) To determine the angle of wedge using interference method.
- (viii) To measure the angle of elevation of a tall building.

OR

Computer Based Exercises:

- (i) Calculations of days between two dates of a year.
- (ii) To check if triangle exists and the type of the triangle.
- (iii) To find the sum of the sine and cosine series and print out the curve.
- (iv) To solve simultaneous equations by elimination method.
- (v) Fitting a straight line or a simple curve of a given data.
- (vi) Convert a given integer into binary and octal systems and vice versa.
- (vii) Inverse a matrix.
- (viii) Spiral array.

GEOGRAPHY

Paper A Geophysics-I

Max. Marks : 70

Total Teaching Hours : 60

Pass Marks : 35%

Time Allowed : 3 Hours

Paper will consist of Five Units :

Unit-I There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-II There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-III There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-IV There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-V There will be 10 questions of small answer type covering the syllabi of all the four unit (1-4). Seven questions are to be attempted. Each question will carry two marks.

Unit—I

Disaster-Meaning, Factors, Types, Causes and effects.
Disaster scenario in the World and India, Typology of Disasters—
Earthquakes, Floods, Cyclones, Droughts, Famines, Landslides and
snow avalanche, Fire and forest fires, Industrial and technical
disasters, Epidemics. **(Lectures 15)**

Unit—II

Disaster Preparedness—Planning, Communication,
Leadership and Co-ordination, Warehousing and stock piling,

Disaster management and awareness—Human behaviour and response, Community participation and awareness, Public awareness programmes, Role of various agencies—District administration, Military and Para military, Ministries and Departments at centre and state level, NGOs, International agencies, Media.

(Lectures 15)

Unit—III

Preparedness and Mitigation—Disaster mapping, Predictability, Forecasting and warning, Disaster preparedness plan, land use zoning for disaster management, Preparing community through Information, Education and Communication (IEC), Mitigation. Relief Measures—Search, Rescue, Evacuation, Shelter for victim, Clearness of debris and disposal of dead, Control of fires, Damage assessment.

(Lectures 15)

Unit—IV

Community Health and Casualty Management—Community health during disasters, Emergency health operations, Drinking water, Food and nutrition, Hygiene and sanitation, Reconstruction and rehabilitation—Social and economic aspect, Housing, Agriculture and irrigation.

(Lectures 15)

Text and Reference Books :

1. Carter, W. Nick, 1992, Disaster Management : A Disaster Managers Handbook, Asian Development Bank, Manila.
2. Mishra, Girish K. and G.C. Mathur (Eds.), 1995, Natural Disaster Reduction, Reliance Publishing House, New Delhi.
3. Parkash, Indu, 1995, Disaster Management, Rashtra Prahari Prakashan, Ghaziabad.
4. Tuner Barry A. and Nick, F. Pidgeon, 1977, Manmade Disaster, Butter Worth-Heinemann: Oxford.
5. Ross, Simon, 1987, Hazard Geography : Logman, U.K.
6. Ashutosh Gautam, 1994, Earthquake—A Natural Disaster: Ashish Publishing House, New Delhi.

7. Sharma Vinod K. 1994, Disaster Management: Indian Institute of Public Administration, New Delhi.
8. Mandal, GS, 1993, "Natural Disaster Reduction". Reliance Publishing House, New Delhi.
9. Pisharoty, PR, 1993, Tropical Cyclone, Bhartiya Vidya Bhawan, Mumbai.
10. Smith Keith, 1996, Environmental Hazards, Assessing risk and reducing disaster: Routledge, London.
11. Indu Prakash, 1994, Disaster Management: Rashtra Prahari Prakashan, Ghaziabad.
12. Kumar, Jayant, 1995, Community based disaster management—A case study from coastal Andhra Pradesh (Monograph).
13. Sharma, S.C., 1987: Media Communication and Development, Rawat Publication, Jaipur.
14. The Institution of Civil Engineers, 1995, Mega cities: Reducing vulnerability to natural disaster, Thomas Telford, London.

GEOGRAPHY

Paper B

Geophysics-II

Max. Marks : 70

Total Teaching Hours : 60

Pass Marks : 35%

Time Allowed : 3 Hours

Paper will consist of Five Units

Unit-I There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-II There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-III There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-IV There will be two questions from this unit. Each question will carry 14 marks. Only one question is to be attempted.

Unit-V There will be 10 questions of small answer type covering the syllabi of all the four unit (1-4) Seven questions are to be attempted. Each question will carry two marks.

Unit-I

Seismic waves, type and propagation inside the earth, the variation of the velocity of P and S waves inside the earth. The study of the interior of the earth through seismic waves, Reflection and refraction of seismic waves inside the earth.

(Lectures 15)

Unit—II

Earthquake, effects of earthquakes, types of earthquake—tectonic, volcanic and man made, some important historical

earthquakes, mechanism, Elastic rebound theory, Microseismicity. Magnitude and intensity scale.

(Lectures 15)

Unit—III

Focal parameter, Epicenter, Hypocenter, Origin time and their determination by different methods, Global distribution of earthquakes, Foreshock—Aftershock and their significance, Energy release during earthquake, Microseism.

(Lectures 15)

Unit—IV

Seismograph, Principle of mechanical and electromagnetic type, Vertical and horizontal component seismometer, Ground motion response curves displacements meter, Velocity meter and Accelerometer, Concept of short period (SP), long period (LP) and broad band (BB) recording, Arrays and networks of seismic stations, Travel time-table and curves.

(Lectures 15)

Text and Reference Books :

1. Introduction to Seismology—M. Bath.
2. Elementary Seismology—Richer
3. Method of Geophysics—P.V. Sharma
4. Applied Geophysics—W.M. Telford, Geldart, Sherief, Keys

CHEMISTRY

Paper	Course	Teaching	Hrs.
I	Inorganic Chemistry	60	9 periods
II	Organic Chemistry	60	per week
III	Physical Chemistry	60	
IV	Laboratory Practical	6 periods per week	
Total = 15 periods/week			

(Common instructions for three papers)

Note : The question paper shall consist of three parts, as detailed below :

Part-A

It shall consist of 10 very short answer type questions (Q.Nos. 1 to 10) from the entire syllabus and the maximum length of each question may not exceed $\frac{1}{4}$ th of a page. Minimum of 3 questions are to be set from each section of the syllabus. Each question will be of 1 mark and the candidate may be asked to attempt all the 10 questions.

Marks Allotted : 10

Part-B

It shall consist of 15 short answer type questions (Q.Nos. 11 to 25) from the entire syllabus and the maximum length of each question may not exceed one-half of a page. Five questions are to be set from each section of the syllabus. Each question will be of 3 marks and the candidate may be asked to attempt any 10 questions.

Marks Allotted : 30

Part-C

It shall consist of 3 descriptive type questions (Q. Nos. 26 to 28) from the entire syllabus and the maximum length of each question may not exceed four pages. One question is to be set from each section of the syllabus. Each question will be of 5 marks and the candidate may be asked to attempt any 2 questions.

Marks Allotted : 10

CHEMISTRY

Paper I

Inorganic Chemistry

Time : 3 Hrs.

60 Hrs (2 Hrs/week)

M.Marks : 50

3 Periods/week

Section-1

I. Chemistry of Elements of First Transition Series

10 Hrs.

Characteristic properties of *d*-block elements. Properties of the elements of the first transition series, their simple compounds and complexes illustrating relative stability of their oxidation states, coordination number and geometry.

II. Chemistry of Elements of Second and Third Transition Series

10 Hrs.

General characteristics, comparative treatment with their 3d-analogues in respect of ionic radii, oxidation states, magnetic behaviour, spectral properties and stereochemistry.

Section-2

III. Coordination Compounds

10 Hrs.

Werner's coordination theory and its experimental verification, effective atomic number concept, chelates, nomenclature of coordination compounds, isomerism in coordination compounds, valence bond theory of transition metal complexes.

IV. Chemistry of Lanthanide Elements

6 Hrs.

Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.

V. Chemistry of Actinides

4 Hrs.

General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from U, similarities between the later actinides and the later lanthanides.

Section-3

- VI. Oxidation and Reduction** **8 Hrs.**
Use of redox potential data-analysis of redox cycle, redox stability in water-Frost, Latimer and Pourbaix diagrams. Principles involved in the extraction of the elements.
- VII. Acids and bases** **6 Hrs.**
Arrhenius, Bronsted-Lowry, the Lux-Flood, solvent system and Lewis concepts of acids and bases.
- VIII. Non-aqueous Solvents** **6 Hrs.**
Physical properties of a solvent, types of solvents and their general characteristics, reactions in non-aqueous solvents with reference to liquid NH_3 and liquid SO_2 .

CHEMISTRY**Paper-II****Organic Chemistry-II****Time : 3 Hrs.****M.Marks : 50****60 Hrs (2 Hrs/week)****3 Periods/week****Section-I****I. Alcohols****6 Hrs.**

Classification and nomenclature.

Monohydric alcohols—nomenclature, methods of formation by reduction of aldehydes, ketones, carboxylic acids and esters. hydrogen bonding. Acidic nature. Reactions of alcohols.

Dihydric alcohols—nomenclature, methods of formation, chemical reactions of vicinal glycols, oxidative cleavage [$\text{Pb}(\text{OAc})_4$ and HIO_4] and pinacol-pinacolone rearrangement. Trihydric alcohols—nomenclature and methods of formation, chemical reactions of glycerol.

II. Phenols**6 Hrs.**

Nomenclature, structure and bonding, Preparation of phenols, physical properties and acidic character, Comparative acidic strengths of alcohols and phenols, resonance stabilization of phenoxide ion. Reactions of phenols—electrophilic aromatic substitution, acylation and carboxylation. Mechanisms of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Hauben-Hoesch reaction, Lederer-Manass reaction and Reimer Tiemann reaction.

III. Synthetic Dyes**8 Hrs.**

Colour and constitution (electronic concept). Classification of dyes. Chemistry and synthesis of Methyl orange, Congo red, Malachite green, Crystal violet, Phenolphthalein, Fluorescein, Alizarin and Indigo.

Section-II**IV. Aldehydes and Ketones 14 Hrs.**

Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids. Physical properties.

Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagel condensations. Condensation with ammonia and its derivatives. Wittig reaction. Mannich reaction.

Use of acetals as protecting group. Oxidation of aldehydes, Baeyer-Villiger oxidation of Ketones, Cannizzaro reaction. MPV, Clemmensen, Wolff-Kishner, LiAlH_4 and NaBH_4 reductions. Halogenation of enolizable ketones, reductions. Halogenation of enolizable ketones.

An introduction to α , β unsaturated aldehydes and ketones, Michael addition.

V. Carboxylic Acids 6 Hrs.

Nomenclature, structure and bonding, physical properties, acidity of carboxylic acids, effects of substituents on acid strength. Preparation of carboxylic acids. Reactions of carboxylic acids. Hell-Volhard-Zelinsky reaction. Synthesis of acid chlorides, esters and amides. Reduction of carboxylic acids. Mechanism of decarboxylation.

Methods of formation and chemical reactions of halo acids. Hydroxy acids : malic, tartaric and citric acids. (Structural features only).

Methods of formation and chemical reactions of unsaturated monocarboxylic acids.

Dicarboxylic acids: methods of formation and effect of heat and dehydrating agents.

Section-III

- VI. Carboxylic Acid Derivatives 3 Hrs.**
Structure and nomenclature of acid chlorides, esters, amides and acid anhydrides, Relative stability & reactivity of acyl derivatives. Physical properties, interconversion of acid derivatives by nucleophilic acyl substitution.
Preparation of carboxylic acid derivatives, chemical reactions. Mechanisms of esterification and hydrolysis (acidic and basic).
- VII. Ethers and Epoxides 3 Hrs.**
Nomenclature of ethers and methods of their formation, physical properties. Chemical reaction-cleavage and autoxidation, Ziesel's method.
Synthesis of epoxides. Acid and base-catalyzed ring opening of epoxides, orientation of epoxide ring opening, reactions of Grignard and organolithium reagents with epoxides.
- VIII. Fats, Oils and Detergents 2 Hrs.**
Natural fats, edible and industrial oils of vegetable origin, common fatty acids, glycerides, hydrogenation of unsaturated oils, Saponification value, iodine value, acid value. soaps, synthetic detergents, alkyl and aryl sulphonates.
- IX. Organic Compounds of Nitrogen 12 Hrs.**
Preparation of nitroalkanes and nitroarenes. Chemical reactions of nitroalkanes, Mechanisms of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline media. Picric acid.
Halonitroarenes : reactivity
Structure and nomenclature of amines, physical properties. Stereochemistry of amines. separation of a mixture of primary, secondary and tertiary amines. Structural features effecting basicity of amines. Amine salts as phase-transfer catalysts. Preparation of alkyl and aryl amines (reduction of nitro compounds nitriles), reductive amination of aldehydic and ketonic compounds. Gabriel-phthalimide reaction, Hofmann bromamide reaction.

CHEMISTRY
Paper-III
PHYSICAL CHEMISTRY

Time : 3 Hrs.

M. Marks : 50
60 Hrs (2 Hrs/week)
3 Periods/week

Section-I

1. Thermodynamics-I **12 Hrs.**

Definition of thermodynamic terms: System, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work.

First Law of Thermodynamics : Statement, definition of internal energy and enthalpy. Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law-Joule-Thomson coefficient and inversion temperature, Calculation of w, q, dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.

Thermochemistry : Standard state, standard enthalpy of formation-Hess's Law of heat summation and its applications. Heat of reaction at constant pressure and at constant volume. Enthalpy of neutralization. Bond dissociation energy and its calculation from thermo-chemical data, temperature dependence of enthalpy. Kirchhoff's equation.

II. Thermodynamics-II **8 Hrs.**

Second law of thermodynamics: Need for the law, different statements of the law, Carnot cycle and its efficiency, Carnot theorem. Thermodynamic scale of temperature.

Concept of entropy : Entropy as a state function, entropy as a function of V & T , entropy as a function of P & T , entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium. Entropy change in ideal gases and mixing of gases.

Section-II**III. Thermodynamics-III 5 Hrs.**

Third law of thermodynamics: Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions; Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change, Variation of G and A with P, V and T.

IV. Chemical Equilibrium 5 Hrs.

Equilibrium constant and free energy. Thermodynamic derivation of law of mass action. Le Chatelier's principle.

Reaction isotherm and reaction isochore-Clapeyron equation and Clausius-Clapeyron equation, applications.

V. Phase Equilibrium 10 Hrs.

Statement and meaning of the terms-phase, component and degree of freedom, derivation of Gibbs phase rule, phase equilibria of one component system-water, CO₂ and S systems.

Phase equilibria of two component system-solid-liquid equilibria, simple eutectic-Bi-Cd, Pb-Ag systems, desilverisation of lead.

Solid solutions-compound formation with congruent melting point (Mg-Zn) and incongruent melting point, (NaCl-H₂O), (FeCl₃-H₂O) and CuSO₄-H₂O) system. Freezing mixtures, acetone-dry ice.

Liquid-liquid mixtures-Ideal liquid mixtures, Raoult's and Henry's law. Non-ideal system-azeotropes-HCl-H₂O and ethanol-water systems.

Partially miscible liquids Phenol water trine thylamin water Nicotine water System.

Lower and upper consolute temperature. Effect of impurity on consolute temperature immiscible liquids, steam distillation. Nernst distribution law-thermodynamic derivation, applications.

Section-III

VI. Electrochemistry-I 10 Hrs.

Electrical transport-conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution .

Migration of ions and Kohlrausch law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law its uses and limitations. Debye-Huckel-Onsager's equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittof method and moving boundary method. Applications of conductivity measurements: determination of degree of dissociation, determination of K_a of acids, determination of solubility product of a sparingly soluble salt, conductometric titrations.

VII. Electrochemistry-II 10 Hrs.

Types of reversible electrodes-gas metal ion, metal ion, metal-insoluble salt-anion and redox electrodes. Electrode reactions. Nernst equation, derivation of cell E.M.F. and Single electrode potential, standard hydrogen electrode-reference electrodes-standard electrode potential, sign conventions, electrochemical series and its significance.

Electrolytic and Galvanic cells-reversible and irreversible cells, conventional representation of electrochemical cells.

EMF of a cell and its measurements. Computation of cell EMF. Calculation of thermodynamic quantities of cell reactions (ΔG , ΔH and K), polarization, over potential and hydrogen overvoltage.

Concentration cell with and without transport, liquid junction potential, application of concentration cells, valency of ions, solubility product and activity coefficient, potentiometric titrations.

Definition of pH and pK_a determination of pH using hydrogen, quinhydrone and glass electrodes, by potentiometric methods.

Buffers-mechanism of buffer action, Henderson-Hassel equation, Hydrolysis of salts.

Corrosion-types, theories and methods of combating it.

CHEMISTRY

(Practical)

M.Marks : 50

Duration 3.1/2 hrs.

6 Periods/week

Inorganic Chemistry

Quantitative Analysis

Volumetric Analysis

- a. Determination of acetic acid in commercial vinegar using NaOH.
- b. Determination of alkali content-antacid tablet using HCl.
- c. Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- d. Estimation of hardness of water by EDTA.
- e. Estimation of ferrous and ferric by dichromate method.
- f. Estimation of copper using sodiumthiosulphate.

Gravimetric Analysis

Analysis of Cu as CuSCN and Ni as Ni (dimethylgloxime)

Organic Chemistry

Laboratory Techniques

- A. Thin Layer Chromatography
Determination of R_f values and identification of organic compounds.
 - a. Separation of green leaf pigments (spinach leaves may be used).
 - b. Preparation and separation of 2, 4. dinitrophenylhydrazones of acetone, 2-butone, 2-butanone, hexan-2and 3-one using toluene and light petroleum (40 : 60).
 - c. Separation of a mixture of dyes using cyclohexane and ethyl acetate (8.5:1.5).

Qualitative Analysis

Detection of elements (N,S and halogens) and functional groups (phenolic, carboxylic, carbonyl, esters, carbohydrates, amines, amides, nitro and anilide) in simple organic compounds.

Thermochemistry

1. To determine the solubility of benzoic acid at different temperatures and to determine ΔH of the dissolution process.
2. To determine the enthalpy of neutralisation of a weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionisation of the weak acid/weak base.
3. To determine the enthalpy of dissolution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

Paper-A (Evening)**M.Marks : 20****Duration 3.1/2 Hrs.**

- | | | |
|------------------------------------|---|----|
| 1) Gravimetric/volumetric Analysis | - | 10 |
| 2) Organic Compound Analysis | - | 10 |

Paper-B (Morning)**M. Marks : 30****Duration 3.1/2 Hrs.**

- | | | |
|------------------------------|---|----|
| 1) Physical Experiment | - | 10 |
| 2) Thin Layer Chromatography | - | 10 |
| 3) Viva Voce | - | 06 |
| 4) Note Book | - | 04 |

SCHEME OF EXAMINATION FOR CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)						
Papers	THEORY			PRACTICALS		
	No. of Duration	Marks	No. of Duration	Marks	Grand Total	
1. Paper-A Basic Dietetics and Food Commodities	1 3 Hrs.	50	-	10 Int. Assess	60	
2. Paper-B Sanitation & Hygiene & Quantity food Production and service	1 3 Hrs.	50	1 3 Hrs.	40	90	
3. Paper-C Book Keeping Cost- Accountancy and Personnel Management	1 3 Hours	50	-	-	50	
				Total	200	

**SCHEME OF STUDIES FOR CLINICAL
NUTRITION AND DIETETICS (VOCATIONAL)**

S.No.	Subject	No.of the Periods	No. of Pract. Periods
1.	Paper-A Basic Dietetics and food Commodities	4	6 period/per group/per weeks (10 practicals of Basic Dietetic rest for running of cafeteria)
2.	Paper-B Sanitation and Hygiene quantity Food production and service	4	6 period/per group/per weeks
3.	Paper-C Book Keeping and cost Accountancy and Personnel Management	3	-

Note : For "On the Job Training" the Students are required to run

- a) Cafeteria in the institutions (each student will run one cafeteria).
- b) Undergo ten days (10) training in hotels.

CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)

Paper-A

Part-I (Basic Dietetics)

Time : 3 Hours

Max. Marks : 50

Instructions for the paper setters

As per the scheme of the examination for Clinical Nutrition and Dietetics (Vocational) in part II papers A, B and C (Theory are of 50 marks each for this , each question paper will consist of three sections as follows :

Section A : It will consist of 10 very short answer type questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 1 mark, total weightage being 10 marks only.

Section B : It will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry three marks. The total weightage of the section shall be 24 marks.

Section C : It will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry 8 marks. Total weightage of the section will be 16 marks.

- I. Role of Dietition in the hospital and Community.
- II. Basic concepts of Diet Therapy.
- III. Therapeutic Adaptation the normal diet.

- IV. Routine hospital Diets. Regular diet, light diet, soft diet, full liquid diet, and tube feedings.
- V. Modifications of Diet. Surgical conditions.
- VI. Feeding infants and children-problems in feeding children in the hospital.
- VII. Feeding the patient-psychology feeding the patient, assessment of patient needs.

CLINICAL NUTRITION AND DIETETICS **(Vocational)**

Paper A

(Basic Dietetics) Internal Assessment

Marks : 10

- I. Standardisation of common feed preparation.
- II. Planning and preparation of full or normal diet.
- III. Planning & preparation of soft diet.
- IV. Planning and preparation of liquid diet.
- V. Planning & preparation of High and low caloria diet with modified fat carbohydrate level.

Part- II Food Commodities (Theory)

Description of the course :

It involves an understanding of the basic commodities, both raw and processed generally used in food service institutions with due emphasis on cost.

Objectives :

1. To understand the basic commodities both raw and processed, used in catering and various aspects of their production and distribution.

To discuss the qualities and standards of available commodities and their suitability for different purposes.

- I. **Cereals & Pulses**, Cereals and millets, breakfast cereals, cereal products Fast foods - structure, processing, use in variety of preparations, selection, variety storage, nutritional aspects and cost. Pulses & Legumes-Production (in brief) selection and variety, storage, processing, use in variety of preparations, nutritional aspects and cost.
- II. **Eggs** : Production, grade, quality, selection, storage, spoilage, uses, cost and nutritional aspects.

- III. **Fish, Poultry and Meat** : Selection, purchase, storage, uses, cost and nutritional aspects.
- IV. **Vegetables and Fruits** : Variety, Selection, Purchase, storage, availability, cost, use and nutritional aspects of raw and processed vegetables and fruits.
- V. **Sugar & Sugar Products** : Different forms of sugar (sugar, jaggery, honey syrup) manufacture, selection, storage & use, pre-serves.
- VII. **Fats and Oils** : Types and sources of fats and oils (animal and vegetable) processing, use, storage, cost and nutritional aspects.
- VIII. Raising agents Types, constituents, basic cookery and bakery, preservation methods.
- IX. **Food Products** : Spices, condiments, herbs, extracts concentrates, essences & food colours, origin, classification, description, uses, specifications, procurement and storage.
- X. **Convenience Foods** : Role, types, advantages, uses, cost and contribution to diet.
- XI. **Salt** : Types, uses in the diet.
- XII. Tea, Coffee, Chocolate and Cocoa powder Growth, cultivation, processing, cost and nutritional aspects.

Evaluation :**Assignment on collection of various food commodities**

2 Unit tests :	Topic	1 - 5	Ist Test
		6 - 12	IInd Test

CLINICAL NUTRITION AND DIETETICS**(Vocational)****Paper-B****Sanitation and Hygiene (Theory)****Part-I****Time : 3 Hours****Max. Marks : 50****Instructions for the paper setters.**

As per the scheme of the examination for Clinical Nutrition and Dietetics (vocational) in Part II Paper A,B,C (Theory) are of 50 marks each. For this, each question paper will consist of three sections as follows :

Section A : It will consist of 10 very short answer type questions with answer to each question up to five lines in length. All questions will be compulsory. Each question will carry 1 mark, total weightage being 10 marks only.

Section B : It will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry three marks. The total weightage of the section shall be 24 marks.

Section C : It will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 8 marks. Total weightage of the section will be 16 marks.

1. Importance of personal hygiene of food handler. Habits-clothes, illness. Education of food handler in handling and serving food.
2. Safety in food procurement, storage, handling and preparation control of spoilage-safety of left off left over foods.

3. Cleaning methods-sterilisation and disinfection-products and methods-use of detergents, heat chemicals, tests for Samitiser strength.

Materials used :

- 4.(a) Sanitation-Kitchen design equipment and layout of food premises maintaining clean environment.
- (b) Selecting and installing equipment, cleaning equipment.
- (c) Basic concept, safety consideration, electric parts & wiring to suit installan & use of equipment.
- (d) Basic materials used for finishes, insulation materials for necessary parts, strength & limitations.
5. Waste product handling- Planning for waste disposal. Solid wastes and liquid wastes.
6. Control of Infestation-rodent Control-Rats, Mice-Rodent, profing, destruction, vector Control-Use of pesticides.
- 7.(a) Food sanitation, control and inspection, planning and implementation of training programme for health personnel.
- (b) Municipal rules & legislatures.

References

1. Essentials of Food Safety & Sanila13 edition M.C. Swane Pearson Edv. Prentice Hall.
2. Food Safety Handbook by Schmidt John Willy.
3. Fundamental Food Microbiology by Ray 4th Ed. Routledge.
4. Managing Food Industry Waste: Common Sense Method for food Proccessory by Robert R. Zall Wiley Backwe112004.
5. The HACCP Food Safety M;annual by Joan K Loken.
6. Quantity Food Sanitateon Sth Ed. by Kalra Longree Gerirude Armbrusters 1996.
7. Quantity Food Sanitation 5th Ed. Springer Pub 2006 by Marroitt.

CLINICAL NUTRITION AND DIETETICS**(Vocational)****Paper B****Quantity Food production and Service****Part-II****Code No.FSN 310****Credits-2****Objectives :**

1. To understand the application of basic principles to bulk production of the food.
2. To gain knowledge regarding selection and purchase of food.
3. To develop skills in menu planning for quantity preparation.
4. To understand the different styles of food service in volume feedings.

Course Content :

1. Aims and objectives of different food service outlets
 - a) industrial
 - b) institutional
 - c) hospitals
2. Different foods and beverage outlet
3. Menu planning-sequence of course
Indian (Regional i.e.North Indian, South Indian, West Indian at Gujaratis), Western and others. Technique of writing menus (give excercises for planning menus).
4. Types of meals-and styles of service breakfast, lunch, dinner, afternoon tea, snacks (table d'hote and a'la cartemenu)
BF (1) ala carte (2) TDH (3)
5. Introduction to basic and special equipment for food production and Service.

- a) indicate and list
 - b) bare and use of equipment-silver, cutlery, glass laying up for number (Practicals, Use AV aids and handouts)
6. 5 types of services of food and beverage outlets
 7. Staff organisation of different outlets (a La carte and table d'hote)
Manager, Hostess, Supervisor, Steward, Waiter
 8. Beverages, alcoholic and non alcoholic, hot and cold.
Classification of beverages, use and importance in meals and snacks, suitable glassware for beverage service.
 9. Use of bills and checks in control system outlet
 10. 1 Unit Test
1 Project report on names of different organisations and suppliers of crockery, cutlery etc. With manufacture's name and prices and report on serviette folds.

References :

1. Foods and Beverage Service, D.R.Lillicrap, 7th edition, 2006.
2. Table Decoration, Dorothy Tompkins 2nd edition, Droke Publishers.
3. Concepts of Food Service Operations & Management, 2nd edition by Mahmood A Khan.
4. Design and Equipment for Resturants & Food Service-A Management View Jrd edition by Costas Kesigers Christhomus Mahmood A Khan.
5. Design & Layout of Food Service Faculties- 3rd edition by John C. Birthfield, John Birchfiled, John Birchfield Jr. Dec., 2007.

6. Dictionary of Nutrition & Dietetics by Karen Eich Drumond Aug. 1996.
7. Foods and Beverage Service Manual by Casuda Matt A.
8. Principals of Food, Beverage and Labour Cost Controls 9th edition by Paul R. Dittimer, J. Desmond Keefe, III, 2008.
9. Profesional Table Service by Sylvia Mayor, Edy Schmid Chrustel Spuler, 1990.
10. Quality Resturant Service Guaranteed : A Training Outline by Nancy Loman Scanlon 1998.

CLINICAL NUTRITION AND DIETETICS**(Vocational)****Paper B****Quantity Food production and Service****(Practicals)****Time : 3 Hours****Max. Marks : 40****Objectives :**

1. Develop skills in quantity food production and service.

Course Contents :

1. Organizing, preparing and serving food for three different meals for 50 members or more (list attached).
 2. Setting up the restaurant-lying of table cloth changing, setting up the silvers and other table appointments. Folding of serviettes, correct Use of waiter's cloth. Preparing for customers.
 3. Serving and clearing practice, French and English service.
 4. Service of beverages tea, coffee, juices and alcoholic beverages.
 5. Lying for breakfast.
 6. Tray service
 7. Order taking, making out checks, bills, presentation of bills.
 8. Up keep and cleaning of cutlery, crockery & other equipment.
- I. **Rice Preparations :** Plain & fried rice, pulao, masala rice, tomato rice, vegetable biryani, mugalai biryani, mutton biryani, chicken biryani, yakhani pulao. (any four)
 - II. **Wheat Preparations :** Chapati, parantha plain, parantha stuffed, puris, bhaturas, nan.
 - III. **Pulse Preparations :** Punjabi dal, sambar, dalfry, sprouted pulses, Alu-chhole, masala rajmah, Dhanshak (any four).

- IV. **Vegetable Preparations** : Alu matar, alu palak, dum alu, fried veg, palak paneer, vegetable kofta, vegetable korma (any four)
- V. **Salads** : Tossed Salad, Russian salad, moulded salad, decorative salad.
- VI. **Meat Preparations** : Kofta curry, roghan-josh, mutton chilli fry, mutton palak, vindaloo, murg masala, brain masala, tanduri chicken, chicken curry, prawns curry, fish curry. (any four)
- VII. **Snacks** : Variety of sandwiches, vegetable puffs, fried snacks, fermented and steamed snacks.
- VIII. **Sweets** : Laddu, Gujiya, burfi, shrikhand, gulabjamun, puranpoli, kheer, halwas. (any four)
- IX. **Western Cookery** : Soups : Mixed Veg, tomato cream soup, carrot cream soup, mulligatawny soup, minestrone soup, chicken soup and corn soup.
- Sauces** : White sauce, cheese sauce, mayonnaise sauce, curry sauce.
- Entrees** : Vegetables pie, hollandaise, vegetable and meat loaf, chicken, casserol, hamburgers, vegetable burgers. (any four).
- Vegetables** : Vegetables and gratin, Baked cauliflower, savoury, vegetables, baked, stuffed capsicum.
- Sweets** : Bread pudding, sauffles, trifle, coffee mousse, gateaux.
- Bakery Products** : Short crust pastries Different types of tarts, pies and turn overs. Vegetables and mutton pattis.
- Cakes and cookies** : Plain cake, fruit cake, ba bread, date and walnut cake and varieties of cookies.
- Breads** : breads, different kinds of rolls, daughnuts, : different types of icings.

Evaluation : Continuous assessment will be done.

Visit to different types of Foods service institutions to study-
Hospitals, Kitchen (jughi), Hotel, restaurant, Industrial
Canteen, College Canteen for

- (a) Organization
- (b) Physical plan & layout
- (c) Food Service Equipment
- (d) Sanitation and Hygiene

CLINICAL NUTRITION AND DIETETICS
(Vocational)
Paper-C
Personnel management
Part-I

Time : 3 Hours

M. Marks : 50

3 Periods/week

Instructions for the paper setters.

As per the scheme of the examination for Clinical Nutrition and Dietetics (Vocational) in Part II Paper A,B & C. (Theory) are of 50 marks each. For this, each question paper will consist of three sections as follows:

Section-A It will consist of 10 very short answer type questions with answers to each question up to five lines in length. All question will be compulsory. Each question will carry 1 mark, total weightage being 10 marks only.

Section-B : It will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidate. Each question will carry three marks. The total weightage of the section shall be 24 marks.

Section C: It will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidate will be required to attempt two. Each question will carry 8 marks. Total weightage of the section will be 16 marks.

1. Management

- Definition, scope and functions
- Principles of Management
- Techniques of effective management
- Energy and time management and its application to food preparation and service.

2. Food material management

- Meaning, definition, importance
- Food selection, purchasing, receiving and storing
- Material identification, modification and standardization.
- Inventory control, meaning, objectives, order and reorder level, minimum and maximum level, longer level, valuation of inventory, EOQ
- Storekeeping, definition, objectives, functions, factors underlying successful storekeeping, duties and responsibilities of a storekeeper
- Quality Control

3. Personnel Management

- Recruitment, selection and training of personnel, work standards, productivity, supervision, performance appraisal, motivation, incentives for effective performance. Labour policies and legislation. (personnel policies related to salaries, other emoluments, allowances, leave, uniform and other prize benefits, Labour laws and organization).

Books Recommended

1. Bora, P.M., Food Administration in India ; A Study of an Indian State, 1982.
2. Kinton and Casarani, Theory of Catering Butter and Tanner Ltd; 1981.
3. Boella, M.J. Personnel Management in the hotel and Catering Industry, Ist. ed., Barrie and Jenhnins, London, 1974.
4. Mundel, M.E. Motion and Time Study Principles and Practice, 5th ed., Prentice Hall, India 1981.
5. Kiesar, J., Controlling. Analysing Costs in Food Service Operations, 2nd ed., Macmillan Publi. Co., 1986.

6. Kumar, H.L. Personnel Mgt. In the Hotel and Catering Industry, 1st ed., Metropolitan Book Co., Delhi, 1986.
7. Monor, L.J. and R.F. Cichy, Food Service Systems management, Avi. Public. Co., Connecticut, 1984.
8. West, B.B.L. Wood, U.F. Hayer and G.F. Shugart, Food service in Institutions, John Wiley and Sons, 1977.
9. Publications by National Productivity council, Management guide, New Delhi, Series.
10. Hitchcock M.J., Food Service Systems, Administration, Macmillan publi. Co., New York, 1980.
11. Mohini Sethi and Surjeet Malhan, Catering Management, An Integrated Approach, Wiley Eastern Ltd., 1987.

Paper-C
BOOK KEEPING & COST ACCOUNTANCY
Part-II

1. Introduction, objectives, principles and advantages of double entry.
2. Introduction to Journal.
3. Preparation of cash book-Single column and double column.
4. **Cost Accounting** : Meaning of cost accounting and preparation of cost sheet (cost accounting shall have reference to food cost accountancy).
5. **Budgets and Budgetary control** : Definition, meaning, purpose, advantages, key factor in budgeting. Budget-short term and long term, fixed and flexible, various functional budgets like sales, purchases, production, stores personnel, expense and master budget.
6. **Marginal Costing** : Cost classification by behaviour, definition, marginal costing features, assumptions, applicability, advantages and limitations. Break-even analysis; break even point, margin of safety, profit volume ratio, opportunity cost.

References**Book Keeping & Accountancy**

Prof. Baljinder Singh

Prof. J.S. Arora

Prof. A.K. Dhir

Cost Accounting

By Bhalla, Gupta & Sharma

By Jain & Narang

By Maheshwari & Mittal

Management Accounting

By Sharma & Gupta

By Vashisht & Pasriche

FASHION DESIGNING AND GARMENT CONSTRUCTION

(Vocational)

Scheme of Studies

Instructions of Paper Setters :

The theory paper consist of eight questions, out of which the student will be required to attempt any five. All questions carry equal marks.

Name of Paper	Periods/Week	
	Th.	Pr.
Paper-I	4	-
Paper-II	-	6
Paper-III	-	6

Training & Project Report

Reprint the student will be required to take 3 weeks training an export or fashion house. They will be required to submit a Comprehensive report - 25 marks.

Schemes of Examination

Name of Paper	Theory	Practical	Time	Marks	Internal	Total
1. Fundamentals of Textiles Paper-I	One	-	3 Hrs.	50	-	50
2. Pattern Making Paper-II	-	One	4 Hrs.	40	10	50
3. Designing & Garment Construction paper-III	-	One	4 Hrs.	60	15	75
4. Job Training	-	-	-	-	25	25
Total :						200

FUNDAMENTALS OF TEXTILES

Paper-I

Time : 3 Hours

Max. Marks : 50

Instructions for paper setter :

- 1. Classification of textile fibres and Terminology.**
- 2. Properties & manufacturing process of following:**
 - a) Cotton
 - b) Linen
 - c) Wool
 - d) Silk
 - e) Nylon
 - f) Rayon-Vicose & acetate
 - g) Lycra
- 3. Brief study of the following yerns :**
 - a) Simple
 - b) Novelty
 - c) Bulk/Textured
- 4. Fabric-construction-A study of :**
 - a) Weaing
 - b) Knitting
 - c) Felting
 - d) Bonding
- 5. Finishes-Mercerising, Tentering. Calendering, Moiering, Stain resistan finish.**
- 6. Printing-Block printing, screen printing and roller printing.**
- 7. Seminar**

Fashion Designing & Garment Construction**Paper-II (Practical)****Time : 4 Hours****Max. Marks : 50****Paper : 40****Int. Ass. :10****Pattern Making and Grading****A. Dart manipulation by flat pattern and pivot method**

- a) Shifting of darts
- b) Combining darts
- c) Converting darts into gathers
- d) Converting darts into seamlines

B. Variation of tops

- a) Variation of tops
- b) Variation of Skirt-Flared, Gathered with yoke, peg Skirt, Pleated Skirt.
- c) Adaptation of Sleeves, Saddle, Cowl.
- d) Adaptation of collars-Notched, Shawl, Coat Collar, Convertible, Stand and fall.

C. Grading

- a) Circumference, Length, Width grades
- b) Upgrading
- c) Downgrading
- d) Grading of - 1. Skirt 2. Tops

Instructions for Paper Setter (Paper-II)**Paper : 40 Marks****Int. Ass. : 10 Marks**

- Q.1 from Part-A carrying 10 marks.
- Q.2 from Part-B carrying 15 marks
- Q.3 from Part-C carrying 10 marks
- Q.4 Fil 5 marks

Paper-III (Practical)**Time : 4 Hours****Max. Marks : 75****Paper : 60****Int. Ass. : 15****1. Drafting and Garments Construction :**

- a) Adults Bodice Block, sleeve block
- b) Adults skirt Block
- c) Sleeves : Dolman, Peasant
- d) Collars: Shawl, Coat, Stand and fall, convertible, Chinese.
- e) Necklines : Cowl, turtle

2. Designing, Drafting and Construction of :

- a) Skirt
- b) Tops
- c) Ladies Blouse
- d) Designer suit

3. Traditional Embroidery :

- a) Phulkari
- b) Kashmiri
- c) Kantha
- d) Chickankari

Instructions for Paper Setter (Practical-III)**Paper : 60 marks****Int. Ass. : 15 marks**

- | | | |
|-----|--|----------|
| Q.1 | Design any one garment from syllabus on paper bag—front and back | 5 Mark |
| Q.2 | Adaptation to be made from sloper | 10 Marks |
| Q.3 | Cutting and placement | 10 Marks |
| Q.4 | Construction and finishing of garments | 25 Marks |
| Q.5 | File and scheme work | 10 Marks |

Note : Please send the material list alongwith.

REFRIGERATION & AIR CONDITIONING

(Vocational Subject)

Scheme of Examinations

Note : The theory paper is of 50 marks, the distribution of the marks is as given below:

1. (a) Time allowed	Theory	: 3 hours
	Practical	: 3 hours
(b) Maximum Marks	Theory :	
	Paper-A	: 50
	Paper-B	: 50
	Practical	: 50
	Practical Int. Asses.	: 50
2. Hours for Teaching the Subject-Theory		6 Hours
Hours for Teaching the Subject-Practical		6 Hours
		per week

Section A : This will consist of 10 very short answer type questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 1 mark the total weightage being 10 marks.

Section B : This will consist of short-answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry three marks. The total weightage of the section shall be 24 marks.

Section C : This will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry eight marks; total weightage of the section being 16 marks.

Note : Number of hours for theory & practical are five & Three hours resp. Use of calculators is allowed in the examination centre but it will not be provided by University/College.

REFRIGERATION & AIR CONDITIONING
(Vocational)
Paper A
Refrigeration Hardware

Time : 3 Hours

Max. Marks : 50

- (1) **Compressors** : Introduction, Types Hermetic, Semi Hermetic open compressors. Centrifugal & Rotary Compressors construction. Features volumetric Efficiencies Multicylinder Compression & Capacity control.
- (2) **Compressor lubrication** : Methods of Lubrication & the properties of a Lubricating oil Identification of sources of problem in operation Valve failure, Shaft Seals 3- way Valves cylinder to head gascats.
- (3) **Condensers** : Definition, Basic Principle, Types of Condensers.
 1. Air cooled Condenser
 2. Water Cooled Condenser
 3. Evaporative Condenser.Their Constructional features, comparison between Waters & Air cooled condenser & their Advantages & disadvantages.
4. **Cooling Towers** ; Definition. Types natural & Mechanical Draft, cooling pond, shell & tube shell of coil chillers. Fouling & de scaling of condensers. Brine System.
5. **Expansion Devices** : Capillary Tube, Constant Pressure. Thermo Static Exp. Values, Sizing of Cappillary. Standard Sizes, Testing & adjustment of expansion devices. High & Low side float valve. Refrigerant receivers. Dryers Filters.
6. **Refrigeration & Air Conditioning System Practice** : Piping layout Selection of pip material & size for various Refrigerant, Methods of joining, flairing & brazing System, euacuation, depyartation, charging balancing, leak testing, Use of Selenoid values pressure equalizers.

REFRIGERATION & AIR CONDITIONING (Vocational)

Scheme of Examinations

Note : The theory paper is of 50 marks, the distribution of the marks is as given below:

1. (a) Time Allowed Theory : 3 Hours
Practical : 3 Hours

(b) Maximum Marks Theory :

Paper-A	: 50
Paper-B	: 50
Practical :	: 50
Practical Int. Asses.	: 50

2. Hours for Teaching the Subject : Theory : 6 Hours
 Hours for Teaching the Subject: Practical : 6 Hours
per week

Section A : This will consist of 10 very short answer questions with answers to each question upto five lines in length. All questions will be compulsory. Each question will carry 1 marks the total weightage being 10 marks.

Section B : This will consist of short-answer question with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry three marks. The total weightage of the section shall be 24 marks.

Section C : This will consist of essay type questions with answers to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry eight and half marks; total weightage of the section being 16 marks.

Note : Number of hours for theory & practical are five & Three hours respectively Use of calculators is allowed in the examination centre but it will not be provided by University/College.

REFRIGERATION & AIR CONDITIONING
(Vocational)
Paper B
Refrigeration Equipments

Time : 3 Hours

Max. Marks : 50

1. **Domestic refrigerators** : Introduction, Construction & Operational features of domestic Refrigerators. Defrosting Automatic Pressure & Electric Defrosting etc.
2. **Cold storages** : Introduction, Construction, Sealing & Insulation of Cold Storages. Refrigeration, Requirements for various food items. Water coolers. Storage & Pressure Type Water Coolers Their filtering. Constructional features & Insulation Bottle Coolers, Ice Creams.
3. **Air Conditioning Machines & Components** : Types of cooling. Humidification & Dehumidification coils, Heating coils. Fans & blowers eilters & dampers.
4. **Duct Construction** : Buelt systems. Loop perimeter, Radial Perimeter & Exunded Pleenum Duct System. Water Pumps: Vertical Types & Horizontal Type.
5. **Evaporators** : Introduction, Types of Evaporator Flooded Type Evaporator. Dry Expansion Type Evaporator Baudelot cooler Bare Tube, Plate Surface, Finned Evaporator, Their construction & Operational features.

Note : A Job Training of one month in summer will be given to the students carrying 40 marks.

REFRIGERATION & AIR CONDITIONING (Vocational)

List of Practical

Time : 3 hours

Max. Marks : 50

1. To Study the various control devices e.g. Thermostat, Relays & dryers etc.
2. To Study the vapour compression System.
3. To Study an electrolux Refrigerator.
4. To Study the (i) Window Type Air Conditioner, Split Type air Conditioner.
5. To Study Ammonia-Water Plant.
6. To Study a cooling Tower.
7. To Study a desert cooler & Pump used for this type.
8. Gas charging in the Refrigerator System & Testing for leakage.
9. To test chek the capacitors, Relays, automatic Value, Solenoid value, high & low pressure cut off etc.
10. To assemble & Operate a small vapour compression system.
11. To find the C.O.P. of a water cooler.
12. To find the C.O.P. of an Ammonia Ice Plant.

List of Books Recommended

Name of Books	Author	Publisher
Refrigeration & Air Conditioning	S.C.Arora	Dhanpat Rai
Refrigeration & Air Conditioning	Dowkundwar Khurmi	Katson Publication
Refrigeration & Air Conditioning	Sarao, Gaabi Singh	Satya Prakashan.

**EARLY CHILDHOOD CARE AND
EDUCATION
(Vocational)**

Paper A (Theory) : 3 Hours Max.Marks : 100

Paper B (Practical) : 3 Hours Max.Marks : 100

Demonstration of indoor/outdoor age appropriate activities of Children. Preparation of two educational/activity materials for Cognitive/science experiences and creativity **Marks : 20**

Practical Note Book Marks : 15

Written Practical Test Marks : 15

Oral Examination Marks : 20

Internal Assessment Marks : 20

Assignment Marks : 10

Teaching Work Load

Theory -4 periods per week

Practical-6 periods per week

Note : The question paper may consist of three sections as follows:-

Section A will consist of 10 very short answer type questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks, total weightage being 20 marks.

Section B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry six marks, total weightage of the section shall be 48 marks.

Section C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates are required to attempt two. Each question will carry sixteen marks, total weightage of the section being 32 marks.

Scheme of Examination	Time	Marks	Lectures/Week
Paper-A Theory	3 Hours	100	6
Paper-B Practical	3 Hours	100	4

1. Early Childhood stimulation at home and school. Quality of Home Environment.
2. Essential of setting up early Childhood Education Centre-need, importance, objectives and scope.
3. Historical perspectives of Early Childhood Education.
4. Early Childhood Education programmes in India and Abroad.
5. Curriculum Models.
6. Curriculum Management-programme planning : principles, content, annual, monthly, weekly, daily programmes. Execution and planning of activity plans : Indoor and outdoor activities. Maintenance of equipment and record keeping.
7. Integration in Early Childhood Educaiton : identification of children with special needs and integration with normal children.

Practical

1. A visit to a "model' early Childhood Educational Centre to observe curriculum implementation, indoor and outdoor activities and equipment.
2. Preparation of curriculum, calendar (for one academic session), daily time table and detailed activity plans (for each day).
3. Collection of self composed age-appropriate stories and Rhymes for pre-school children.
4. Demonstration of making ECE Centre Child-proof, maintenance and care of equipment.

Suggested Readings

1. Camp as an approach for parents : Education (1995), child resource centre, centre for health education, Training and Nutrition awareness (CHETNA), lilabatiber Lalbhai's Bunglow, civil camp road, shahibaug, Ahmedabad-380004 (Gujarat).
2. Developmentally Appropriate practices in Early Childhood programe. Serving children from Birth through Ages 8. Expanded Edition. Sue Bredekamp, National Association for the education of Young Children. 1884 connecticut Avenue, N.W., Washington, D.C.20009-5786.
3. Education's Manual, Child Centred Health Education Approaches, (1995), CHETNA (Gujarat).
4. Getting Ready for school-The pre-School years- A manual for care Givers of Children (1994), CHETNA (Gujarat).
5. Guide to Activities in Creative Drama and Puppetry, (1994), CHETNA (Gujarat).
6. Planning effective preschool education (1995), CHETNA (Gujarat).
7. Fine J. Marvin, Handbook on Parent Education (1980) Department of educational Psychology and research, School of Education, University of kansas, Lawrence, Kansas.
8. Amin Ranjan, (1997), Learning for Life from Birth to Five-Nurturing the Growing Child, Books for Change, Mumbai.
9. Swaminathan Mina (1998), The First five years -A critical perspective on Early Childhood Care and Education in india, Sage Publications, New Delhi.
10. Jaswal, S., Nanda, P. & Roy's (1997), Toy Box-Guide to Creative Toy Making, Asia Vision, Ludhiana.

FOOD SCIENCE AND QUALITY CONTROL**(Vocational)****FSQC-5 Food Processing and Packaging****(Theory)****Time : 3 Hours****Max. Marks : 75****Instructions for paper setters.**

Question paper will cover both the main topics and divided into two parts. Each part will contain four questions and students will be asked to attempt five question in all with at least two from each part.

PART-I

- (1) Physical principles underlying food processing operations including thermal processing, ionising radiation, refrigerations, freezing, dehydration etc.
- (2) Chemical principles in food processing, chemical changes in food that affect the texture, colour flavour, odour, stability and nutritive quality during processing and storage.
- (3) Processing technology of cereals and legumes
- (4) Processing technology of oilseeds.
- (5) Processing technology of fruits and vegetables, fresh and processed.
- (6) Processing technology of milk and milk products.
- (7) Processing technology of meat, fish, poultry and eggs.
- (8) Fermentation technology, Enrichment and Fortification Technology. High protein food technology.
- (9) Quality control in food industry-methods of evaluation and control of the various aspects of quality of raw materials manufacturing process, the testing of finished products.
- (10) Waste disposal and sanitation.
- (11) Preservatives and additives
- (12) Extruded foods.

Part-II

- (13) Food Irradiation
- (14) Packaging of Foods.
- (15) Packaging function
- (16) Approches to packaging development, Specification and Quality Control, interaction of Food & Packaging.
 - 1) Evaluation of Food Packages
 - 2) Importance of Packages
 - 3) Packaging criteria, appearance protection, function cost, materials & forms of packaging.
 - 4) Packaging methods & performances.
 - 5) Packaging specification & control of packaging quailty.
 - 6) Food & Food package interaction.
 - 7) Food packaging & laws
 - 8) Packaging evaluation-package life theory and testing packaging materials.
 - 9) Self life testing.

References

- 1. Technology of cereal, legumes and oil seeds-Chakrobrty S. DeOr for IBH Pub.
- 2. Cereal Tech. - Kent.
- 3. Preservation of fruits & Veg.-Giridhari Lal.
- 4. Dairy Tech.-Surcumar De.
- 5. Waste treatment-
- 6. Food packaging Sacharow and Griffir Avi. Publising Co.
- 7. Packaging Mng. Briston & Neill. Gower Press
- 8. Food & Packaging Interaction. Hotchikess American Chemical Society.
- 9. Packaging for Climatic Protection Cains, Oswin Paine.

FOOD SCIENCE AND QUALITY CONTROL
(Vocational)

FSQC-6 Quality Assurance

Time : 3 Hours

Max. Marks : 75

Question paper will cover both the main topics and divided into two parts. Each part will contain four questions and the students will be asked to attempt five questions in all atleast two from each part.

Theory

Part-I

Objectives, importance and functions of quality control. Methods of quality assessment of food materials fruits, vegetables, cereals, dairy products, meat, egg and processed products.

Part-II

Sampling, specifications of raw materials and finished products, Sensory evaluation.

Concept of HACCP & GMP.

Quality Attributes : Size, Shape, Colour, Aroma, Texture Food Laws and Regulations. AGMARK, FPO, PFA, MFPO, BIS, ISO.

Recommend Books :

1. Quality Control for Food Industry by Kramer A, Twigg BA. 1970, AVI Publishers, USA.
2. Handbook of Analysis and Quality Control for Fruits & Veg. Products by Ranganna S, 2nd ed. 2000, Tata McGraw Hill, New Delhi.
3. Food Science by Potter NN, 5th ed. 2006, CBS Publishers, New Delhi.

**FSQC-7 Food Processing & Packaging
(Practical)**

Max. Marks : 25

1. Determination of Physical characteristics of cereals.
2. Milling of wheat into flour.
3. Determination of wet & Dry gluten contents.
4. Determination of free fatty acids in flour and rice bran.
5. Milling of rice
6. Proboiling of rice
7. Identification of packaging materials.
8. To estimate the shelf life of packaged food.
9. To determine greasac resistance of packaging material.
10. Determination of water vapour transmission of rate of various packaging materials.
11. To find out the porosity of tin plate.
12. To find out the tin coating weight
13. To find out the uniformity and amount of wax on wax paper.
14. To see the chemical resistance of packaging materials.
15. Visits to various industries dealing with food packaging material like, paper board and metal.

FSQC-8 Quality Assurance (Practical)**Practicals :****Max. Marks : 25**

1. Quality evaluation of milk & milk products.
2. Quality evaluation of cereals.
3. Quality evaluation of fruits and vegetables
4. Quality evaluation of Oils & Fats.
5. Quality evaluation of Meat & Poultry.
6. Adulterants in milk, cereals, oils & Fats and their detection.

ELECTRONICS
Paper—A
Digital Electronics

Time : 3 Hours

Max Marks : 50

Note : For examiners/paper setters :

- 1. Equal weightage should be given to each unit of the syllabus.**
- 2. Question paper should be set strictly according to the syllabus.**
- 3. The distribution of marks is as given below :**

Section A : This will consist of **10 (ten)** very short answer type questions. All questions will be compulsory. Each question will carry **ONE** mark, total weightage of the section being **10 marks**.

Section B : This will consist of short-answer questions. The examiner will set twelve 12 questions and the candidates will attempt eight (8) questions. Each question will carry **Three** marks; total weightage of the section shall be **24** marks.

Section C : This will consist of essay type questions. The examiner will set **four (4)** questions and the candidate will be required to attempt **two (2)**. Each question will carry **8** marks; total weightage of the section being **16 marks**.

Note for teacher/Student: Minimum number of hours for theory are three (3)=4*45 minutes per week.

Unit-I

Transistor Oscillators :

Concept of feedback in amplifiers, type of feedback, principle of feedback amplifier, effects of negative feedback, positive feedback amplifier, LC oscillators (tuned-collector, tuned base, Hartley, colpitt), RC oscillators (Phase-shift, Wien-Bridge), Crystal oscillators, multivibrators. Monostable, Bistable, Astable & Schmitt Trigger. Saw tooth wave generator.

Unit-II

Digital/Electronics-I:

Introduction to sequential circuits; flip flops, RS flip-flop, Clocked RS flip-flop, D flip-flop, Latches, level triggered & edge triggered flip-flops, positive and negative edge triggering limitations of JK flip-flop- race-around condition, Master-Slave JK flip-flop, T flip flops. Applications of flip flop, shift registers, shift-left Registers, shift right registers. Serial in serial out shift registers (SISO), serial in parallel out Shift Registers (SIPO), Parallel in serial out shift registers (PISO) parallel in parallel out shift registers (PIPO), Universal shift registers, Applications of shift registers

Unit-III

Counters; serial counters, parallel counters, up-down counters and speed limitation of serial counters, designing of synchronous & asynchronous counters, hybrid counters, shift register counters, ring counters, twisted ring counters, cascading of synchronous counters. Analog to digital and digital to analog converters : Weighted resistor DAC, R-2R ladder DAC, parallel comparator ADC, successive approximation ADC, counting ADC, Dual Slope ADC.

Books

- (1) Fundamentals of Digital Circuits by A. Anand Kumar (PHI), 2004.
- (2) Modern Digital Electronics by R.P. Jain (Tata McGraw Hill), 3rd Edition, 2003.
- (3) Principles of Electronics by S.K. Bhattacharya & Dr. Renu Vij (S.K. Kataria & Sons), 2004.

ELECTRONICS
Paper—B
Analog Integrated Circuits

Time : 3 Hours **Max. Marks : 50**

Note : For the examiners/paper setters :

- 1. Equal weightage should be given to each unit of the syllabus.**
- 2. Question paper should be set strictly according to the syllabus.**
- 3. The distribution of marks is as given below :**

Section A : This will consist of **10 (ten)** very short answer type questions. All questions will be compulsory. Each question will carry **ONE** marks total weightage of the section being **10 marks**.

Section B : This will consist of short-answer type questions. The examiner will set twelve 12 questions and the candidates will attempt eight (8) questions. Each question will carry **Three** marks , total weightage of the section shall be **24** marks.

Section C : This will consist of essay type questions. The examiner will set **four (4)** questions and the candidate will be required to attempt **two (2)**. Each question will carry **8** marks; total weightage of the section being **16** marks.

Note for teacher/Student: Minimum number of hours for theory are three (3)=4*45 minutes per week.

Unit I

Linear Integrated Circuits - I :

Dual-input, Balanced output, Dual-input Unbalanced Output, Single Input Balanced-Output, Single-input unbalanced output, differential amplifier with AC and DC analysis, operational amplifier, block diagram, schematic symbol, op-amp parameters Ideal op, amp, Equivalent circuit, Ideal voltage transfer curve, Open loop op-amp configurations, voltage-series feedback amplifier, voltage shunt, feedback amplifier.

Unit II**Linear Integrated Circuit -II :**

Operational amplifier applications; Summing, Scaling Averaging Amplifiers-Inverting configuration, Non-inverting configuration, Differential configuration, Integrator, differentiator, Square Wave, Generator, Triangular Wave Generator, Saw Tooth Wave Generator.

Unit III**Linear Integrated Circuits -III :**

The 555 timer; Pin configuration, Internal Structure. The 555 as a Monostable Multivibrator, Monostable Multivibrator Applications, the 555 as a Astable Multivibrator, Astable Multivibrator Applications, 78 XX & 79 XX series of Voltage Regulators, Fixed Voltage Regulators, Adjustable Voltage Regulators, Switching Regulators, Special Regulators.

Suggested Readings :

- (1) Op-Amplifiers & Linear Integrated Circuits by Ramakant & Gayakwars (Prentice Hall India) 4th Edition Reprint 2002.
- (2) Design with Operational Amplifier & Analog Integrated Circuits by Sergio & Franco (Tata McGraw Hill) 3rd Edition 2003.

ELECTRONICS
Paper C
Electronics and Instrumentation

Time : 3 Hours

Max. Marks : 50

Note : For the examiners/paper setters :

- 1. Equal weightage should be given to each unit of the syllabus.**
- 2. Question paper should be set strictly according to the syllabus.**
- 3. The distribution of marks is as given below :**

Section A : This will consist of **10 (ten)** very short answer type questions. All questions will be compulsory. Each question will carry **ONE** mark, total weightage of the section being **10 marks**.

Section B : This will consist of short-answer type questions. The examiner will set twelve 12 questions and the candidates will attempt eight (8) questions. Each questions will carry **Three** marks; total weightage of the section shall be **24** marks.

Section C : This will consist of essay type questions. The examiner will set **four (4)** questions and the candidate will be required to attempt **two (2)**. Each question will carry **8** marks each; total weightage of the section being **16** marks.

Note for teacher/Student: Minimum number of hours for theory are three (3)=4*45 minutes per week.

Unit-I

Measurements I: Unit, Absolute Units, Fundamental and Derived Units, Dimensions, Dimensions of Mechanical Units, CGS System of Units—Electromagnetic Units, Electrostatic Units, Practical Units, Dimensional equations—Dimensions in Electrostatic Systems, Dimensions in Electromagnetic Systems, Relationship between Electrostatic and Electromagnetic System of Units.

Unit-II

Measurements II : Standards, construction and equivalent circuit representation of Resistance, Capacitances and Inductances. Operating Principles and construction of Galvanometer, Analog Ammeters, Voltmeters and Ohmmeters, critical, under and over damping of Galvanometers, Ballistic Galvanometer and their calibration, Fluxmeter, Vibration Galvanometers, Duddell's Oscilloscope, Multirange Voltmeters and ammeters, Series and Shunt type Ohmmeters, Megger and Ducter Ohmmeter, Measurement using multi-meters.

Unit-III

Measurements-III : Frequency meters, types of frequency meters and synchroscopes. Measurement of medium, low and high Resistances.

Potentiometers; DC potentiometers, Standard Reference voltage source, principle of operation, construction and calibration, phantom loading range extension and applications for DC potentiometers, self balancing Potentiometers. AC Potentiometers, types and applications. AC Bridges; Maxwell's Inductance Bridge, Maxwell's Inductance Capacitance Bridge.

Unit-IV

Measurements-IV : Electronic Voltmeters, FET Voltmeters, Cathode Ray Oscilloscope principle and working measurements of Voltage, Frequency and Phase angle with CRO, Multiple trace and storage type Oscilloscope, Audio Signal Generators.

Books

1. Electrical and Electronic Measurements & Instrumentation by A.K. Sawhney.
2. Electronic Instrumentation & Measurement Techniques by W.D. Cooper.
3. Basic Electrical Measurement by B. Stont.

ELECTRONICS

(Practicals)

Time : 3 Hours 30 Minutes Max. Marks : 50

- Note :** 1. Perform two experiments at least from each section.
2. Minimum Hours Per week for practical 6.

List of Practical

Section-A

1. To examine design and operating characteristics of an inverting Op-Amp.
2. To Examine design and operating characteristics of a non-inverting Op-Amp.
3. Study the response of the RC circuit to square wave (Integrator and differentiator).
4. To study the Op-Amp as differentiator.
5. To study the Op-Amp as integrator.
6. To study Op-Amp as summer.
7. Design a wein-Bridge oscillator using 741.
8. Design a delay circuit using 555 timer.
9. Verification of the truth tables of Multiplexer and Demultiplexer.
10. Design , Fabrication and testing of differentiator and integrator circuits using Op-Amp.
11. To study Clipping diode circuit.
12. Design, fabrication and testing of Clipper and Clamper circuits using Op-Amp.

Section-B

13. Measurement of Inductance by Maxwell's Bridge.
14. Measurement of Small Resistance by Kelvin's Bridge.
15. Measurement of Capacitance by Schering Bridge.
16. Measurement of Frequency by Wein's Bridge.
17. Measurement of Displacement with help Potentiometer.

18. Determination of Frequency and phase angle using CRO.
19. Measurement of Medium Resistances with the help of Wheatstone bridge.
20. To find the Q of a Coil by a series resonance method and verify it.
21. Verification of truth table for Flip Flops RS, D, JK, T flip flops.
22. Verification of truth table for Up Down Counters, Ring Counters.
23. Study of Hartley, Colpitts and RC oscillator.
24. Study of Monostable, Bistable and astable multivibrator.

Books Recommended:

1. Basic Electronics and Linear Circuits-By N.N.Bhargava, D.C.Kulshreshtha, S.C.Gupta (TMH).
2. Basic Electronics Solid State By B.L.Theraja, (S.Chand & Co.)
3. Digital Design By M.Morris Meno (PHI), (chapters : 4,5,10)

COMPUTER SCIENCE

Scheme of Examination

Paper-A : Computer Oriented	Hours	Max.Marks
Numerical and Statistical Methods	3	75
Paper-B : Data Structures and Programming in C++	3	75
Theory : 4 hours per week in Paper A & B		
Paper-C : (Practical) Practicals based on Paper-A, Paper-B	3	25
Practical : 2 hours per week (each paper)	3	25

- Note :**
1. Eight questions are required to be set giving the weightage to all the portions. The candidates will be required to attempt any five questions. All questions will carry equal marks.
 2. The maximum marks for the paper will be 75.
 3. As far as possible except in the computer language papers no programme may be asked in theory papers. Emphasis should be on alongwith development.
 4. The students can use only Non Programmable and Non storage type calculator in the subject/paper pertaining to Computer.

COMPUTER SCIENCE

Paper-A

Computer Oriented Numerical and Statistical Methods Numerical Methods

Time : 3 Hours

Marks : Theory : 75

Practical : 25

Introduction

1. Numerical methods, Numerical methods versus numerical analysis, Errors and Measures of Errors.
2. Non-linear Equations, Iterative Solutions, Multiple roots and other difficulties, interpolation methods, Methods of bisection, False position method, Newton Raphson-method.
3. Simultaneous Solution of Equations, Gauss Elimination Method Gauss Jordan method. Gauss Siedel Method, Matrix Inversion Method.
4. Interpolation and Curve Fitting, Lagrangian Polynomials, Newtons Methods : Forward Difference Method, Backward Difference Method Divided Difference Method.
5. Numerical Integration and Different Tryaperzoidal Rule, Simpson's 1/3 Rule Simpson's 3/8 Rule.

Numerical differentiation by Polynomial Fit

Statistical Techniques

1. Measure of Central Tendency, Preparing frequency distribution table, Mean Arithmetic, mean geometric, Mean harmonic, Mean median Mode.
2. Measure of dispersion, Skewness and Kurtosis Range, Mean deviation. Standard deviation, co-efficient of variation, Moments Skewness Kurtosis.
3. Correlation Bivariate Distribution Multivariate distribution.
4. Regression B.C., Linear Regression, Multiple Regression.

5. Trend Analysis least square fit linear trend, Non-linear trend

$$Y=ax^b$$

$$Y=ab^x$$

$$Y=ac^x$$

$$\text{Polynomial fit : } Y=a+alX+ea^2x2+a^nxn+n$$

Note for paper setters

- (i) That the program for numerical and statistical methods are to be written in C/C++ Language.
- (ii) Paper setter indicating thereby that the greater weightage is to be given to exercises and Algorithms rather than theoretical derivation of all numerical and statistical methods.

Books Recommended

1. B.S. Grewal : *Numerical Methods for Engineering*, Sultanchand Publications.
2. V. Rajaraman : *Computer Oriented Numerical Methods*, Prentice Hall of India Private Ltd., New Delhi.

COMPUTER SCIENCE

Paper-B

Data Structures & Programming Language Using C++

Time : 3 Hrs.

Theory : 75

Practical : 25

- Note:** i) In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks.
- ii) The maximum marks of the paper is 75.
- iii) As far as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.

Practical marks will include the appropriate weightage for proper maintenance of Lab record.

Data Structure : Introduction to elementary Data Organization, Common Operation on Data Structures, Algorithm Complexity, Big O Notation, Time-Space Trade off between Algorithm.

Arrays: Array Defined, Representing Arrays in memory, Various operations on Linear arrays, Multi Dimensional arrays.

Linked lists : Types of Linked Lists, representing linked list in memory, advantages of using linked lists over arrays, Various operations of linked lists.

Stacks : Description of STACK structure, Implementation of stack, using arrays and linked lists, application of stack-converting Arithmetic expression from infix notational to polish and their subsequent evaluation, quicksort technique to sort an array.

Queues : Description of queue structure, Implementation of queue using arrays and linked lists, description or priorities of queues, deques.

Sorting and Searching : Sorting Algorithms, bubble sort, selection

sort, insertion sort, quick sort, merge sort, heap sort, searching Algorithms, linear search and binary search.

Object Oriented Programming : Objects & Classes, Constructor & Destructor, Operator Overloading, Overloading unary operators, Overloading binary operators, Data conversion, Pitfalls of operator overloading and conversion, Inheritance, Derived class and base, Derived class constructor. Overloading member functions, Inheritance in the English distance class, class hierarchies, Public & Private inheritance, Level of inheritance, Polymorphism, problems with single inheritance, multiple inheritance

References:

Seymour Lischutz, *Theory and Problems of Data Structures*.

Schaum's Outline Series, McGraw Hill Company.

Tanenbaum, *Data Structure Using C++*

COMPUTER APPLICATION**(Vocational)****Paper - A****Time : 3 Hours****Max. Marks : (Theory) : 75****Practical : 25****Scheme for Computer Applications**

- (1) Operating System
- (2) Relational Data Base Management System & ORACL

Note for Paper-Setters

- (i) Eight questions are required to be set giving the weightage to all the portions. The candidates will be required to attempt any five questions. All questions will carry equal marks.
- (ii) The maximum marks for the paper will be 75
- (iii) As far as possible except in the computer language papers no programme may be asked in the Theory papers. Emphasis should be on algorithm development..
 1. What is an Operating System - Evolution of OS Machine Language, Assembly, Compiler, Interpreter.
 2. Types of Operating Systems with Examples
 - a) Single User Systems - MS DOS
 - b) Multi User Systems : Unix, Xenix, Vax/VMS.
 3. Functions of Operating System
 - a) Memory Management (Fixed Sized partition, Variable Sized Partition, Dynamic Memory Management with Reallocation Technique, Paging Demand Paging Techniques)
 - b) CPU Management (First come First served, Shortest Job First, Round Robin Policy)
 - c) File Management
 - d) I/O Device Management
 - e) Command Interpreter

- f) Data Management
 - g) Programme Developing Tools
 - h) Time Sharing
 - i) Security
 - j) Communication
4. Brief History of MS-DOS
 5. Terminology for MS-DOS
 - a) File
 - b) Types of File (Data, Programme)
 - c) Wild Cards (*,?)
 - d) Directory- (Root, Single, Multi, Current)
 - e) Relative and Absolute Path
 - f) Booting a System (ROM BIOS self test, Port, IO.SYS, MSBIOS.SYS, Autoexec.bat, Config.Sys, Command.Com)
 6. Internal and External Commands with Syntax (Arguments & Parameters)
 - a) Internal -cls, date, time, md, cd, copy con, dir, type, ren, delete, rd, copy
 - b) External -chkdsk, scandisk, mem, attrib, xcopy, diskcopy, diskcomp, backup, restore.
 7. Features and Benefits of Unix.
 8. Unix System (Multi-programming, time-sharing, multi-tasking)
 9. Components of Unix (Kernel, Shell)
 10. UNIX file system (Data Block, list, super block, boot block)
 11. Types of Files (Ordinary, Directory and Special Files)
 12. Types of users in UNIX - levels of users (0-2)
 13. Login and Logout from Unix Session

14. Types of Shells (Bourne, c-shell, r-shell)
15. Shell as a command interpreter, clear
16. Simple Directory and File Commands Cat, is, in, chmod, mail, who, whoami, cal, pwd, date, ps, mkdir, cd, rmdir, rm, tput, clear.
17. Piping, filters, batch processing, shell programming (echo, read, case constructs)
18. Editors (vi) : Commands for opening, inserting, modifying, deleting and saving files.

Practical : University Practical 25 Marks

COMPUTER APPLICATION

(Vocational)

Paper B

Relational Data Base Management Systems Oracle

Time :3 Hrs.

Max. Marks : Theory :75

Practical : 25

Paper Setters Instructions :-

- i) In theory eight questions are to be set giving the weightage to all the portions. The candidates are required to attempt five. All questions are to be of equal marks.
- ii) The maximum marks of the paper is 75.
- iii) As far as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.

Theory : 4 hours per week in paper A & B

Practical: 2 hours per week (each paper)

Relational Data Base Management System & ORACLE

1. Definition of 3 GL and 4 GL languages
2. Definition of CODD's Rules
3. Introduction to RDBMS and Oracle-Advantages and Limitations over DBMS.
 - a) Normalization of Data : First, Second and Third Normal form
 - b) Database Models - Hierarchical, Network, Relational
 - c) Features of SQL Compatibility, Portability
 - d) Important components (Database Manager, DDL., DML., DCL., query processor. (Data Dictionary) ;
 - e) Introduction to SQL Plus - Definition.

4. SQL Operators

=|<>><=<=[NOT]BETWEEN.....AND.....

[NOT]IN[Text]NOT]like,IS[NOT][NULL,NOT,
AND,OR

5. Data Types

Char, numbers, date long, raw, long raw

6. DDL Commands of SQL

- Create Tables
- Alter Table, view
- Drop Table
- Create View-As selected from, where
- Rename
- Create Index

7. Data Manipulation Language**1. Select**

- Select distinct
- Select from where
- Select from where order by
- Select group by clause
- Select Group by having clause

2. Insert Into**3. Update Statement****4. Delete Statement****8. Data Control Language**

- Roll back
- Revoke
- Grant

9. Sub Query Definition with 2 Levels

10. Aggregate Functions

Sum, Avg, max, min, count, stddev, variance

11. Character Functions

Lower, Upper, Length, Substr, RPAD, LPAS

12. Arithmetic Functions

Round, Trunc, Sqrt, Mod, Abs, Sine

13. Date and Time Functions and Other Miscellaneous Functions
(Add-months, Month-between, NVL, Translate, field concatenation, decode)**14. Conversion Functions (to-char, to-number, to-date)****15. Substitution Variables (&, &&)****16. Reporting Using SQL Plus**

1. Specifying column heading
2. Formatting columns
3. Char formats
4. Break
5. Inserting spaces when the break value changes
6. Inserting spaces after every row.
7. Break on multiple columns with different spacing
8. Compute
9. T Title
10. B Title
11. Page size line size, pause.

17. Introduction to PL/SQL

1. Relationship between SQL & PL/SQL
2. Advantages of PL/SQL
3. PL/SQL block structure
4. Valuable and Constant declaration
5. Declaration using attributes %type attribute If elsif ends if statement

Practical : 25 Marks**Books Recommended :**

- Introduction to Data base System by C.J. Date
- Data base Managemet System by B.C. Desai
- Data base concept by Korth
- Simplifield Approach to by DBMS Kalyani Publications
- Oracle :- Developer 2000 by Iven Bayross.
- Data base System Concepts & oracle (SQL/PIS Q) - AP Publications.

COMPUTER MAINTENANCE **(Vocational)**

Paper A

Microprocessor & Assembly Language

Time : 3 Hours

M.Marks : 100

Theory : 75 Marks

Practical : 25 Marks

Instructions for the Paper Setters :

- i) Eight questions are required to be set giving the weightage to all the portions. The candidates will be required to attempt any five questions. All questions will carry equal marks.**
 - ii) The maximum marks for the paper will be 75.**
 - iii) As far as possible except in the computer language papers no programme may be asked in the Theory papers, emphasis should be on Algorithm development.**
- * Introduction to Micro Computer System :** Microprocessor Definition, Evolution, Microprocessor as a CPU, Single chip Micro Computers, Organization of a Micro Processor Based System.
 - * 8- Bit Microprocessor :** Introduction of 8085, ALU (Timing & Control Unit, Registers, Data & Address Bus, Pin Configuration, Intel 8085, Instruction), Instruction Cycles (Fetch Operation, execute Operation, Machine Cycle & State, Instruction & Data Flow), Timing Diagram (Timing Diagram for OP Code, Fetch, Cycle, Memory Read, I/O Read Memory and I/O write).
 - * Interfacing I/O Devices :** Basic Interfacing Concepts, Interfacing, Output Display Interfacing Output Devices, Memory Mapped I/O.
 - * Instruction Set of Intel 8085 :** Introduction Instruction & Data Format, Addressing Modus, Status Flags, Intel 8085 Instruction.

- * **Peripheral Devices & Their Interfacing** : Memory & I/O Interfacing, Data Transfer Schemes, Interrupt of Intel 8085, Programmable DMA Controller, Programmable Interrupt Controller, Intel 8529.
- * **16-Bit Microprocessor** : Intel 8086/8088 pin Diagram, Architecture, Minimum & Maximum Modes, Bus Cycles, Memory Bus Status Codes, Memory Control Signals, Read/Write Cycle.
- * **I/O Interface of 8086/8088 Microprocessor** : Introduction, Types of I/O, Isolated I/O Interfaces, I/O Data Transfers, I/O Instruction, I/O Bus Cycles, I/O Hand Shaking Memory Mapped I/O. 8237A Programmable DMA Controller.

Assembly Language Programs Using 8085 Instructions

References :

- B.Ram** : Fundamental of Microprocessor & Micro Computers, Dhanput Rai, 5th Edition, 2001.
- R.S. Gaonkar** : Microprocessor Architecture for 8085, 3rd Edition, PRI, 1997.
- Avtar Singh** : 8088 & 8086 Microprocessor, Prentice Hall, 2002, 6th Edition.

COMPUTER MAINTENANCE**(Vocational)****Paper-B****PC Maintenance & Troubleshooting****Time : 3 Hours****Max. Marks : 100****Theory : 75****Practical : 25****Instructions for the Paper Setters :**

- i) Eight questions are required to be set giving the weightage to all the portions. The candidate will be required to attempt any five questions. All questions will carry equal marks.**
- ii) The maximum marks for the paper will be 75.**
- iii) As far as possible except in the computer language papers no programme may be asked in the Theory paper, emphasis should be on Algorithm development.**
 - * Troubleshooting General PC Problems :** Introduction, General Troubleshooting rules, Common Problems & Solutions, Preventive Maintenance.
 - * BIOS :** Typical Motherboard BIOS, BIOS Features, BIOS & Boot Sequences, BIOS Shortcoming & Compatible Issues, BIOS Troubleshooting, BIOS Upgrades.
 - * Hard Disk :** Introduction, Disk Basics, Disk Performance & Characteristics, Drive Construction, Drive Testing & troubleshooting.
 - * Motherboard & Buses :** Introduction, Motherboard Components, Expansion Slots system, Bus Functions & Features. Upgrading & Troubleshooting Motherboard, General Bus Troubleshooting.
 - * Basic Memory Concepts :** Introduction, Installing Memories, Upgrade Options & Strategies, Replacing Memories with Higher Capacity. Troubleshooting Memory.

* **Printers** : Printer Technology, How Printer Works, Attaching Printer, Installing Printer Drivers, Preventive Maintenance, Common Printer Problems & Solution.

* **Error Code** : Beep Code, Post Code, Post Reader Card.

References

Upgrading & Repairing PCs : Muller, Prentice Hall, 10th Edition, 2000.

Complete PC Upgrade & Maintenance Guide : Mark Minasi, BPB Publishers, 15th Edition, 2004.

COMPUTER MAINTENANCE

(Vocational)

List of Practicals Based on Paper-A

1. To study the architecture of 8088 microprocessor.
2. To study the addressing modes of 8086.
3. To add two binary numbers each of 16-bit long.
4. To add two binary numbers each of 8-bit long.
5. To find maximum number in the given string (16 bytes long) and store it at location 0510.
6. To sort a string of a number of 8-bytes in descending order.
7. To multiply an ASCII string of 8 number by a single ASCII digit.
8. To divide a string of unpacked ASCII digits.

List of Practicals Based on Paper-B

1. Introduction and knowledge of components of PC.
2. To study the troubleshooting Beep Codes.
3. Detection of display card & its replacement.
4. Delection of RAM failures and its replacement.
5. Detection of Motherboard failure and its repair.
6. Up gradation of PC.
7. Troubleshooting Keyboard and Mouse.

Information Technology (Vocational)

Paper-A OOPS Using C++

Time : 3 Hours

Max. Marks : 75

Practical : 25

Instructions for the paper setter

Note :(i) In theory eight questions are to be set giving the weightage to all the portions. The candidates are required to attempt any five. All questions are to be of equal marks.

(ii) The maximum marks for the paper will be 75.

(iii) As far as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.

SECTION-A

Evolution of OOP, OOP Paradigm, Advantage of OOP, Characteristics of the object oriented language-objects, classes, Inheritance, Reusability, User Defined data types, Polymorphism and operator overloading. Identifiers and Keywords, Constants, c++ operators, type conversion, variable Declaration, Statements and Expressions, Input and output, conditional expression, loop statements, breaking control statements.

Defining a function, types of functions, storage class specifiers, recursions.

SECTION-B

Arrays, structures, pointers and structures, unions, classes, member functions, objects, arrays of class objects, pointer and classes, constructors, destructors, inline member functions, static class member, friend function, dynamic memory allocation.

Inheritance, single inheritance, types of base classes, type of derivations, multiple inheritance, container classes, member access control, Functions overloading, operator overloading, polymorphism, virtual functions, pure virtual functions, opening and closing of files, Stream State member functions.

References :

1. C++; A Beginner's Guide by "Schildt, Herbert", Edition 2002, McGraw Hill.
2. Turbo C++ by "Lafore Robert", Edition Frist, 1991, Reprint, 2007, Galgotia Publication.
3. Bruce Eckel, "Thinking in C++", First Edition.
4. Let us C++, "Yeshwant Kanetkar", First Edition, 2006, BPB Publication.

Information Technology
(Vocational)
Paper-B
Data Base Management System

Time : 3 Hours

Max. Marks : 75

Practical : 25

Instructions for the paper setters

Note: (i) In theory eight questions are to be set giving the weightage to all the portions. The candidates are required to attempt any five. All questions are to be of equal marks.

(ii) The maximum marks for the paper will be 75.

(iii) As far as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.

SECTION-A

Indexing Techniques, Primary, Secondary, Clustering, B Trees, B+Trees, Hashing (Extendible, Dynamic, and linear) Database Architectures and Data Models, Network, Hierarchical, and Relational, Object-Oriented, Relational Model; Relations, Relational operators and integrity constraints. Relational Algebra and SQL, Query Optimisation, DDL, DML, DCL.

SECTION-B

Database Design : ER Modeling, mapping to relational scheme. Normalisation - 1st, 2nd, 3rd, BCNF - Concurrency Control Lost Update, Temporary Update, Locking Mechanisms, Binary Locks, Shared and Exclusive Locks, 2 Phase Locking protocol, Timestamping approaches. Recovery Mechanism Motivations,

Transactions , System Log, Commit Points , Checkpoints , immediate & Deferred Update Protocols Shadow paging. Distributed Databases Introduction, Fragmentation policies, Object Oriented Databases.

References :

1. Database System Concepts by Abraham & Henry F. Korth, McGraw Hill, Edition, 2006.
2. Introduction to Database Systems by Navathe, 2nd Edition, Pearson Publication.

AUTOMOBILE MAINTENANCE

(Vocational)

Paper - A (Theory)

Time : 3 hours

Maximum Marks : 100

Periods per week

Theory 6

Instructions for the paper setter.

Question paper should be set strictly according to the syllabus and preferably in Punjabi.

The language of the paper should be straight and simple Punjabi.

Paper A : Theory shall consists of three parts :

- (a) Ten short compulsory questions requiring short replies of five lines each. Each question carries two marks.
- (b) Ten Questions of six marks each giving to the points replies. Eight questions carrying forty eight marks will be attempted by the candidates.
- (c) Two questions of descriptive type to be attempted by the candidates out of set of four questions. Total marks 32.

The question paper should cover the whole syllabus.

Part-I

Automatic Electrical Systems :-

Basic Automotive Circuits, Starting motor, Starting Devices, Bendix starting Drive, Overrunning clutch drive, Solinoid shift systems, Starting motor troubleshooting, Generator, Generator principles, Generation of Alternating currents, Generation of direct current, Generator construction, generator output control, Cut out relay, Regulator, Alternator type generator, Generating Systems troubleshooting.

Ignition Systems :-

Introduction, Qualities of a good ignition system, Battery ignition system, Components of battery ignition system, Ignition coil,

Condenser, Contact breaker, Distributer, Ignition Advance, Methods of ignition advance, Spark plug, Classification Sparking Plugs, Spark Plug Gap, Magneto Ignition System, Rotating Armature Type, Rotating magnet type, Low and high tension types, Special type of magneto, Ignition System troubleshooting.

Part-II

Engines :

Introduction, Classification of automobile engines, Engine cycle, Number of strokes, With respect to fuels use, Number and arrangement of cylinders, Classification based on valve arrangements, Classification based on type of cooling, Classification based on type of valve, Special type engines, Square engines, Fuel cell, Electric vehicles, Engine position.

Ignition systems :

No spark, Spark at some wires, Intermittent spark, Weak spark, servicing ignition system.

Piston Assembly :-

Piston, Piston rings, Analysis of piston rings, piston pins, Materials

Engine Service Crank Shift and Cylinder Blocks :

Review of design, Analysis of Crank shift for strength, Surface hardening of crank shaft and their materials.

Clutch Operation :

Clutch, Requirement of clutch, Types of Clutch, Friction clutches, Clutch components, Friction materials, Clutch lining materials, Bonding materials, Fluid coupling, Torque transmission, Characteristics of the fluid flywheel, Advantages of fluid flywheel, Clutch troubleshooting, Fluid flywheel troubleshooting.

Diesel Engine Service :

Fuel pump tests, Fuel Delivery, Pressure, Stroke, Carburetor test and adjustments, Fuel level, Float level, Adjustment.

AUTOMOBILE MAINTENANCE

Paper-B (Practical)

Time : 3 Hours	Max.Marks : 80
Periods per week : Practical 4	Internal Asses. : 20
	Total : 100

Distribution of Marks

Three visits to Motor Workshop	15
Oral Examination	10
Written Test	10
Test of Workshop jobs	25
Identification of Workshop Tools	10
Scale Instrument readings	10

1. Self stater opening from the voh and Refitting
2. Dynmo/Alternator Dismantling and assembling.
3. Ignition Timing with the Engine
4. Engine fault Diagonising.
5. Engine Piston and Rings fitting
6. Clutch Dismantling and assembling
7. Clutch Fitting with Engine
8. Cut out opening and fitting with Engine

References :

- 1) Basic Automobile Engineering (Punjabi Edition) Written by C.P.Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
- 2) Royal Basic Automobile Engineering Written by R.K.Kalia. (Punjabi Edition).

Environmental Studies (Compulsory)

Theory Lectures : 50 Hours

Time for Theory examination M. Marks : 75+25=100

Regular students: 2½ Hours Regular students :75

Private students : 3 Hours Private students : 100

Instructions for paper setters : The question paper will consist of two sections for regular students and three sections for private students.

Unit-I

(Compulsory for all students)

Section A (30 Marks) : It will consist of ten short answer type questions. Candidates will be required to attempt six questions, each question carrying five marks. Answer to any of the questions should not exceed two pages.

Section B (45 Marks) : It will consist of six essay type questions. Candidates will be required to attempt three questions, each question carrying fifteen marks. Answer to any of the questions should not exceed four pages.

- 1. The multidisciplinary nature of environmental studies:**
Definition, scope and importance, Need for public awareness.
- 2. Natural resources :** Natural resources and associated problems.
 - a) Forest resources: Use of over exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
 - b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
 - c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
 - d) Food resources : World food problems, change caused by agriculture and overgrazing, effects of modern

agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

- e) Energy resources : Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.
- f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
- g) Role of an individual in conservation of natural resources, Equitable use of resources for sustainable lifestyles.

3. **Ecosystem**

Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.

Introduction, types, characteristic features, structure and function of the following ecosystems :

- a. Forest ecosystem
- b. Grassland ecosystem
- c. Desert ecosystem
- d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

4. **Biodiversity and its conservation**

Definition : Genetic, species and ecosystem diversity, Biogeographical classification of India.

Value of biodiversity : Consumptive use, productive use, social, ethical, aesthetic and option values.

Biodiversity of global, National and local levels, India as mega-diversity nation, Hot-spots of biodiversity.

Threats to biodiversity : Habitat loss, poaching of wildlife, man wildlife conflicts Endangered and endemic species of India.

Conservation of biodiversity : *In situ* and *Ex-situ* conservation of biodiversity.

5. Environmental pollution

Definition, Causes, effects and control measures of :

- a) Air Pollution
- b) Water Pollution
- c) Soil Pollution
- d) Marine Pollution
- e) Noise Pollution
- f) Thermal Pollution
- g) Nuclear Hazards

Solid Waste Management : Causes effects and control measures of urban and industrial wastes.

Role of an individual in prevention of pollution.

Pollution case studies

Disaster Management : Floods, Earthquake, Cyclone and Landslides

6. Social Issues and Environment

- * From unsustainable to sustainable development
- * Urban problems related to energy
- * Water conservation, rain water harvesting, watershed management
- * Resettlement and rehabilitation of people; its problems and concerns. Case studies
- * Environmental ethics : Issues and possible solutions.
- * Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- * Wasteland reclamation
- * Consumerism and waste products
- * Environmental Protection Act
- * Air (Prevention and Control of Pollution) Act
- * Water (Prevention and Control of Pollution) Act
- * Wildlife Protection Act
- * Forest Conservation Act
- * Issues involved in enforcement of environmental legislation
- * Public awareness

7. Human population and the environment

- * Population growth, variation among nations
- * Population explosion-Family welfare programme
- * Environment and human health
- * Human rights
- * Value education
- * HIV/AIDS
- * Women and child welfare
- * Role of information technology in environment and human health
- * Case studies

Unit-II**(Compulsory for Private Candidate only)****Section C (25 Marks)**

I will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages. In this section the students will be required to write on the environment of an area/ecosystem/village/industry/disaster/mine/dam/ agriculture of an area/ecosystem/village/industry/disaster/mine/dam/ agriculture field/waste management/hospital etc. with its salient features, limitations, their implications and suggestion for improvement.

Environmental Studies (Field Study)**(Practical for Regular Students Only)**

The candidates will be required to undertake field study trips to study animals and plants in their natural habitats, status of pollution in the area and to undertake tree plantation drives. The candidates will be required to submit the field study report of about 10 pages listing their observation of the habitats studied and their contributions for conservation of habitats. The reports will be evaluated by the examiner appointed by the Principal of the concerned college.

HOME SCIENCE**Scheme of Study**

Paper	Theory Period/week	Practical
Clothing	2 hrs.	4 hrs./week
Textiles	3 hrs.	2 hrs./week

Scheme of Examination

Name of Paper	No.	Time	Marks	Internal	Total
Clothing	1	3 hrs.	40		100
Textiles & Laundry	1	3 hrs.	50	10	
Clothing practical	1	3 hrs.	45	15	60
Laundry practical	1	2 hrs.	30	10	40
					200

Note : Internal assessment should be based on

1. i) Assignment/test/seminars and attendance for theory & Practical.
- ii) Practical exam. of clothing & Laundry should be held separately.
(at different times on different day) clothing 3 hrs.
Laundry 2 hrs.
2. Practical examinations to be held before the final theory exams.

HOME SCIENCE

Paper-A

Clothing (Theory)

Instructions for the paper setter

The question paper will consist of five sections: A,B,C,D and E. Section A, B,C & D will have two questions from the respective sections of the syllabus & will carry 8 marks each. Section E will consist of 8 short answer type questions covering the entire syllabus uniformly carrying one mark each.

Instructions for the Candidates

Candidates are required to attempt one question each from the section A,B,C & D of the question paper and entire section E.

Time : 2 Hours/week

Maximum Marks : 40

Section-A

1. Equipments & supplies in clothing :

Construction—their use & care

II. Sewing Machine :

- (a) Parts of Sewing Machine & its accessories
- (b) Common defects in sewing machine & their remedies
- (c) Care of Sewing machines

Section-B

- I. Recording of Body measurements. Care to be taken while taking body measurement.
- II. Different methods of developing a design-Drafting, Pattern making, Draping (in brief) their advantages and disadvantages.

Section-C

Aesthetics in clothing

- I. Principles of design such as Harmony, Balance, Rhythm, emphasis & proportion.

II. Elements of design such as colour, lime, form and texture, shape, line.

Section-D

III Selection of suitable clothes for the following groups :

- | | |
|--------------------------|----------------|
| a) Infants | b) Toddlers |
| c) School going children | d) Adolescents |
| e) Adults | f) elderly |

IV Care & storage of garments of cotton, wool and silk.

HOME SCIENCE

Paper-B

Textiles (Theory)

Instructions for the paper setter

The question paper will consist of five sections: A,B,C,D and E. Section A, B,C & D will have two questions from the respective sections of the syllabus & will carry 10 marks each. Section E will consist of 10 short Type/objective type questions covering the entire syllabus uniformly carrying one mark each.

Instructions for the Candidates

Candidates are required to attempt one question each from the section A,B,C & D of the question paper and entire section E.

Time 3 Hours/week

Maximum Marks : 50

Section-A

1. Classification of textile fibres
2. Manufacture (in Brief) & properties of different fibres.
 - a) Cotton
 - b) Linen
 - c) Silk
 - d) Wool
 - e) Nylon
 - f) Polyester
 - g) Rayon viscose & Acetate

Section-B

1. Different types of yarns—simple, Novelty & Bulk yarn in brief.
2. Fabric construction—A brief study of basic weaves
 - a) i) Simple weaves—basket, rib.
 - b) ii) Twill-broken twill, Stain, Sateen.
Knitting, Knotting, felting, bonding.

Section-C

1. Bleach—Oxidising, reducing bleaches & their suitability to different fabrics.

2. Finishing—Sizing, designing, calendaring, sanforising, mercerisation, crease resistant, water proofing & water repellent, flame resistant & flame proofing.

Section-D

1. Application of colour on fabric
Dyeing—simple dyeing of cotton
Resist—Tie Dye and Batik
2. Printing a) Block Printing
 b) Screen Printing
 c) Roller Printing
3. Methods of Laundry/Washing.
4. Types and uses of starches and blues.

HOME SCIENCE

Clothing Practical

Time : 4 hours/week

Marks : 60

Internal Ass. : 20

1. Make samples of the following :

- a) Tacking, running stitch, hemming, Back Stitch, Button hole stitch, Fastners.
- b) Seams—Flat seam, counter seam, Mantua, maker; Run & Fell seam, French seam.
- c) i) Processes—Continuous wrap, two piece placket opening, pleats, gathering into a band, tucks.
ii) Embroidery—10 Fancy embroidery stitches.

2. Drafting of the following :

- i) child's bodice block
- ii) sleeve—
 - a) plain sleeve
 - b) Puff sleeve
- iii) collars—flat—and raised peterpan, cape collar, baby collar.
- iv) Jangia, Bloomer, child's bodice block & plain sleeve block.
- v) Drafting of
 - a) Adults bodice block
 - b) plain sleeve
- vi) Petticot
- vii) Salwar
- viii) Kameez

3. Construction of following garments :

- | | | |
|----------|---|---|
| Children | : | Bloomer, Jangia, Child's gathered frock with any sleeve & collar. |
| Ladies | : | Saree, Petticot, Blouse, Salwar Kameez |

**List of equipment required for the practical for a group of
12 students**

	Clothing
1. Simple Sewing Machines	12
2. Special purpose Machines	02
3. Over Locking Machine	01
4. Display Boards	02
5. Drafting Tables	04
6. Cutting Tables	04
7. Stools	12
8. Sewing Kits.	
a) Ordinary shears	1 each
b) Pinking Shears	4
c) Drafting Scarles	12
d) Measuring tapes	12
c) Tailoring chalks	02 boxes
f) Irons	4
g) Ironing Boards	4
h) Sleeve Boards	4

Clothing

1. Singer Sewing Book.
Mary Brooks pichen
McGraw-Hill Book Company Inc.
New York Tronto London 1953
2. Basic processing & Clothing Construction
She-rie Doongaji & Raushni Deshpande.
Raaj Prakashan, New Delhi (Fourth Revised edition)

3. Pattern Drafting
Vol. III, Kamakura-Shobo Publishing Co. Ltd.,
Tokyo, Japan, 1972 (fifty edition)
4. A Manual of Children Clothing.
Savitri Pandit, Orient Longmans Ltd., Bombay, 1967.
5. Pattern Cutting & Making up the professional approach.
Martin M. Shoben & Janet P. Ward. Pub., CBS
Publishers & Distributors (p) Ltd., New Delhi.
6. Mc Call's Sewing in Colour Pub. The Hamlyn Pub. group
Ltd., N.Y.
7. Encyclopedia of Dress Making Pub., Marshall Canvendish
Books Ltd., London
8. Creative clothing construction.
Allyne Bane, McGraw Hill Book Company.
New York, St. Louis San Francisco, Tronto, London,
Sydney, Second edition 1966.
9. Dress Pattern Designing.
The Basic Principles of Cut and Fit,
Natalie Bray,
Crosby Lock wood & sons Ltd., London, 1961
10. Practical Dress Design
Principals of Fitting and Pattern Making,
Mable D. Erwin,
The Macmillian Company, New York.
Ninth Printing, 1966.
11. Indian Embriodery
Its Veriegated Charms,
Savtri Pandit,

Savtri Pandit Faculty of Home Science,
Baroda, 1976, first edition.

Clothing

12. Singer Sewing Book, Gladys Cuningham Pub., Golden Press, New York.
13. Clothing Construction-Evelyn A Mansfield, Pub., Houghton Mifflin Co., Boston.
14. The Bishop Method of Clothing Construction, Bishop & Arch, Pub., Sir Issac Pitman & Sons Ltd., London.
15. The Basic Book of Sewing, Eve Harlow Pub., Octopus Books Ltd., London-I.
16. Better Homes & gardens sewing, casual clothes pub., Meredith Press & Pub Co., America.
17. Simple Dress making, Maureen Goldsworthy Pub: Mills 7 Boon Ltd., London.

HOME SCIENCE

Textiles & Laundry

Time : 2 hrs./Week Practicals

Practical : 30

Internal Ass. : 10

Max.Marks : 40

1. Testing of cotton, wool & Silk, Nylon by microscope & by Burning test.
2. Stain removal : Rust, Coffee, Tea, Paint, Nail Polish, Lipstick, Perfume, Blood, Boot Polish, Ink (Ball Pen) & Curry, Juice.
3. Spot cleaning of wooden garments.
4. Simple house hold dyeing of cotton fabric 12"x12"
5. Preparation of an article of Tie and Dye.
6. Hand Printing
 - (a) Block
 - (b) Screen
 - (c) Stencil

Note :

1. University should appoint one internal examiner alongwith the external.
2. Preparation of dye/starch/blue should be prepared by students.
3. Practical group should not exceed 15 students.

Textiles

- | | |
|----------------|----|
| 1. Sinks | 6 |
| 2. Basins | 12 |
| 3. Buckets | 12 |
| 4. Mugs | 12 |
| 5. Bhagonas | 4 |
| 6. Gas burners | 4 |

B.A./B.Sc. Part-II (12+3 System of Education) 397

7. Enamel bowls	24
8. Scrubbing boards	6
9. Scrubbing brushes	12
10. Microscopes	4
11. Slides	2 boxes
12. Slips covers	2 boxes
13. Test tubes	1 box
14. Test tube holders	12
15. Spirit lamps	12
16. Bhagonas for dyeing	12 big
17. Iron Karachis used for was heating	6
18. Painting brushes	24
19. Dyeing gloves (rubber)	12 pairs

Books Recommended - Textiles

1. Textile Fabrics and their selection, Isabel N. Wingate, Prentice Hall, Inc., Englewood Cliffs, N.J., 1970.
2. Fundamentals of Textiles and their care, Susheela, Dantyagi Orient Longmans, Bombay, Calcutta, Madras, New Delhi, Reprinted, 1968.
3. Household Textiles and Laundry Work, Durga Deulkar Atma Ram & Sons, New Delhi 1973.
4. Indonesian Batic & Ikat, Former Bedrich, Butterworth, London, 1982.
5. Ideas for Fabric Painting and dyeing Gooch, Peter H., Charles Cribner's, New York, 1974.
6. Encyclopedia of Textiles, Fibres and Nonwoolen Fabrics, Grayson Martin, John Willey, New York, 1984.
7. Textile Identification conservation and Preservation, King Resalic Resso, New Jersey, 1985.

8. Modern Textiles, Dorothy Siegert Lyle Pub., John Wiley & Sons Inc., N.Y.
9. Textiles in the Home, W.Munn Rankin & E.M.Hildreth Pub., Allman & Sons, London.
10. Household Textiles & Laundry work, Durga Deulkar Pub., Orient Longman Ltd., N.D.
11. Fundamentals of Textiles & Their Care, Susheela Dantiyogi Pub., Orient Longman Ltd., N.D.
12. Batic Kala, Sarla Sudershan Pub., Pustak Mahal, Khaari Baoli.
13. Watson's-Textiles Design & Colour, Z. Grosicki Pub., Universal Publishing Corp., Bombay.
14. Tie Dye Textiles of India, Veronica Murthy & Rosemary Crill Pub., Mapju publishing Pvt. Ltd., Ahamedabad.
15. Man made fibers, R.W. Moncrieff Pub., Nerunes Butterworths, London.
16. Batic Unlimited, Joanifer Gibbs Pub., Pitman Publishing, London.
17. Textiles, Normia Hellen & Jane Saddler Pub., The Macmillan Co., N.Y.
18. Textiles Fabrics & their selection, Isabel B., Wingate & June F., Monler Pub., Prentice Hall, Inc Engelwood Cliffs. N.J.
19. Textiles Fibres and Their Use, Katharine, Paddock Hess. Pub., Oxford & IBH pub. Co., New Delhi. 13.
20. Textiles Fibre to Fabrie, Bernard, P. Corbman Pub., Megraw Hill Book Co., London.

COSMETOLOGY (Theory Elective)**SCHEME OF STUDIES**

Name of Paper	periods/week	Marks
Theory	4	50
Practical Paper-A	4	60
Practical Paper-B	4	60
Job Training	-	30
		200

Scheme of Examination

Name of Paper	Paper		Hours.	Marks
	Th.	Pr.		
Theory	1	-	3 Hrs.	50
Practical Paper-A	-	1	3 Hrs	60
Practical Paper-B	-	1	3 Hrs.	60
Job Training	-		-	30
				200

Instructions for Theory Exam :

Note : Question paper will consist of three sections as follows:

Section-A will consist of 6 very short answer type questions with answer to each question up to 5 lines in length. All questions will be compulsory. Each question will carry 2 marks; total weightage being 12 marks.

Section-B will consist of short answer type questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner & eight will be attempted by the candidates. Each question will carry 3 marks. The total weightage of the section shall be 24 marks.

Section-C will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set

by the examiner & the candidates will be required to attempt two. Each question will carry 7 marks. Total weightage of the section being 14 marks.

I. Basic knowledge of Skeltal System, Muscular, Respiratory, Excretory, Endocrine.

II. Hair :

- a) Structure and Division of Hair
- b) Forms of Hair
- c) Hair growth and regeneration.
- d) Disorders of Hair and Scalp :
- e) Contagious diseases.

III. Health and Diet

- a) Balanced Diet.
- b) Principles of Meal Planning.
- c) Concept of energy requirement and BMR
- d) Health Counselling.
- e) Overweight and underweight.

IV. Colour:

- a) Analysis of Client
- b) Colour
- c) Colour Key Programme and its relation to skin, eyes and hair.
- d) Selecting a colour key
- e) Textures, lighting, cosmetics, Hair colouring and wardrobe

COSMETOLOGY

(A) Hair Care

Practical

Max Marks :-60

Practical : 4 week

I. Hair Care:

- a) Shampooing, Bleached hair and giving shampoo.
- b) Types of shampoos and procedures.
- c) Hair rinses.
- d) Hair conditioners.

II. Scalp Treatments and Hair Conditioners

- a. Introduction - Hair Brushing, Scientific Brushing.
- b. Scalp manipulations - Benefits and Bave scalp manipulations
- c. Corrective hair & Scalp treatments-Treatment for dry, oily, dry dandruff, corrective hair conditioners, Hair treatments using a thermal cap, listant conditioners.

III. Removing Unwanted Hair - Choosing a method, Tineeing, Depilatouies, waxing, Bleaching, Basic concept of Electrolysis.

COSMETOLOGY

Practical : 4 week

Max. Marks-60

Practical - B Hair Shaping & Styling

- 1. Basic Hair Shaping**
 - a. Hair shaping instruments and their using.
 - b. Sectioning for a Hair cut.
 - c. Hair Texture as it relates to hair Shaping
 - d. A medium and long length hair cut.
- 2. Wet Hairstyling**
 - a. Techniques & Equipment used.
 - b. Principles of Design.
 - c. Shapings and Moulding.
 - d. Finger Waving, Pin Curls, Roller setting.
- 3. Hair styling-Buns-at least 5**

Training Marks : 30

Students are required to undergo 3 weeks training in a reputed saloon, students will gain experience on tasks related to practicals. To be assessed by Internal Examiner.

SCHEME OF STUDIES**TRAVEL AND TOURISM (Elective)**

Paper A	Management of Travel and Tourism	100
Paper B	Tourism Marketing and Travel Agency Business	100

Paper-A**MANAGEMENT OF TRAVEL AND TOURISM****Time : 3 hrs.****Max. Marks : 100****INSTRUCTIONS FOR THE PAPER SETTER**

The Theory Paper consists of two Parts A and B (short questions and long questions).

Part A : The examiner will set 12 short questions, 3 questions from each section of 02 marks. The candidate will have to attempt 10 questions out of 12 questions.

(10x02=20 Marks)

Part B: The examiner will set 8 long questions, 2 questions from each section of 20 marks. The candidate will have to attempt 4 questions out of 8 question.

(04x20=80 Marks)**Unit-I****Chapter 1. Strategic Planning and Strategic Marketing**

Business Environment.

Alliances - Market Sharing.

Takeovers and Mergers

Chapter 2. Operations Management

Booking

Reservation

Blocking

Reconfirmation.

Unit-II**Chapter 3. Project Planning**

Conceptualizing a Project
Project Cycle.
Techno-economic survey.

Chapter 4. Project Review

Need for a project review
Project appraisal and evaluation
Destination Development

Unit-III**Chapter 5. Financial Management**

Financial statements.
Financial ratios and performance
Credit system.
Commission.
Direct sales.

Chapter 6. Banking and Forex

Banking Operations.
Forex Management.
Money Transfers.

Unit-IV**Chapter 7. New Trends in Tourism**

Health tourism.
Ski resorts and Adventure sports.
Heritage tours and Eco-tourism
Rural tourism and Space tourism

Chapter 8. Event Management and MICE

Role of events for promotion of tourism

Ganga Mahotsava, Lucknow Mahotsava and

Taj Mahotsava

Concept of MICE

Conference/conventions and exhibitions.

Suggested Readings :

- Harris, P. (1995) *Accounting and Finance for the International Hospitality Industry*, Butterworth Heinemann: UK
- Harrison, D. (ed) (1992) *Tourism and the Less Developed Countries*, Wiley: UK
- Goodall, B. and Ashworth, G. (eds.) (1988) *Marketing in the Tourism Industry: The Promotion of Destination Region*, UK
- O.Cornnor, P. (1996) *Using Computers in Hospitality* Cassell: UK
- *National Geographic* and *Discovery* Channel Programs.

TRAVEL AND TOURISM (Elective)**Paper-B****TOURISM MARKETING AND TRAVEL AGENCY
BUSINESS****Time: 3 hrs.****Max. Marks: 100****INSTRUCTIONS FOR THE PAPER SETTER**

The Theory Paper consists of two Parts A and B (short questions and long questions).

Part A : The examiner will set 12 short questions, 3 questions from each section of 02 marks. The candidate will have to attempt 10 questions out of 12 questions.

(10x02=20 Marks)

Part B : The examiner will set 8 long questions, 2 questions from each section of 20 marks. The candidate will have to attempt 4 questions out of 8 question.

(04x20=80 Marks)**Unit-I****Chapter 1. Tourism Product**

Principles and concepts of marketing.

Meaning and nature of tourism marketing.

How tourism marketing is different from the marketing of other products.

Marketing mix.

Market research vs. Marketing research.

Chapter 2. Pricing

Marketing vs. Selling.

Consumer behavior.

Buyer decision making process.

Segmentation, targeting and positioning.

Pricing strategies.

Unit-II

Chapter 3. Tour Packaging

Concept and characteristics

Methodology and pricing of tour packaging.

Designing and printing of tour brochure.

Chapter 4. Marketing of packaged tours

Marketing in different sectors of tourism

Leisure and hospitality.

Unit-III

Chapter 5. Travel Agency Business

Linkages in tourism and other sectors - travel agency, transportation, accommodation, food, nutrition and catering.

Travel agency and its role in the tourism development.

Functions and organizational structure of a travel agency and the tour operators.

Chapter 6. Travel Agents

Types of travel agents and their responsibilities.

Procedures for becoming a travel agent and tour operator in India.

Method of getting IATA recognition and the advantages enjoyed by an

IATA recognized travel agent.

Unit-IV

Chapter 7. Transportation

Transportation and tourism development.

Role of transportation in the growth of travel agency and tour operator business in India.

Chapter 8. Accommodation

Accommodation and tourism.

Types of accommodation and their organization.

Suggested Readings :

- Kotler, Philip. *Marketing Management: Analysis, Planning Implementation and Control*, Prentice Hall of India, New Delhi.
- Brigs, Susan. *Successful Tourism Marketing: A Practical Handbook*, Kogan Page, London, 1997.
- Middleton, Victor T.C. *Marketing in Travel and Tourism*, Butterworth Heinemaun, Oxford, 1994.
- Brunt, Paul. *Market Research in Travel and Tourism*, Butterworth Heinemaun, 1997.
- Foster, Dennis L. *Sales and Marketing for the Travel Professional*, McGraw-Hill, 1993.
- Witt, Stephen R. & Moutinoh, Luiz. *Tourism Marketing and Management Handbook* Prentice Hall. London. 1994.
- Baker, M.J. *Marketing: An Introductory Text*, Macmillan, 1985.
- Veal, A.J. *Research Methods for Leisure and Tourism: A Practical Guide*, Longman, 1992
- Mohamed. H. Peeru. *Marketing: A Financial Approach*, Kaveri, New Delhi, 1997.
- Aaker, David A. & Co. *Advertising Management*, Prentice Hall of India, New Delhi, 1995.
- Agarwal, Surinder. *Travel Agency Management*, Communication India, 1993
- Negi, Jagmohan *Travel Agency and Tour Operation: Concepts and Principles*, Kanishka, New Delhi, 1998.
- Foster, Dennis L. *An Introduction to Travel and Tourism*, McGraw-Hill, 1994.
- Bhatia, A.K. *Tourism Development - Principles and Practices*, Sterling, 1992.

FACULTY OF ARTS & SOCIAL SCIENCES AND SCIENCES

SYLLABUS

For

B.A./B.Sc. Part-II

(12+3 SYSTEM OF EDUCATION)

EXAMINATIONS - 2010-11



GURU NANAK DEV UNIVERSITY
AMRITSAR

**GURU NANAK DEV UNIVERSITY
AMRITSAR**

**B.A./B.Sc. Pass Course Examination
(12+3 System of Education)**

PART-II

- i) The Part-II examination shall be open to a candidate who has passed, not less than one academic year previously, Part-I (under 10+-2+3 System of Education) examination of the B.A./B.Sc. of this University.
- ii) Any other examination recognised by this University as equivalent to any of the corresponding examinations mentioned above.

Note : Detailed ordinances relating to examination for this class are contained in the Guru Nanak Dev University Calendar, Vol. II, Read with Syndicate Decisions/Amendments made from time to time.

CONTENTS

1. English (Compulsory)	1
2. English (Elective)	3
3. Functional English (Vocational)	7
4. ਪੰਜਾਬੀ ਵਿੱਤ	11
5. Punjabi (Elective)	12
6. ਕੰਨੜ ਪੰਜਾਬੀ	14
7. Punjab History & Culture	17
8. Sanskrit (Elective)	19
9. Sanskrit (Vocational)	23
10. Hindi	25
11. Functional Hindi	28
12. Russian	34
13. French	36
14. Urdu (Elective)	38
15. Persian (Elective)	42
16. History	46
17. Political Science	50
18. Defence and Strategic Studies	59
19. Public Administration	69
20. Sociology	73
21. Psychology	76
22. Geography	81
23. Journalism & Mass Communication	90
24. Mass Communication & Video Production (Vocational)	92
25. Education	96
26. Physical Education	100

27. Philosophy	105
28. Drm EIDEh	111
29. Music (Instrumental)	116
30. Music (Vocal)	121
31. Indian Classical Dance	125
32. Tabla	129
33. Fine Art (Drawing & Painting)	133
34. History of Art	139
35. Commercial Art	141
36. Sculpture	143
37. Still Photography & Audio Production (Vocational)	145
38. Dramatic Art	152
39. Gemology & Jewellery Design	154
40. Commerce	157
41. Economics	161
42. Quantitative Techniques	165
43. Industrial Economics	169
44. Agricultural Economics & Marketing	173
45. Rural Development	177
46. Dairy Farming (Vocational)	181
47. Office Management & Secretarial Practice (Vocational)	184
48. Tourism and Travel Management	196
49. Tourism and Hotel Management (Vocational)	201
50. Income Tax Procedure and Practice	206
51. Advertising, Sales Promotions & Sales Management	213
52. Bioinformatics (Vocational)	218
53. Botony	226
54. Zoology	234
55. Microbial and Food Technology	244
56. Microbiology (Vocational)	249
57. Industrial Microbiology (Vocational)	254
58. Biotechnology (Vocational)	259
59. B.Sc. Human Genetics	266
60. Mathematics	272
61. Statistics	276

