

HIGHER SECONDARY SYLLABUS



NAGALAND BOARD OF SCHOOL EDUCATION
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Effective from the academic session 2015 for class XI and 2016 for class XII.

The registered schools shall follow the syllabi and the textbooks prescribed by the Board.

Note: The Board reserves the right to revise the curriculum and syllabi as and when it deems necessary.

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Chairman,
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FOREWORD

Curriculum is a cyclic process. It has to be planned, developed, implemented and evaluated in order to replan, based upon the results of evaluation, for making it more meaningful. The pupil's characteristics, community needs and expectations and the changing society have an important bearing upon the development of the curriculum.

The last revision of the syllabus for higher secondary level was done in the year 2009 based on the National Curriculum Framework (NCF) 2005. The new revised syllabus was made effective from the academic session 2015 in class XI and for class XII it will be effective in 2016. The revised syllabi are developed based on the guiding principles as envisaged in NCF 2005.

The Core syllabus for science and commerce streams (common for the whole country) which was implemented with effect from the academic session 2011 is not affected in the present revision.

The philosophy, approaches and the stand on teaching and learning as enumerated in NCF have been the basis for developing the curricular materials.

All schools registered with the Board are required to strictly follow the syllabi and textbooks prescribed by the Board for the academic session and examinations concerned. No deviation is permissible.

Lastly, I express my sincere appreciation to the Officers and Teachers who have been involved in this revision exercise through the workshop mode.

Dated: 5th January 2016

(Mrs. Asano Sekhose)
Chairman.

National Curriculum Framework (NCF) 2005

The National Curriculum Framework (NCF) 2005 is the framework on the basis of which the Nagaland Board of School Education formulates its curriculum and syllabus document by adopting and adapting the guidelines provided.

The paramount guiding principles as proposed by NCF – 2005 are:

- Connecting knowledge to life outside the school
- Ensuring that learning is shifted away from rote methods
- Enriching the curriculum to provide for overall development of children rather than remain textbook centric
- Making examinations more flexible and integrated into classroom life and
- Nurturing an over-riding identity informed by caring concerns within the democratic polity of the country.

According to NCF 2005, the greatest national challenge for education is to strengthen our participatory democracy and the values enshrined in the Constitution. Meeting this challenge implies that we make quality and social justice the central theme of curriculum reform. Quality in education includes a concern for quality of life in all its dimensions.

“Education as a planned endeavour, at a personal level on a small scale or institutional level on a large scale, aims at making children capable of becoming active, responsible, productive and caring members of society. They are made familiar with the various practices of the community by imparting the relevant skills and ideas. Ideally, education is supposed to encourage the students to analyse and evaluate their experiences, to doubt, to question, to investigate-in other words, to be inquisitive and to think independently”.

- NCF 2005 (Position Paper-aims of Education)

Another basic aim of education is to nurture in the learner a sound mind and strong values driven character. Learners should be educated to uphold the democratic values, respect the rules of law and support humanitarian ideals; they should engage in healthy practices to be able to develop robust and healthy physiques, learn how to think for themselves and be creative.

In principle, education is a learning progression to help learners explore their innate capacity and talents as well as develop their potential to improve and enhance sustainability of their living environment.

Learning to learn and the willingness to unlearn and relearn are important as means of responding to new situation in a flexible and creative manner. The curriculum needs to emphasise the processes of constructing knowledge.

(Adopted from NCF – 2005)

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2. Work and Art Education
3. Physical and Health Education

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ARTS	COMMERCE	SCIENCE
Compulsory Subjects 1. English Elective Subjects 1. History 2. Political Science 3. Economics 4. MIL or Alt. English 5. Psychology 6. Philosophy 7. Sociology 8. Geography 9. Education 10. Music 11. Computer Science 12. Informatics Practices	Compulsory Subjects 1. English 2. Accountancy 3. Business Studies 4. Economics Elective Subjects 1. Mathematics 2. Fundamentals of Business Mathematics 3. Entrepreneurship 4. Financial Markets Management 5. MIL or Alt. English 6. Computer Science 7. Informatics Practices	Compulsory Subjects 1. English 2. Physics 3. Chemistry Elective Subjects 1. Biology 2. Mathematics 3. MIL or Alt. English 4. Computer Science 5. Informatics Practices

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PART – A:

ELIGIBILITY OF CANDIDATES

1. Admission of students to a registered institution of the NBSE:

1.1 A student seeking admission to a class in a registered institution will be eligible for admission to that class if he:-

- (i) has been studying in an institution registered with NBSE or member Board of Council of Boards of School Education in India (COBSE),
- (ii) has passed qualifying or equivalent qualifying examination making him eligible for admission to that class and
- (iii) produces: -
 - (a) Pupil Cumulative Record (PCR).
(a migrating student shall produce the School Leaving Certificate or Transfer Certificate signed by the Head of the Institution last attended and countersigned by the District Education Officer or his equivalent), and
 - (b) Certificate(s) in support of having passed the qualifying or equivalent qualifying examination.

Explanation: -

- (a) A person who has been studying in an institution which is not a member Board of COBSE shall not be admitted to any class of the registered institutions on the basis of certificate(s) of such unrecognized institutions attended by him earlier.
 - (b) 'Qualifying Examination' means the passing of that examination which makes a student eligible for admission to the next higher class.
 - (c) 'Equivalent Examination' means an examination conducted by a recognised Board/ University and is recognised by NBSE as equivalent to the corresponding examination conducted by this Board.
- 1.2 No person who is under the sentence of rustication or is expelled from any Board/ University/School or is debarred from appearing in the examination for whatever reason by any Board/University shall be admitted to any class nor shall be permitted to appear at any examination under NBSE.
- 1.3 No student shall be admitted or promoted to any subsequent higher class unless he has completed the regular course of study of the class to which he was admitted at the beginning of the academic session and has passed the examination at the end of the concerned academic session, qualifying him for promotion to the next higher class.
- 1.4 No student shall be admitted in Class XI or above in an institution registered with the Board after the specified date.
The candidate shall complete the required percentage of attendance (80%) for each class to make him eligible for the examinations.

1.5 Admission: Specific Requirements

Admission to Class XI in a registered institution shall be given only to such a student who has passed: -

The High School Leaving Certificate Examination (Class X) conducted by this Board or an equivalent examination conducted by a member Board of COBSE and recognised by this Board as equivalent to its High School Leaving Certificate Examination.

1.6 Admission to Class XII

(i) Admission to Class XII shall be given to students who:

- ~ has completed a regular course of study for Class XI, and
- ~ has passed Class XI examination from an institution registered with NBSE.

(ii) Admission to migrating students to Class XII is not allowed.

However, the Chairman shall have the authority to decide direct admission to Class XII on special circumstances.

2. Admission to Examinations

2.1 Admission to Examinations: Regular Candidate

Regular candidates will be allowed to appear the Higher Secondary School Leaving Certificate Examination who had submitted their duly completed applications for admission to the concerned examination, and/or his name in the manner prescribed by the Board, along with the prescribed fee forwarded to the Controller of Examinations by the Head of the Institution.

2.2 Management of Examinations

- (i) It is mandatory for an institution registered with the Board to follow the rules and guidelines of the Management of Examinations of the Board.
- (ii) No registered institution shall endeavor to present the candidates who are not enrolled as on 1st July nor will it present the candidates of its unregistered institutions to any of the Board's Examinations.
- (iii) If the Board has reasons to believe that a registered institution is not following the Board's rules and norms, the Board will resort to penalties as deemed fit.

2.3 A Regular course of Study

- (i) The expression "a regular course of study" means at least 80% of attendance in the classes held, counted from the day of commencing/teaching of Class XI / XII, up to the 1st of the month preceding the month in which the examination of the Institution/Board commences.

Candidates taking up a subject(s) involving practicals shall also be required to have at least 80% of the total attendance for practical work in the subject in the laboratory.

Heads of institutions shall not allow a candidate who has opted subject(s) involving practicals to take the practical examination(s) unless candidate fulfill the attendance requirements as given in this Rule.

- (ii) The candidates who had failed in the same examination in the preceding year and who rejoins Class XI/ XII shall be required to put in 80% of attendance calculated from the 1st of the month following the publication of the result of that examination by the Institution/Board up to the 1st of the month preceding the month in which the examination of the Institution/Board commences.

2.4 Requirement of attendance in subjects of Internal Assessment

- (i) No student from a registered institution shall be eligible to take the examination unless he has completed 80% of attendance counted from the opening of Class XI / XII up to the 1st of the month preceding the month in which the examination of the Institution/Board commences in the subjects of internal assessment.
- (ii) The Chairman, NBSE shall have powers to condone shortage of attendance in subjects of internal assessment.

2.5 Rules for Condonation of shortage of attendance

- (i) Shortage of attendance up to 15% only may be condoned by the Chairman. Cases of candidates with attendance below 65% in Class XII shall be considered for condonation of shortage of attendance by the Chairman only in exceptional circumstances created on medical grounds, such as candidates suffering from serious diseases like Cancer, AIDS, T.B. or any other disease or injury requiring long period of hospitalization.
- (ii) The head of registered institution shall refer a case of shortage within the above prescribed limit of condonation to the Board, either with the recommendations or with valid reasons for not recommending the case.
- (iii) The following may be considered valid reasons for recommending the cases of the candidates with attendance less than the prescribed percentage:
 - (a) prolonged illness;
 - (b) loss of parents/legal guardian or some other such incident leading to his absence from the school and meriting special considerations;
 - (c) any other reason of similar serious nature; and
 - (d) authorized participation and/or representation of the State in sponsored Tournaments, Sports Meets, Seminars, Exhibitions, etc. of not less than inter school level, NCC, Scouts & Guides and NSS Camps, etc. within or outside the state. The days of journey for such participation shall be counted as full attendance.

2.6 Detention of eligible candidates

The Heads of the registered institutions can detain candidates from appearing the examination of the Board on account of any of the following reasons:

- (i) if there is no sign of academic improvement or if the student has a deteriorating performance in the weekly/monthly tests and terminal examinations.
- (ii) gross misconduct and insubordination to the institutional authority.
- (iii) failure to attend coaching classes.
- (iv) non-payment of fees (school fees, examination fees, etc.).
- (v) failure to abide by the rules of the institution.
- (vi) or any other reason which the head of the institution necessitates to take an action.

2.7. Admission to Examinations : Private Candidates

- (i) A candidate who had failed at the Higher Secondary School Leaving Certificate Examination of the Board will be eligible to reappear at a subsequent examination as a private candidate. However, if the syllabus & textbooks are changed/revised, he shall have to appear in the current course and NOT the old course.
- (ii) Private candidates shall not be allowed to opt/appear a subject (even if the subject is one of the subjects for the said examination) which he has not taken or studied as a regular student.
- (iii) Those regular candidates who have failed at the Class XI Promotion Examination of the NBSE or any other member Board of COBSE shall not be permitted to appear the Higher Secondary School Leaving Certificate Examination as private candidates.

2.8 General

A candidate who has been expelled or is under punishment or rustication or is debarred for appearing in or taking an examination for any reason whatsoever by this Board or any member Board of the COBSE, shall not be permitted to appear the Higher Secondary School Leaving Certificate Examination as private candidates.

PART - B

1. SCHEME OF STUDIES

There shall be 3 (three) streams i.e. Arts, Commerce and Science at the higher secondary level. There will be 6 (six) external subjects including 1 (one) additional subject and 3 (three) internally assessed subjects. **The additional subject is optional.**

The subjects to be taught in the different streams are as follows:

1.1 Subjects.

The subject of studies at the higher secondary level shall be as follows:

A. ARTS

I. Compulsory

- (i) English

II. Elective (*any four*):

- (i) History (ii) Political science (iii) Economics (iv) MIL or Alt. English
(v) Psychology (vi) Philosophy (vii) Sociology (viii) Geography
(ix) Education (x) Music (xi) Financial Markets Management
(xii) Computer Science (xiii) Informatics Practices

III. Internally Assessed Subjects:

- (i) Environmental Education (ii) Work and Art Education
(iii) Physical and Health Education

IV. Additional subject:

A subject given in serial no. II (Elective) which is not opted as an Elective with conditions.

Note: (1) Students cannot opt the following subjects together:

- (a) Education and Psychology
(b) Computer Science and Informatics Practices.

- (2) A candidate can also offer an additional subject from the given elective subjects but subject to fulfilment of the condition laid down in note no. 1 above

B. COMMERCE

I. Compulsory

- (i) English (ii) Economics (iii) Accountancy (iv) Business Studies

II. Elective (*any one*):

- (i) Mathematics (ii) Entrepreneurship
(iii) Fundamentals of Business Mathematics (iv) Financial Markets Management
(v) Computer Science (vi) MIL or Alt. English
(vii) Informatics Practices

III. Internally Assessed Subjects:

- (i) Environmental Education (ii) Work and Art Education,
(iii) Physical and Health Education.

IV. Additional subject:

A subject given in serial no. II (Elective) which is not opted as an Elective with conditions.

Note: (1) Students cannot opt the following subjects together:

Computer Science and Informatics Practices.

- (2) A candidate can also be offered an additional subject from the given elective subjects but subject to fulfilment of the condition laid down in note no. 1 above.

C. SCIENCE

I. *Compulsory*

(i) English (ii) Physics (iii) Chemistry

II. *Elective (any two):*

(i) Biology (ii) Mathematics (iii) Computer Science
(iv) Informatics Practices. (v) MIL or Alternative English

III. *Internally Assessed Subjects:*

i) Environmental Education ii) Work and Art Education
iii) Physical and Health Education

IV. *Additional subject:*

A subject given in serial no. II (Elective) which is not opted as an Elective with conditions.

Note: (1) Students cannot opt Computer Science and Informatics Practices subjects together:

(2) A candidate can also offer an additional subject from the given elective subjects but subject to fulfillment of the condition laid down in note no. 1 above

1.2 Instructional Time and Instructional Period:

- ~ There should be a minimum of 180 working days in a year.
- ~ The duration of each period should be 45 minutes.
- ~ The instructional period should be distributed to ensure that the whole syllabus is transacted.
- ~ The institutions while planning its instructional time should provide time for project works and out door activities.

1.3 Medium of Instruction:

The medium of instruction and examination for all subjects shall be English except for the Major Indian Languages and Modern Indian Languages (MILs).

1.4 Selection of a particular scheme of studies:

It is desired that the students choose their elective subjects keeping in view their future course of higher studies. Institution shall therefore be responsible for ensuring the correct selection of subjects to meet the university or professional requirements of a student(s).

2. SCHEME OF EXAMINATIONS:

2.1. Nature of Examination :

The pattern of higher secondary examinations shall be as follows:-

(a) Class XI

The examination shall be conducted from the syllabus of Class XI.

- i) ~ The date and time of the examinations shall be fixed by the Board.
 - ~ The question papers shall be set by the Board.
 - ~ The evaluation and provisional result shall be done by the institution.
 - ~ The declaration of result by the institution shall be done after it is approved and countersigned by the Controller of Examinations, NBSE or a senior official of the NBSE who is dealing with examinations.
- ~ The following valued answer-scripts of all the subjects shall be submitted along with the result for approval:

- 3(three) scripts within 0-32% marks
- 3(three) scripts within 33-60% marks
- 3(three) scripts within 61-100% marks

For Environmental Education 2 (two) scripts for each grade shall be submitted.

- ii) ~ The internal subjects i.e., Work and Art Education, Physical and Health Education and Environmental Education shall be assessed internally by the institutions on a five point grade scale.
 - ~ The grades of the internally assessed subjects shall be forwarded by the institutions at the time of submitting the results of mid-term examination of Class XI.
 - ~ These grades shall be taken into consideration in deciding the result.
 - ~ The institutions shall maintain the achievement record or progress of the students in the Pupil Cumulative Record (PCR).
 - ~ These records are subject to scrutiny by the Board.
- iii) Details of subjects, marks and duration of examination:

a. External Subjects:

<u>Subject</u>	<u>Marks</u>	<u>Duration</u>
~ Subject without practical	100	3 hours
~ Subject with practical		
Theory	70	3 hours
Practical	30	3 hours
~ Subject with internal/project work		
Theory	90	3 hours
Internal/project work	10	

b. Internally assessed subjects

These subjects shall be continuously and comprehensively evaluated by the institution. The performance of the student shall be given in grades.

b) Class XII (Higher Secondary School Leaving Certificate Examination)

- i) The Board shall conduct the final examination of Class XII as Higher Secondary School Leaving Certificate Examination (HSSLC).
 - ~ The examination shall be based on the syllabus for Class XII and the result shall be determined on the basis of the marks obtained at the HSSLC Examination.
- ii) Details of subject, marks and duration of examination:

a. External Subjects:

<u>Subject</u>	<u>Marks</u>	<u>Duration</u>
Subject without practical	100	3 hours
Subject with practical		
Theory	70	3 hours
Practical	30	3 hours
Subject with internal/project work		
Theory	90	3 hours
Internal/project work	10	

b. Internally assessed subjects:

These subjects shall be continuously and comprehensively evaluated by the institution.

- ~ The performance of the student shall be given in grades.
- ~ The grades of the internally assessed subjects shall be forwarded by the head of the institution to the Board at the time of submitting the forms of the HSSLC Examination.
- ~ These grades shall be taken into account to determine the result and rank.

2.2 Pass criteria and classification of successful candidate:

i) The pass criteria for the examinations of Classes XI and XII shall be as follows:

- ~ 33 marks in subject having 100 external marks
- ~ 30 marks and 3 marks separately in subject having 90 external and 10 internal/project work
- ~ 21 marks in theory and 12 marks in practical separately for those subjects involving practical including the subject Environmental Education.
- ~ 165 marks in the aggregate out of 500 marks.

ii) For promotion to the next higher class, a candidate must pass in 5 (five) subjects which includes the compulsory subjects.

iii) Classification of result is:-

III division 165 to 224 marks

II division 225 to 299 marks

I division 300 and above

iv) The rank of a successful candidate shall be decided on the basis of best 5 (five) subjects. This is subject to having passed the compulsory subjects as per the scheme of studies for each respective stream.

3. MINIMUM ATTENDANCE FOR CLASSES XI AND XII:

A student pursuing a regular course must have 80% or above class attendance to his/her credit in order to sit for the promotion or final examination.

4. REGISTRATION:

A student who had enrolled in the higher secondary classes under this Board shall register himself/herself with the Board by applying in the prescribed form. Registered students shall be issued a registration card.

Students who are not registered with the Board will not be allowed to sit at the Board's examinations.

5. RULE FOR ADMISSION TO EXAMINATION:

i) A student who opted an elective subject but did not appear in that particular subject but got promoted to Class XII with other 5 (five) subjects shall not be allowed to take up that subject in Class XII.

ii) A student who did not appear the theory paper of an elective subject but appeared the practical or vice-versa shall not be allowed to continue to take up that elective subject in Class XII.

iii) A student who appeared the theory paper of an elective subject (not having practicals) or both the theory paper and practical but failed shall be allowed to take up that elective subject in Class XII.

6. CHANGE OF SUBJECT:

A student, after passing Class XI, shall be allowed to change his/her subject only with the prior approval of the Board in the following subjects:

(i) MILs to Alternative English ii) Psychology to Education (iii) Computer Science to Informatics Practices.

For such cases, approval shall be sought on or before 30th April of the academic year.

7. CHANGE OF STREAM:

The provision of change of stream is applicable for the failed candidate(s) of HSSLC Examination. Such a candidate shall seek prior permission from the Board to join in Class XI.

Failed candidates of Class XI are eligible for change of stream. Such candidates shall seek prior permission from the Board for change of stream before taking admission.

8. REGISTRATION OF SUBJECT:

Institutions shall obtain prior permission from the Board for registration for the subjects prescribed in the syllabus to be taught.

Institutions shall not forward candidates to the examinations in subjects for which they are not registered. Such cases shall be rejected.

9. VOCATIONAL SUBJECT:

Physical verification shall be done by the Board before permission is granted to an institution to impart vocational subject.

PART – C

AREAS OF INTERNAL ASSESSMENT

As per the scheme of studies given for higher secondary level, the following areas are for internal assessment to be done by the respective institutions.

1. Environmental Education
2. Work and Art Education
3. Physical and Health Education.

The purpose of assigning these areas to internal assessment is that these should not be reduced to mere certification but should receive careful handling so as to encourage growth of the student into a more wholesome personality.

The academic achievement should be fully supplemented with growth in other areas of human personality which is far more worthwhile in dealing with the life situations.

Therefore, the evaluation shall be done on continuous and comprehensive basis. The evaluation of internal assessment subjects mentioned above should be done on a five point grade scale as stated below:

Grade A	-	Most indicators in a skill	75% to 100%
Grade B	-	Many indicators in a skill	60% to 74%
Grade C	-	Some indicators in a skill	45% to 59%
Grade D	-	Very less indicators in a skill	33% to 44%
Grade E	-	No indicators identifiable in a skill	32% and below

In all the three internal assessed subjects, a student must secure the minimum qualifying grade 'D' to be promoted or declared passed.

Students with failed grades should not be sent up.

PART –D

ENGLISH

General Objectives:

- To read, listen and comprehend a variety of topics.
- To develop greater confidence and proficiency in the use of language skills necessary for social and academic purpose.
- To respond, participate in group discussions, interviews etc.
- To identify the central / main points and supporting details on given topics.
- To promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc, through meaningful activities.
- To develop ability and knowledge required in order to engage in independent reflection and enquiry.
- To be able to write in response to questions or task based like essay, letters, applications, notice, reports, preparing c. v., filling forms, etc.
- To be able to refer dictionaries or any academic reference material.
- To develop the ability to be original and creative and make notes based on the given text.
- To contextualise a given topic.
- To personally respond, appreciate and analyse literary text.
- To develop the art of formal public speaking.
- To be able to make notes from various resources for the purpose of developing the extracted ideas into sustained pieces of writing.

DESIGN OF QUESTION PAPER CLASS - XI ENGLISH

Weightage to different forms of questions:

Sl.no.	Forms of questions	Mark allotment for each question	No. of questions	Total marks
1.	VSA-I (grammar)	1	10	10
2.	VSA -II	2	5	10
3.	SA- I	3	2	6
4.	SA- II	4	4	16
5.	LA- I	5	4	20
6.	LA- II	6	2	12
	LA- III	8	2	16
	Total		29	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18
	Total	100	90

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA - I	1 word	1 minute	10 minutes
2.	VSA - II	20-25 words	3 minutes	15 minutes
3.	SA- I	30-35 words	5 minutes	10 minutes
4.	SA- II	40-60 words	6 minutes	24 minutes
5.	LA- I	60-100 words	10 minutes	40 minutes
6.	LA- II	100-150 words	15 minutes	30 minutes
	LA- III	150-200 words	18 minutes	36 minutes
	Reading of question & Revision	-	-	15 minutes
			Total Time	180 minutes

Scheme of Options:

There will be no general option. However, an internal option shall be provided for:

- i. 1 (one) 3 marks question
- ii. 1(one) 4 marks question
- iii. 3(three) 5 marks questions
- iv. 1(one) 6 marks question

**CLASS – XI
ENGLISH**

Unit-Wise weightage

Part - A: External

Time: 3 hrs

Marks:90

Unit	Marks
I. LITERATURE	30
a) Prose	
b) Poetry	
c) Drama	
II. Long Reading Text	10
III. Reading	20
IV. Writing	20
V. Grammar	10
Total	90
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Part – B: Internal	
I. Listening	5
II. Speaking	5
Total	10
Grand total	100

CONTENTS

1.	THANK YOU M'AM	:	LANGSTON HUGHES
2.	NO MEN ARE FOREIGN	:	JAMES KIRKUP
3.	THE MALEFACTOR	:	ANTON CHEKHOV
4.	IF	:	RUDYARD KIPLING
5.	THE DIAMOND MAKER	:	H. G. WELLS
6.	WHY CAN'T A WOMAN BE MORE LIKE A MAN?	:	(FROM PYGMALION – GEORGE BERNARD SHAW)
7.	THE VERGER	:	W. SOMERSET MAUGHAM
8.	A HUNGER FOR BOOKS	:	DORIS LESSING
9.	KELHOUKEVIRA	:	EASTERINE KIRE
10.	THE IMPORTANCE OF BEING EARNEST	:	OSCAR WILDE
11.	SWAMI AND FRIENDS (LONG READING TEXT)	:	R.K. NARAYAN

Part - A: External

90 Marks

Unit 1: Literature

40 marks /70 periods

Literature:

- * There will be five short answer type questions on prose to be answered in 30 – 40 words which will test comprehension of localized items in the text, it will also test general language competence and will in turn build confidence with dealing longer answers. 2 marks each.
- * There will be one long answer type question on prose for 5 marks with an internal option, to facilitate the development of prediction skills leading towards global comprehension (100-150 words).
- * There will be two references to context questions with internal options to assess critical understanding of the poems for 3 marks each. There can be two or more parts to each question. Students will be expected to answer questions on commonly used poetic devices such as (Personification, simile, alliteration, metaphor, onomatopoeia hyperbole, transferred epithet, rhyme, rhythm, imaginary)
- * One learner's response task on the main theme / poet's perception of the poem. 4 marks (80 – 120 words)
- * There will be reference to context questions from drama based on the learner's understanding of character and events. (5 marks)
- * There will be two long answer type questions with options on Long Reading Text (Novel) to test the analysis of themes / plots / events/ characters etc. 5 marks each (100 – 150 words).

Unit II: Reading

20 marks/35 periods

This section will assess Reading Comprehension. The section will be of 20 marks and will have 3 reading passages of 8, 8 and 4 marks followed by questions that will test the sub skills of scanning, skimming, inference evaluation and comprehension. There can be questions to test vocabulary also. The passages will be extracts from poems / factual /literary / discursive or descriptive passages.

- * The passages will be in about 200 – 300 words and the other shorter one of about 120 – 150 words.

Unit III: Writing

20 marks /35 periods

- * Two short writing items about 50 words like a notice, invitation and posters for 4 marks each.
- * One writing item in about 150 – 200 words for 6 marks, e.g. an essay, diary entry, report.
- * One letter for 6 marks e.g. letter to the editor or informal letter.

Unit IV: Grammar**10 marks /30 periods**

This section will assess grammar items in context for 10 marks. There can be 4 – 5 questions in this section which will test grammar items.

- * Direct / Indirect Speech
- * Voice
- * Adjective and adverb clauses.

Part - B: Internal**10 Marks /10 Periods**

1. Listening and Speaking: The testing of Listening and Speaking Skills will be conducted by the schools/colleges internally. The question paper will be for 10 marks.

The listening and speaking examination should be conducted with no amount of pre-conditioned impressions of students. Schools should take this examination seriously and adhere to the principles of testing completely.

Assessment scale

The speaking and listening test shall be assessed on a 5 Band Scale. The assessment shall be done or given basing on the fulfilment of the criteria indicated against the respective Band Point.

Speaking

Many tasks can be set. The teacher has a choice to test the learner for 5 marks. The teacher can choose any task based on the learners competency.

Band Points	Criteria
5	a) Quite fluent b) Uses accurate and appropriate structure and vocabulary c) Occasional grammatical errors d) Intelligible in terms of pronunciation and accent e) Requires no effort by the listener
4	a) Fluent b) Short utterances c) Some slips in grammar and vocabulary d) Intelligible e) Some pauses f) Requires only a little effort by the listener
3	a) Lacks fluency in the sense that some hesitations, false starts and reformulations b) Manages to communicate with some effort c) Lacks accuracy, some errors in grammar and vocabulary d) Needs quite a bit of support/prompting
2	a. Makes basic mistakes in pronunciation, shows little control of grammar and vocabulary b. Lots of pauses, routinised/memorized sentences c. Repetition, requires a lot of effort by the listener d. Needs lot of prompting
1	a) Very little or hardly any evidence of making any sense b) Single words which are repetitions of what the examiner said c) Lot of hesitation d) More non verbal than verbal utterances
0	Is silent in spite of examiner's effort. Achieves no communication

Listening:

One listening task shall be set for 5 marks to assess the listening skills. They could focus on:

- * Listening for comprehension
- * Listening for specific information
- * Predictive Listening
- * Inferential Listening

The following Band Point Scale is to be used to assess the Listening Skills.

Band Points	Criteria
5	a) Meaningful chunks are well represented b) No spelling mistakes c) No relevant words missing d) Has no difficulty in understanding the spoken language
4	a) Small bits of meaningful chunks fairly correct b) Some spelling slips c) Some irrelevant words missing d) Can understand the language even when it is not clearly structured
3	a) Small bits of meaningful chunks not present b) Some spelling errors c) Some words missed out d) Can understand fully well when the topic is familiar
2	a) Large bits of meaningful chunks not present b) Some spelling errors which change the meaning of the piece of communication c) Many words missed out d) Can understand fully well when the topic is familiar e) Can understand at least 2 main points
1	a) Some chunks from the input exist but these are not the meaningful ones b) Many unacceptable spelling errors for the age c) Completely lacks sense d) Can understand familiar utterances but can't make sense of the meaning behind it
0	Is unable to even process the input

* **Common European Framework of Reference for Languages: learning, teaching assessment.**

Prescribed textbooks:

1. *Orchids, Literature Reader Class XI* – Madhubun Educational Books
2. *Orchids, Main Course Book Class XI* – Madhubun Educational Books
3. *Swami and Friends*
by R. K. Narayan

CLASS - XII
ENGLISH

Weightage to different forms of questions:

Sl.no.	Forms of questions	Mark allotment for each question	No. of questions	Total marks
1.	VSA-I (grammar)	1	10	10
2.	VSA -II	2	5	10
3.	SA- I	3	2	6
4.	SA- II	4	1	4
5.	LA- I	5	5	25
6.	LA- II	7	1	7
7.	LA- III	8	2	16
8.	LA -IV	12	1	12
Total			27	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18
Total		100	90

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA - I	1 word	1 minute	10 minutes
2.	VSA- II	20-25 words	2 minutes	10 minutes
3.	SA- I	30-35 words	4 minutes	8 minutes
4.	SA- II	40-60 words	6 minutes	6 minutes
5.	LA- I	60-100 words	11 minutes	55 minutes
6.	LA- II	100-150 words	15 minutes	15 minutes
	LA- III	150-200 words	18 minutes	36 minutes
	LA - IV	As per marks above	25 minutes	25 minutes
	Reading of question & Revision	-	-	15 minutes
			Total Time	180 minutes

Scheme of Options:

There will be no general option. However, an internal option shall be provided for:

- i. 1 (one) 3 marks question
- ii. 4(four) 5 marks questions
- iii. 1(one) 7 marks question

ENGLISH

Unit-Wise weightage

Part - A: External

Time: 3 hrs

Marks: 90

Unit	Marks
I. LITERATURE	30
a) Prose	
b) Poetry	
c) Drama	
II. Long Reading Text	10
III. Reading	20
IV. Writing	20
V. Grammar	10
Total	90
Part – B: Internal	10
I. Listening	5
II. Speaking	5
Grand total	100

Part - A: External

90 Marks /180 Periods

Unit 1: Literature

40 marks /70 periods

- * There will be five short answer type questions on prose to be answered in 30 – 40 words which will test comprehension of localized items in the text, it will also test general language competence and will in turn build confidence with dealing longer answers. 2 marks each.
- * There will be one long answer type question on prose for 5 marks with an internal option, to facilitate the development of prediction skills leading towards global comprehension (100-150 words).
- * There will be two reference to context with internal options to assess critical understanding of the poems for 3 marks each. There can be two or more parts to each question. Students will be expected to answer questions on commonly used poetic devices such as: Personification, simile, alliteration, metaphor, onomatopoeia, hyperbole, transferred epithet, rhyme, rhythm, imaginary and repetition.
- * There will be one learner's response task on the main theme / poet's perception of the poem (80 – 120 words) 4 marks.
- * There will be reference to context questions from drama based on the learner's understanding of character and events. (5 marks)
- * There will be two long answer type questions with options on long Reading Text (Novel) to test the analysis of themes / plots / events / character etc. (100 – 150 words) 5 marks each

CONTENTS

1. A PIECE OF BREAD	:	FRANCOIS COPPEE
2. LET ME NOT TO THE MARRIAGE OF TRUE MINDS	:	WILLIAM SHAKESPEARE
3. A VOICE FOR FREEDOM	:	ELLEN JOHNSON SIRLEAF
4. PRAYER BEFORE BIRTH	:	LOUIS MACNIECE
5. SUNSHINE SUSAN	:	DEEPA KIRAN
6. SPRING AND FALL	:	GERARD MANLEY HOPKINS
7. THE RANSOM OF THE RED CHIEF	:	O. HENRY
8. SELF MEASURE IN THE MAKING OF BRILLIANT LEADERS	:	
9. CHARGE OF THE LIGHT BRIGADE	:	ALFRED LORD TENNYSON
10. MARK ANTONY'S SPEECH (From Julius Caesar)	:	WILLIAM SHAKESPEARE
11. Long Reading Text The Canterville Ghost	:	Oscar Wilde

Unit II: Reading

20 marks/35 periods

This section will assess reading comprehension. The section will be of 20 marks. There will be two reading passages.

- * the first passage (which can be of 600 - 700 words) will be followed by questions that will test the sub skills of reading – scanning, skimming, and also the various comprehension level – literal, inferential, evaluative and analytical. There will be questions to test vocabulary also. These passages could be factual / discursive / literal. A poem could also be included. This passage will be assessed for 12 marks.
- * The second passage will be for note-making and summarizing. This passage can be of about 400 words. The students will make notes of the passage which will be for 5 marks and develop the notes into a summary which will be for 3 marks.

Unit III: Writing

20 marks /35 periods

1. There will be one short writing task in about 50 words for 5 marks. This can comprise anyone of the following items:
 - * advertisement / filling forms / messages / expressing opinions.
2. There will be one writing task in about 150 – 200 words for 7 marks which may include anyone of the following:
 - * speech/article/newspaper report.
3. There will be one letter writing task for 8 marks. This could be:
 - * a covering letter for job application with resume.
 - * business letter.

Unit IV: Grammar

10 marks /30 periods

This section will assess grammar items in context for 10 marks. There can be 4 to 5 questions in this section which will test grammar items.

- * Tense
- * Modal Auxiliaries
- * Idioms & phrases

Part - B: Internal

10 Marks /10 Periods

2. Listening and Speaking: The testing of Listening and Speaking Skills will be conducted internally by the schools/colleges.
The listening and speaking examination should be conducted with no amount of pre-conditioned impressions of students. Schools should take this examination seriously and adhere to the principles of testing completely.

Assessment scale

The speaking and listening shall be assessed on a 5 Band Scale. The assessment shall be done or given basing on the fulfillment of the criteria indicated against the respective Band Point.

Speaking

Many tasks can be set. The teacher has a choice to test the learner for 5 marks. The teacher can choose any task based on the learners competency.

Band Points	Criteria
5	a) Quite fluent b) Uses accurate and appropriate structure and vocabulary c) Occasional grammatical errors d) Intelligible in terms of pronunciation and accent e) Requires no effort by the listener
4	a) Fluent b) Short utterances c) Some slips in grammar and vocabulary d) Intelligible i. Some pauses ii. Requires only a little effort by the listener
3	a) Lacks fluency in the sense that some hesitations, false starts and reformulations b) Manages to communicate with some effort c) Lacks accuracy, some errors in grammar and vocabulary d) Needs quite a bit of support/prompting
2	a. Makes basic mistakes in pronunciation, shows little control of grammar and vocabulary b. Lots of pauses, routinized/memorized sentences c. Repetition, requires a lot of effort by the listener d. Needs lot of prompting
1	a) Very little or hardly any evidence of making any sense b) Single words which are repetitions of what the examiner said c) Lot of hesitation d) More non verbal than verbal utterances
0	Is silent in spite of examiner's effort. Achieves no communication

Explanation: *Fluency* refers to using language in connected speech.

Accuracy refers to grammatical and phonological functions of the language

Listening:

One listening task shall be set for 5 marks to assess the listening skills. They could focus on:

- * Listening for comprehension
- * Listening for specific information
- * Predictive Listening
- * Inferential Listening

The following Band Point Scale is to be used to assess the Listening Skills.

Band Points	Criteria
5	<ul style="list-style-type: none"> a) Meaningful chunks are well represented b) No spelling mistakes c) No relevant words missing d) Has no difficulty in understanding the spoken language
4	<ul style="list-style-type: none"> a) Small bits of meaningful chunks fairly correct b) Some spelling slips c) Some irrelevant words missing d) Can understand the language even when it is not clearly structured
3	<ul style="list-style-type: none"> a) Small bits of meaningful chunks not present b) Some spelling errors c) Some words missed out d) Can understand fully well when the topic is familiar
2	<ul style="list-style-type: none"> a) Large bits of meaningful chunks not present b) Some spelling errors which change the meaning of the piece of communication c) Many words missed out d) Can understand fully well when the topic is familiar e) Can understand at least 2 main points
1	<ul style="list-style-type: none"> a) Some chunks from the input exist, these are not the meaningful ones b) Many unacceptable spelling errors for the age c) Completely lacks sense d) Can understand familiar utterances but can't make sense of the meaning behind it
0	Is unable to even process the input

*** Common European Framework of Reference for Languages: learning, teaching assessment.**

Prescribed textbooks:

1. *Orchids, Literature Reader Class XII - Madhubun Educational Books*
2. *Orchids, Main Course Book Class XII - Madhubun Educational Books*
3. *The Canterville Ghost*
by Oscar Wilde

ALTERNATIVE ENGLISH

Objectives:

- To provide extensive exposure to diverse genres of writings in English by authors and poets of different countries.
- To respect pluralism of cultures and views, and be a critical, reflective and independent thinker.
- To update, enrich and extend their knowledge in a global sense through literary and creative uses of language
- To inculcate reading with comprehension and enrich their vocabulary
- To enable student to competently apply functional grammar
- To assimilate and process information through meaningful interactive tasks
- To promote measurable performance for enhancing students' life-long learning capability

DESIGN OF QUESTION PAPER ALTERNATIVE ENGLISH

Weightage to different forms of questions:

Sl. no.	Forms of Questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	12	12
2.	SA - I	2	5	10
3.	SA - II	3	4	12
4.	SA - III	4	4	16
5.	LA - I	5	4	20
6.	LA - II	10	2	20
Total			31	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18
Total		100	90

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl. no.	Forms of questions	Expected length of answer	Expected time for each question	Total expected time
1.	VSA	10-15 words	2 minutes	24 minutes
2.	SA-I	20-25 words	3 minutes	15 minutes
3.	SA-II	40-50 words	5 minutes	20 minutes
4.	SA-III	80-100 words	7 minutes	28 minutes
5.	LA-I	120-150 words	9 minutes	36 minutes
6.	LA-II	200-250 words	21 minutes	42 minutes
	Reading of question and Revision	-	-	15 minutes
Total time				180 minutes

Scheme of Options:

There will be no general option. However, an internal option shall be provided for:

- i. 1 (one) 4 marks question
- ii. 4 (four) 5 marks questions
- iii. 1 (one) 10 marks question

CLASS - XI
ALTERNATIVE ENGLISH

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Unit		Marks
I. Prose		20
II. Poetry		15
III. Drama		10
IV. Fiction		15
V. Grammar		10
VI. Reading		10
VII. Writing		10
Total		90
Part – B: Internal		10
Grand total		100

Unit I: Prose		20 marks/40 periods
i. The letter A	Christy Brown	
ii. The Luncheon	William Somerset Maugham	
iii. After Bhopal	Harsh Mander	
iv. Dream Children	Charles Lamb	
v. The Fly	Katherine Mansfield	
Unit II: Poetry		15 marks/35 periods
i. The Slave's Dream	H. W. Longfellow	
ii. Mending Wall	Robert Frost	
iii. Money madness	D. H. Lawrence	
iv. She Walks in Beauty	Lord Byron	
Unit III: Drama		10 marks/20 periods
Ever Young	- Alice Gerstenberg	
Unit IV: Fiction		15 marks/30 periods
Lord of the Flies	- William Golding	
Unit V: Grammar		10 marks/15 periods
i. Verbs		
ii. Adverbs		
iii. Tenses		

Unit VI: Reading
Reading an unseen passage or a poem

10marks/15 periods

Unit VII: Writing
Social letter

10 marks/15 periods

Part – A: External

90 Marks

Literature

60 marks/125 periods

The literature texts will help the students in recalling, reasoning, appreciating literary conventions, illustrating with relevant quotations from the texts, giving opinions and justifying, inferring, analyzing, evaluating, creativity and fluency

Grammar

10 marks/15 periods

This section will assess and refresh grammar items on verbs, adverbs and tenses for 10 marks. The continuity of related items will help the learners grasp its functionality along with its outcomes .In addition, awareness of proper usages of grammar in real-life context can aid them in schooling and aftermath as well.

Reading

10marks/15 periods

An unseen passage or a poem (200-300 words) will be followed by questions that will comprehensively test the sub-skills of reading- scanning, skimming, inferential, evaluative and analytical. There can be questions to test vocabulary also.

Writing

10marks/10 periods

There will be one writing task in about 200-250 words. This may include:
one social letter for 10 marks

Part – B: Internal

Internal assessment

10 marks/10 periods

Internal assessment will be evaluated by the concerned teacher on varied learning process like seminars, assignments, internal-tests and group activities. This section will comprehensively provide instructional sessions for students to enhance clarity of pronunciation, using appropriate language conventions and addressing participants using appropriate titles and overall fluency.

Prescribed textbooks:

- 1. Alternative English Class XI*** – K12 Publishing and Printing Solutions LLP
- 2. Lord of the Flies*** – *by William Golding*

CLASS-XII
ALTERNATIVE ENGLISH

Unit-Wise weightage

Part - A: External

Time: 3 hrs

Marks: 100

Unit	Marks
I. Prose	20
II. Poetry	15
III. Drama	10
IV. Fiction	15
V. Grammar	10
VI. Reading	10
VII. Writing	10
Total	90
<hr/>	
Part – B: Internal	10
Assignment	
Seminar	
Group Activity	
Class - tests	
Grand total	100

The minimum pass marks in the External and internal is fixed as follows:

- 1) External - 30 marks
- 2) Internal - 3 marks

Part – A: External

90 Marks

Literature

60 marks/125 periods

The literature texts will help the students in recalling, reasoning, appreciating literary conventions, illustrating with relevant quotations from the texts, giving opinions and justifying, inferring, analyzing, evaluating, creativity and fluency.

Grammar

10 marks/15 periods

This section will assess and refresh grammar items on conjunction, preposition and common errors in grammar. The continuity of related items will help the learners grasp its functionality along with its outcomes .In addition, awareness of proper usages of grammar in real-life context can aid them in schooling and aftermath as well.

Reading

10marks/15 periods

An unseen passage or a poem (200-300 words) will be followed by questions that will comprehensively test the sub-skills of reading- scanning, skimming, inferential, evaluative and analytical. There can be questions of test vocabulary also.

Writing

10marks/10 periods

There will be one writing task, essay writing in about 250-300 words.

Part – B: Internal

Internal assessment

10 marks/10 periods

Internal assessment will be evaluated by the concerned teacher on varied learning process like seminars, assignments, internal-tests and group activities. This section will comprehensively provide instructional sessions for students to enhance clarity of pronunciation, using appropriate language conventions and addressing participants using appropriate titles and overall fluency.

Unit I: Prose

20 marks/35 periods

- i. Letter to my daughter - Jawaharlal Nehru
- ii. Knowledge and wisdom - Bertrand Russell
- iii. Of followers and friends - Francis Bacon
- iv. The last Lesson - Alphonse Daudet

Unit II: Poetry

15 marks/35 periods

- i. All the world's a stage - William Shakespeare
- ii. Death be not proud - John Donne
- iii. My Last Duchess - Robert Browning
- iv. Indian Weavers - Sarojini Naidu

Unit III: Drama

10 marks/25 periods

- The boy comes home - A. A. Milne

Unit IV: Fiction

15 marks/35 periods

- Great Expectations - Charles Dickens

Unit V: Grammar

10 marks/15 periods

- i. Prepositions
- ii. Conjunctions
- iii. Common errors

Unit VI: Reading

10 marks/10 periods

- Reading an unseen passage or a poem

Unit VII: Writing

10 marks/10 periods

- Essay writing

Prescribed textbooks:

- ii. *Alternative English Class XII* : *Madhubun Educational Books*
- iii. *Great Expectations* : *Charles Dickens*

MAJOR/MODERN INDIAN LANGUAGES (MILs)

DESIGN OF QUESTION PAPER

Weightage to different forms of questions

Section	Details of Topics/Sections	Types of questions	No. of questions	Marks	Total Marks
Section A– Reading	One unseen passage of 300-400 words. There will be questions to test vocabulary and grammar.	LA-III	1	1x10=10	10
Section B– Writing	Writing	LA- II	1	1x6=6	10
		SA- III	1	1x4=4	
Section C– Grammar	Grammar	VSA	15	15x1=15	20
	Translation	LA- I	1	1x5=5	
Section D– Literature	Prose	VSA	1	1x1=1	20
		SA- I	2	2x2=4	
		SA- II	2	2x3=6	
		SA- III	1	1x4=4	
		LA- I	1	1x5=5	
	Poetry	VSA	1	1x1=1	20
		SA- I	2	2x2=4	
		SA- II	2	2x3=6	
		SA- III	1	1x4=4	
		LA- I	1	1x5=5	
	Fiction	SA- I	1	1x2=2	10
		SA- II	1	1x3=3	
LA-I		1	1x5=5		

Sl.no.	Forms of Questions	Marks for each question	No. of Questions	Total marks
1.	VSA	1	17	17
2.	SA - I	2	5	10
3.	SA - II	3	5	15
4.	SA - III	4	3	12
5.	LA - I	5	4	20
6.	LA - II	6	1	6
7.	LA - III	10	1	10
	TOTAL		36	90

Weightage level of questions

Sl.no	Level	Percentage	Marks
1.	Easy	20	18
2.	Average	65	58
3.	Difficult	15	14

Expected time for writing answer

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA	10-15 words	2 minutes	34 minutes
2.	SA- I	20-25 words	3 minutes	15 minutes
3.	SA- II	40-50 words	4 minutes	20 minutes
4.	SA- III	60-90 words	8 minutes	24 minutes
5.	LA- I	100-150 words	10 minutes	40 minutes
6.	LA- II	160-190 words	13 minutes	13 minutes
7.	LA- III	200-250 words	19 minutes	19 minutes
	Reading of question paper and Revision	-	-	15 minutes
			Total time	180 minutes

MODERN INDIAN LANGUAGE: AO**Objectives:**

- Asen tetsü taso oshiji shitak angateta, züngtetsü, zülutetsü aser jempitetsü.
- Takum nung pei kin sobaliba aser awashi angazüka benshitsü.
- Asen Ao oshi Arrla shitak wazüka ayutsü asoshi.

CLASS - XI**MODERN INDIAN LANGUAGE: AO****Unit-Wise weightage****Part – A: External****Time: 3 hrs****Marks: 90**

Unit	Marks
SECTION A – READING	10
SECTION B – WRITING	10
SECTION C – GRAMMAR	20
SECTION D – LITERATURE	
1. PROSE	20
2. POETRY	20
3. FICTION	10
Total	90
PART – B: Internal	10
Grand Total	100

Part – A : External**90 Marks****SECTION A – READING****10 marks/10 periods**

One unseen passage of 300-400 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING**10 marks/10 periods**

1. Application writing/ Speech writing
2. Advertisement/ Notice

SECTION C – GRAMMAR**20 marks/30 periods****Grammar and Translation:**

1. Leplashi
2. Yange
3. Apakijem
4. Jilajitep
5. O Meyipzük(Translation)

SECTION D– LITERATURE**Prose:****20 marks/45 periods**

1. Pentochepchep Ritsüing (Chapter 1-5)
2. Aor Lokti Puti Rajem, Vol II, Chapter 2,4,5,8

Poetry:**20 marks/45 periods**

1. Ku Lima Nungtem
2. Takar Ka Mangzür
4. Sungpu Unger Kong Penzü
5. Nagaland 1956

Fiction:**10 marks/30 periods**

Apu Ka Ajanger – T. Senka

PART B: Internal**10 Marks/10 Periods**

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, crafts, folk songs and dances indigenous to the tribe may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. *Akümlir Mongsong (Tebhong Ana)* – ASLB Publications, 2008
2. *Orrlem Aser Olem* – ASLB Publications, 2007
by M.L. Wati
3. *Pentochepchep Ritsüing* – ASLB Revised Edition, 2008
by W. Chubanungba
4. *Apu Ka Ajanger*
by T. Senka.
5. *Aor Lokti Puti Rajem,*
Tebhong Ana Shilem II
by A. Lanunungsang

CLASS-XII
MODERN INDIAN LANGUAGE : AO

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Unit	Marks
SECTION A – READING	10
SECTION B – WRITING	10
SECTION C – GRAMMAR	20
SECTION D – LITERATURE	
1. PROSE	20
2. POETRY	20
3. FICTION	10
Total	90
PART – B: Internal	10
Grand Total	100

PART - A : EXTERNAL

90 Marks/180 Periods

SECTION A – READING

10 Marks/10 Periods

One unseen passage of 500 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 Marks/10 Periods

1. Essay (objective)/ Dialogue
2. Copy-editing/Invitation

SECTION C – GRAMMAR

20 Marks/30 Periods

Grammar and Translation:

1. Rasem Aser Ralok
2. Temesüktep Olassü ojang Sadangyim
3. Oyim Jinutepyim
4. Mapanglem
5. Ojisa Inyakyim
6. Translation

SECTION D– LITERATURE

Prose:

20 Marks/45 Periods

1. Akümlir Mungsang

- a. Tar nunger Otsü – A. Lanunungsang
- b. Shikiraka – I. Temjen Tzüdir
- c. Talenba – T. Senka

2. Aor Lokti Puti Rajem, Vol II, Chapter 9-14

Poetry:

20 Marks/45 Periods

1. Longtrok
2. Takar Aser Tsüktem Moluk
3. Kinü Lima
4. Nokinketer Ajakbo Meshilang

Fiction:
Jina Etiben

10 Marks/30 Periods

PART B: INTERNAL

10 Marks/10 Periods

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, folk songs and dances may be assessed under assignment and conversation skills.

Prescribed textbooks:

- iv. *Akümlir Mongsong Tebhong Ana, Vol II* – ASLB Publications, 2008
- v. *Orrlem Aser Olem* – ASLB Publications, 2007
M.L. Wati
3. *Aor Lokti Puti Rajem, Tebhong Ana Shilem II* – ASLB Publications, 2007
A. Lanunungsang,
4. *Jina Etiben, Revised Edition, MSM*

MODERN INDIAN LANGUAGE: SÜMI

Objectives:

- Mütsümisshei atsah yehluh eno philuh kepu gholah lono qophenni keu.
- Kiphimmiqo pelo atsah ithi keu lono akighithi allau ithulupe nikeu.
- Ni likhi ni zza tsah achipi lono pih keppu gholah lono qophenni keu.
- Atsah pih kelo inikiviu lono pih penni keu.
- Ni likkhi ni mheshomheghi, eno atsah gihuluh penni keu.
- Shiyeh küttau tsah ssümo no ni tsah likkhi akütssa shi peitha no atsah pihnni keu.
- Akiyyethi ‘ü’ peitha akeu meküa ithipenni keu.
- Atsah kuthoh akivishi ithi penni keu.
- Akiyye, akippi eno akippi aqha no peitha akeu gholah ithipenni keu.
- Atsah lono alikhi juh michi mütsümisshei ithipenni keu.
- Atsah meküa ithi penni keu.

CLASS - XI MODERN INDIAN LANGUAGE: SÜMI

Unit-Wise weightage

Unit	Marks
SECTION A – READING	10
SECTION B – WRITING	10
SECTION C – GRAMMAR	20
SECTION D – LITERATURE	
1. PROSE	20
2. POETRY	20
3. FICTION	10
Total	90
Part – B: Internal	10
Grand Total	100

Part - A: External

90 marks

SECTION A – READING

10 marks/10 periods

One unseen passage of 300-400 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 marks/10 periods

1. Application writing/ Speech writing
2. Advertisement/ Notice

SECTION C – GRAMMAR**20 marks/30 periods****Grammar and Translation:**

1. Thiungo (Preposition)
2. Atsajoh Kikijje (Classification of sentences)
3. Sülekuthoh (Idioms and phrases)
4. Pekibide (Translation)

SECTION D– LITERATURE**Prose(Küghakicheh):****20 marks/45 periods**

1. Nagami Phuthekuwo
2. Amüghüssü
3. Khakhu Eno Sheyili
4. Achineh
5. Külakupuh

Poetry (Leshe):**20 marks/45 periods**

1. Visheli No Lli Zza Shikipilli
2. Ammu Kikinni Losüleh
3. Kunolike
4. Qethapu
5. Ashihamih Leh

Fiction (Lotsüh Kiyye):**10 marks/30 periods**

Akimtthe Ghüzü-u Ghili – Pilgrim’s Progress
Translated by Rev. Najekhu Yeptho

Part – B: Internal**10 marks/10 periods**

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, crafts, folk songs and dances indigenous to the tribe may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. *Küghakiche Eno Xülhe*
by Lozhevi Sema
2. *Apuh- Assü Leshe*
Compiled by S.V. Sheyepu
3. *Sümi Tsayeh*
by I. Lozhevi Sema
4. *Akimtthe Ghüzü-u Ghili (Pilgrim’s Progress)*
Translated by Rev. Najekhu Yeptho

CLASS-XII
MODERN INDIAN LANGUAGE : SÜMI

Unit-Wise weightage

Part 'A' External	Time: 3 hrs	Marks: 90
Unit		Marks
SECTION A – READING		10
SECTION B – WRITING		10
SECTION C – GRAMMAR		20
SECTION D – LITERATURE		
1. PROSE		20
2. POETRY		20
3. FICTION		10
Total		90
Part – B: Internal		10
Grand Total		100

PART - A : EXTERNAL

90 Marks/180 Periods

SECTION A – READING

10 Marks/10 Periods

One unseen passage of 500 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 Marks/10 Periods

1. Essay (objective)/ Dialogue
2. Copy-editing/Invitation

SECTION C – GRAMMAR

20 Marks/30 Periods

Grammar and Translation:

1. Balhah Qüiqqü Shikithe kütsüh (Correction of common errors)
2. Sülekuthoh (Idioms and Phrases)
3. Jeshe (Adjective)
4. Pekibide (Translation)

SECTION D– LITERATURE

Prose(Küghakicheh):

20 Marks/45 Periods

1. Akhuayeh kivi, abo-akke Küxxü Eno Atthü Kuchuh
2. Nagami Yeghi Lo Khristo Yehkuluh Ikighi
3. Joymoti Eno Godadhar
4. Gen. Kaito Sükhai
5. Kalalishi

Poetry (Leshe):

20 Marks/45 Periods

1. Tüghünakha
2. Viyishe Naghutomi
3. Azüküzü Kinnhi
4. Hevishe Amighiu
5. Anulikishimi Leh

Fiction (Lotsüh Kiyye):

Akimtthe Ghüshih :Rev. Dr. Najekhu Yeptho

10 Marks/30 Periods

PART B: INTERNAL

10Marks/10 Periods

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, folk songs and dances may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. *Küghakiche Eno Xülhe* –
by I. Lozhevi Sema
2. *Apuh- Assü Leshe* –
Compiled by S.V. Sheyepu
3. *Sümi Tsayeh* –
by I. Lozhevi Sema
4. *Akimtthe Ghüshih* –
by Rev. Najekhu Yeptho

MODERN INDIAN LANGUAGE: LOTHA

Objectives:

- Pyimtsümotsüe epensü elani kikyonirow tsütsata ero jiang ntsi khitokvü tsükona.
- Nkolo eramoren jiang jo kvüto vanta rocho sana hojiang eran motsü yakchia ntsijantokvü tsükona.
- Eranto elani oyinsan lo nzanchitokvü tsükona.
- Yinsan thampoe yitsüing üngatheo jiang ntsüingrünga engathetokvü tsükona.
- Pyimtsümotsüe tssolanphyolan ümmhom elio jiang pemphia wotokvü tsükona.
- Metapoe motsü mono ümmhom jiang engathe nonghori jiang ekhaeyan ümmhonkata wotokvü tsükona.

CLASS - XI MODERN INDIAN LANGUAGE: LOTHA

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Unit		Marks
SECTION A – READING		10
SECTION B – WRITING		10
SECTION C – GRAMMAR		20
SECTION D – LITERATURE		
1. PROSE		20
2. POETRY		20
3. FICTION		10
	Total	90
PART – B: Internal		10
	Grand total	100

Part - A : External **90 Marks**

SECTION A – READING **10 marks**

One unseen passage of 300-400 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING **10 marks/10 periods**

1. Application writing/ Speech writing
2. Advertisement/ Notice

SECTION C – GRAMMAR **20 marks/30 periods**

Grammar and Translation:

Zonkayi, Shüklashüktüing ronri, Myingtsayi, Myingthong, Etsyukayi, Yishen, Tssoyio yi jiang, Yirenthong tona Erhüyi to jiang, Yitsüing motsünga tssosi yichak elüm elio jiang, Echakyi.
(Translation)

SECTION D– LITERATURE

Prose(Motsüran Ekhaio):**20 marks/45 periods**

1. Nrii nchyua tona Potsow loroe nchyua to motsü
2. Mali loroe motsü
3. Samson tona Delilah to motsü
4. Zitüngziri lo Ozen
5. Kyong epensü tona Oki eli tsütsailan

Poetry (Chungiyi):**20 marks/45 periods**

1. Sükhying sosi tsata
2. Yantsae
3. Shantiwoe miphong
4. Ümmhorü
5. Elhi lo lüm theta

Fiction (Motsüro):**10 marks/30 periods**

Arilao motsü

Part – B: Internal**10 marks/10 periods**

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, crafts, folk songs and dances indigenous to the tribe may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. *Kyong Ekhaio Ekhürhycho XI & XII* – *Kyong Academy*
2. *Kyong Chungiyi* – *Kyong Academy*
3. *Kyong Yinsanlan (Kyong Grammar)*
by K.R. Murry
4. *Outline Grammar of the Lotha Naga Language*
by Rev. Dr. W.E. Witter
5. *Arilao Motsü*

CLASS-XII
MODERN INDIAN LANGUAGE : LOTHIA

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Unit		Marks
SECTION A – READING		10
SECTION B – WRITING		10
SECTION C – GRAMMAR		20
SECTION D – LITERATURE		50
1. PROSE		20
2. POETRY		20
3. FICTION		10
Total		90
Part – B: Internal		10
Grand Total		100

PART - A : EXTERNAL

90 Marks/180 Periods

SECTION A – READING

10 Marks/10 Periods

One unseen passage of 500 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 Marks/10 Periods

1. Essay (objective)/ Dialogue
2. Copy-editing/Invitation

SECTION C – GRAMMAR

20 Marks/30 Periods

Grammar and Translation:

1. Yirenji, Yintüp jiang, mhachungyi, etümtokyi, tongphiyio, phyocholan, eyieton, ovonji, yiyutsüng, yitsüng echümpo tssosi yichak esütao jiang, oyi saying jiang, yitsünga tae tsütsao yi jiang.
2. Yikhophi (Translation)

SECTION D– LITERATURE

Prose (Motsüran Ekha):

20 Marks/45 Periods

1. Hümchipili motsü
2. Sir Ronald Ross
3. Donphen emyumü ji cheka ji
4. Ruth motsü
5. Kyong loji longa ta tona, yanpiyanthan to tssota erowo ji.

Poetry (Chungiyi):

20 Marks/45 Periods

1. Loroë Kangtsücho merangcho
2. Janchoünzoe
3. Naga liphong yanchecho
4. Yihata etssaji eman
5. Randan teriv

Fiction (Motsüro):

Epoë Nchyuä na echü echung eloe soa evamo Ji

10 Marks/30 Periods

PART B: INTERNAL

1. Conversation skills
2. Assignments
3. Formal testing

10 Marks/10 Periods

Traditional practices such as painting, drawing, folk songs and dances may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. Kyong Ekhaö Ekhürhycho 12 & 11

- Kyong Academy

2. Kyong Chungiyi

- Kyong Academy

3. Kyong Yinsanlan (Kyong Grammar)

by K.R. Murry

4. Outline Grammar of the Lotha Naga Language

by Rev. Dr. W.E. Witter

5. Epoë Nchyuä na echü echung eloe soa evamo Ji

MODERN INDIAN LANGUAGE: TENYIDIE

Objectives:

- Kephürümia bu u diemvüko phrü mu si peviliëketuo la.
- Puotei rüdiëzhü ki ze kephürümia bu diemvü puo kru tou-u phrü morokesuo la.
- Kephürümia mhasi thau chü kemeya mu chü kehie morokesuo la.
- Kekramia Diemvü rei si peviliëketuo la.
- Leshükephürümia mu kepethamia bu kepero pevi di u dieu chü kehiliëketuo la.
- Nagamia seyie krotho dze silieketuo la.

CLASS - XI

MODERN INDIAN LANGUAGE: TENYIDIE

Unit-Wise weightage

Unit	Marks
SECTION A – READING	10
SECTION B – WRITING	10
SECTION C – GRAMMAR	20
SECTION D – LITERATURE	
1. PROSE	20
2. POETRY	20
3. FICTION	10
Total	90
Part – B: Internal	10
Grand total	100

PART – A : External

90 Marks

SECTION A – READING

10 marks/10 periods

One unseen passage of 300-400 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 marks/10 periods

1. Application writing/ Speech writing
2. Advertisement/ Notice

SECTION C – GRAMMAR

20 marks/30 periods

Grammar and Translation:

1. Diezho kikruko mu puo zatseko
2. Translation

SECTION D– LITERATURE

Prose:

20 marks/45 periods

1. Kediu Oedipus
2. N Keneiu Zotuo
3. Doctor Faustus
4. Mha Ketso Seiyakezha Thepfunuoyo

Poetry:

20 marks/45 periods

1. Khe Peziyaluo
2. Leshükephrüyo
3. N Ba Nunu N Nei Kedalie
4. Rheichie Khrüprei
5. Themia Kelhou
6. A Kelhou Nu

Fiction:

10 marks/30 periods

A Tsüre Rügukelieu – Thepfukhrietuo (Khrietuo) Rüpreo

PART – B: Internal

10 marks/10 periods

1. Terhiterhie
 - Pfhekedo, Lhako Kepekhrei
 - Merhamerü, kecielikhi kedu
2. Kethu, kepu, kerünyü, rüchü
 - Nourhei mhathu mu nourhei die (creative writing & extempore speech)

Prescribed textbooks:

1. *Kelhou Dzevi* – *Ura Academy Publication, Kohima*
by D. Kuolie
2. *Diezho Mu Kezo Mhathu* – *Ura Academy Publication*
(*Grammar & Composition, Revised edition, 2016*)
by Mhienirielie Vakha
3. *A Tsüre Rügukelieu* – *Ura Academy Publication.*
by *Thepfukhrietuo (Khrietuo) Rüpreo*

CLASS-XII
MODERN INDIAN LANGUAGE : TENYIDIE

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Unit		Marks
SECTION A – READING		10
SECTION B – WRITING		10
SECTION C – GRAMMAR		20
SECTION D – LITERATURE		
1. PROSE		20
2. POETRY		20
3. FICTION		10
Total		90
Part – B: Internal		10
Grand Total		100

PART - A : EXTERNAL

90 Marks/180 Periods

SECTION A – READING

10 Marks/10 Periods

One unseen passage of 500 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 Marks/10 Periods

1. Essay(objective)/ Dialogue
2. Copy-editing/Invitation

SECTION C – GRAMMAR

20 Marks/30 Periods

Grammar and Translation:

1. Diezho kikru puo shie puo nyie mu kethuzhoko
2. Translation

SECTION D– LITERATURE

Prose:

20 Marks/45 Periods

1. Hai Di Lhou Vo Zotuo Me
2. Tenyimia Krütapeyu: A Sie Petie Lakeshü
3. Tenyimia Vitho Mu Sonyi
4. Kemengukecü Dieyie Thelau

Poetry:

20 Marks/45 Periods

1. Kenei Kekra Ki Ketho Yopuo Vi
2. Kekhriethoko
3. A Mhi Pie Kengu
4. Nhamenyiepounuo
5. Thenupfü kelhou
6. Kelhoumhasi

Fiction:
Kepenuopfü U Se Ba – Kekhrievoü Yhome

10 Marks/30 Periods

PART B: INTERNAL

10 Marks/10 periods

1. U Tsiepfumia Ü
2. Kethu, kepu, kerünyü, rüchü
 - Dzewhi (Narration)
 - Keprüli (Debate)

Prescribed textbooks:

1. *Miavimia Rüli* – *Ura Academy Publication*
by D. Kuolie
2. *Diezho Mu Kezo Mhathu* – *Ura Academy Publication*
(*Grammar & Composition, Revised edition, 2016*)
by Mhienirielie Vakha,
3. *Kepenuopfü U Se Ba* – *Ura Academy Publication*
by Kekhrievoü Yhome

MAJOR INDIAN LANGUAGE: BENGALI

Objectives:

- To develop the abilities of listening and reading with comprehension.
- To develop the abilities of oral and written expression.
- To enable the students to read independently for knowledge and recreation.
- To develop the abilities of using language more correctly, accurately and effectively.
- To enable the students to understand the structure of the language and to analyse it.
- To enrich the vocabulary of the students and to enable them to use it more effectively.
- To enable them to appreciate literature of the language.
- To develop their aesthetics sense, originality, imagination and creativity.
- To sublimate their feelings and emotions through the studies of the literature of the language and
- To develop in them the feelings of belongingness to the language-literature and culture.

CLASS - XI MAJOR INDIAN LANGUAGE: BENGALI

Unit-Wise weightage

Unit	Marks
SECTION A – READING	10
SECTION B – WRITING	10
SECTION C – GRAMMAR	20
SECTION D – LITERATURE	
1. PROSE	20
2. POETRY	20
3. FICTION	10
Total	90
PART – B: Internal	10
Grand total	100

Part – A : External

90 Marks

SECTION A – READING

10 Marks/10 Periods

One unseen passage of 300-400 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 marks/10 periods

1. Application writing/ Speech writing
2. Advertisement/ Notice

SECTION C – GRAMMAR**20 marks/30 periods****Grammar and Translation:**

1. Karak
2. Sandhi
3. Bagdhara
4. Anubad (Translation)

SECTION D– LITERATURE**Prose:****20 marks/45 periods**

1. Anadhikar Prabesh – Rabindranath Tagore
2. Chander Pahad – Bibhutibhusan Bandhopadhyay
3. Finlandey – Amiyo Chakraborty
4. Duryog, Sajagata O Byabasthapana – Pannalal Goswami

Poetry:**20 marks/45 periods**

1. Ballolila – Jadabendra
2. Atmabilap – Madhusudan Datta
3. Dharai Devata Chahi – Kamini Roy
4. Atharo Bachar Bayas – Sukanta Bhattacharya

Fiction:**10 marks/30 periods**

- Srikanta (Pratham Khanda) – Sarat Chandra Chatterjee

Part – B: Internal**10 marks/10 periods**

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, crafts, folk songs and dances indigenous to the tribe may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. *Bangla Sahityo Chayonika for Class XI* – Assam Higher Secondary Council
2. *Srikanta (Pratham Khanda)*
by Sarat Chandra Chatterjee

CLASS-XII
MAJOR INDIAN LANGUAGE : BENGALI

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Unit	Marks
SECTION A – READING	10
SECTION B – WRITING	10
SECTION C – GRAMMAR	20
SECTION D – LITERATURE	
1. PROSE	20
2. POETRY	20
3. FICTION	10
Total	90
PART – B: Internal	10
Grand Total	100

PART - A : EXTERNAL

90 Marks/180 Periods

SECTION A – READING

10 Marks/10 Periods

One unseen passage of 500 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 Marks/10 Periods

1. Essay(objective)/ Dialogue
2. Copy-editing/Invitation

SECTION C – GRAMMAR

20 Marks/30 Periods

Grammar and Translation:

1. Samas
2. Alankar Prakasan
3. Bagdhara
4. Anubad (Translation)

SECTION D– LITERATURE

Prose:

20 Marks/45 Periods

- | | |
|--------------------------------------|---------------------------------|
| 1. Biral | – Bankim Chandra Chattapaddhyay |
| 2. Paresh | – Saratchandra Chattapaddhyay |
| 3. Manusher Maan | – Balaichand Mukhapadhyay |
| 4. Mulyadodh Siksha(Value Education) | – Sujit Barman |

Poetry:

20 Marks/45 Periods

- | | |
|--------------------------------|-----------------------|
| 1. Durbhagadesh | – Rabindranath Tagore |
| 2. Samyabadi | – Kazi Nazrul Islam |
| 3. Banglar Mukh Ami Dekhiyachi | – Jibonanda Das |
| 4. Rupai | – Jaseem Uddin |

Fiction:

Srikanta (Pratham Khanda) Part 2

– Sarat Chandra Chatterjee

10 Marks/30 Periods**PART B: INTERNAL****10 Marks/10 periods**

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, folk songs and dances may be assessed under assignment and conversation skills.

Prescribed textbooks:

- 1. Bangla Sahityo Chayonika for Class XII – Assam Higher Secondary Council***
- 2. Srikanta (Pratham Khanda) Part 2
by Sarat Chandra Chatterjee***

MAJOR INDIAN LANGUAGE: HINDI

Objectives:

- Matri Bhasha ko sunane our padhane ke sath-sath bodhan ke kshamta our योग्यता का विकास करना.
- मौखिक our लेखन अभिव्यक्ति को विकसित करना.
- समवाद से ज्ञान our मनोरंजन के क्षेत्र में आत्मनिर्भर करना.
- Bhasha के सुध our प्रभावशाली प्रयोग करने के कौशल को विकसित करना.
- अपनी मत्रि Bhasha तथा उसकी संरचना के सही रूप से समझ कर उसका विश्लेषण कर सके.
- शब्द ज्ञान का वृद्धि करना जिससे उनका सही रूप से प्रयोग कर सके.
- मत्रि Bhasha के प्रति पठन-पठन के लिए प्रोत्साहित करना.
- काल्पनिक, काल्पनिक our रचानात्मक प्रवृत्ति को विकसित करना.
- मत्रि Bhasha तथा उसके साहित्य के अध्ययन के द्वारा भवनाओ our सद्भाव का परिमार्जन our विकास करना.
- मत्रि Bhasha उसी साहित्य समग्रि our संस्कृति के प्रति रुचि जगित करना.

CLASS - XI MAJOR INDIAN LANGUAGE: HINDI

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Unit		Marks
SECTION A – READING		10
SECTION B – WRITING		10
SECTION C – GRAMMAR		20
SECTION D – LITERATURE		
1. PROSE		20
2. POETRY		20
3. FICTION		10
	Total	90
PART – B: Internal		10
	Grand total	100

Part – A : External

90 Marks

SECTION A – READING

10 marks/10 periods

One unseen passage of 300-400 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 marks/10 periods

1. Application writing/ Speech writing
2. Advertisement/ Notice

SECTION C – GRAMMAR**20 marks/30 periods****Grammar and Translation:**

1. Sandhi
2. Samas
3. Paryaywachi Shabd
4. Muhavare
5. Ras, Chand Aur Alankar
6. Correct the sentence, related to noun, pronoun, number, gender, verb, adverb and case.
7. Anuwad (Translation)

SECTION D– LITERATURE**Prose:****20 marks/45 periods**

1. Bhola Ram Ka Jeev – Hari Shankar Parsai
2. Chief Ki Davat – Bishma Sahani
3. Rajni – Mannu Bhandari
4. Adhura Milan
5. Jamun Ka Per – Khrisna Chandar
6. Galta Loha – Shekhar Joshi

Poetry:**20 marks/45 periods**

1. Sakhi Aur Vani – Kabir Das
2. Ve Aankhen – Sumitra Nandan Pant
3. Chand Aur Kavi Evam Abhinav Manushy – Ram Dhari Singh Dinkar
4. Jo Beet Gayi So Bat Gayi – Hari Vansh Rai Bacchan

Fiction:**10 marks/30 periods**

- Gaban – Premchand

Part – B: Internal**10 marks/10 periods**

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, folk songs and dances may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. *Hindi Gyan Ganga* – Nagaland Bhasha Parishad, Kohima
2. *Hindi Vyakaran Prakash*
3. *Saral Hindi Vyakaran* – Rastra Bhasha Prachar Parishad, Kohima
by S. K. Pathak & Zakienei Angami
4. *Gaban*
Premchand

CLASS-XII
MAJOR INDIAN LANGUAGE : HINDI

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Unit		Marks
SECTION A – READING		10
SECTION B – WRITING		10
SECTION C – GRAMMAR		20
SECTION D – LITERATURE		
1. PROSE		20
2. POETRY		20
3. FICTION		10
Total		90
PART – B: INTERNAL		10
Grand Total		100

PART - A : EXTERNAL

90 Marks/180 Periods

SECTION A – READING

10 Marks/10 Periods

One unseen passage of 500 words. There will be questions to test vocabulary and grammar.

SECTION B – WRITING

10 Marks/10 Periods

1. Essay(objective)/ Dialogue
2. Copy-editing/Invitation

SECTION C – GRAMMAR

20 Marks/30 Periods

Grammar and Translation:

1. Sandhi
2. Samas
3. Paryawachi Shabd
4. Muhavare
5. Ras
6. Chhand & Alankar
7. Anuvad (Translation)

SECTION D– LITERATURE

Prose:

20 Marks/45 Periods

- | | |
|---------------------------|---------------------|
| 1. Poosh Kee Rat | – Munshi Premchand |
| 2. Trishanku | – Munnu Bhandari |
| 3. Bazar Darshan | – Janendra Kumar |
| 4. Sopfunuo | |
| 5. Kaalay Megha Panee Dey | – Dharm Veer Bharti |
| 6. Bahut Bara Sawal | – Mohan Rakesh |

Poetry:**20 Marks/45 Periods**

1. Dohawalee Avam Vinay Patrika – Tulsi Das
2. Ghar Kee Yad – Bhawanee Prasad Mishr
3. Saharsh Sweekara Hai – Gajanan Madhav Mukti Bodh
4. Patang – Alok Dhanwa

Fiction:**10 Marks/30 Periods**

Nirmala – Premchand

PART B: INTERNAL**10 Marks/10 periods**

1. Conversation skills
2. Assignments
3. Formal testing

Traditional practices such as painting, drawing, folk songs and dances may be assessed under assignment and conversation skills.

Prescribed textbooks:

1. *Hindi Gyan Ganga* – *Nagaland Bhasha Parishad, Kohima*
2. *Hindi Vyakaran Prakash*
3. *Saral Hindi Vyakaran* – *Rastra Bhasha Prachar Parishad, Kohima*
by S. K. Pathak & Zakienei Angami
4. *Nirmala*
Premchand

POLITICAL SCIENCE

Objectives:

- Develop the skills for logical reasoning and abstraction.
- Inculcate attention to and respect for view points other than one's own.
- Introduce students to the different political thinkers in relation to a concept and in everyday social life.
- Encourage the students to analyse any unexamined prejudices that one may have inherited.
- Enable students to meaningfully participate in a concern of current political life that surrounds them.
- Enable students to understand historical processes and circumstances in which the Constitution was drafted.
- Provide opportunity for students to be familiar with the diverse visions that guided the makers of the Indian Constitution.
- Enable students to identify the certain key features of the Constitution and compare these to other constitutions in the world.
- Analyse the ways in which the provisions of the Constitution have worked in real political life.
- Enable students to be familiar with some of the key political events and figures in the post-independence period.
- Develop skills of political analysis through events and processes of recent history.
- Develop their capacity to link macro processes with micro situations and their own life.
- Encourage the students to take a historical perspective of making sense of the contemporary India.
- Enable the students to expand their horizon beyond India and make sense of the political map of contemporary world.
- Familiarise the students with some of the key political events and processes in the post cold war era.
- Equip students to be conscious of the way in which global events and processes shape our everyday lives.
- Strengthen their capacity for political analysis by thinking of contemporary developments in historic perspective.

DESIGN OF QUESTION PAPER POLITICAL SCIENCE

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA/MCQ	1	10	10
2.	SA-I	2	6	12
3.	SA-II	4	5	20
4.	LA-I	6	4	24
5.	LA-II	8	3	24
	Total		28	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1	VSA/MCQ	1 word/ 1 sentence	1 minute	10 minutes
2.	SA-1	30-50 words	4 minutes	24 minutes
3.	SA - II	60-100 words	7 minutes	35 minutes
4.	LA-I	150-200 words	12 minutes	48 minutes
5.	LA-II	250-300 words	16 minutes	48 minutes
	Reading question & Revision	-	-	15 minutes
			Total time	180 minutes

Scheme of options:

Questions of 6 & 8 marks will be general in option.

**CLASS - XI
POLITICAL SCIENCE**

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Unit/Chapter	Marks
Section-A: POLITICAL THEORY	
Unit I 1. Introduction to Political Theory	7
Unit II 2. Nation and State	12
	3. Citizenship
Unit III 4. Liberty	14
	5. Equality
	6. Justice
Unit IV. 7. Rights	12
	8. Secularism
	9. Peace and Development
Section-B: INDIAN CONSTITUTION AT WORK	
Unit V. 10. Making of the Constitution	15
	11. Fundamental Rights, Duties and Directive Principles of State Policy
	12. System of Representation
Unit VI. 13. Executive in a Parliamentary System	12
	14. Legislature at the Central and State Level
Unit VII. 15. Judiciary	9
	16. Federalism
Unit VIII 17. Local Government	9
	18. Constitution as a Living Document
Total	
90	
Part –B: Internal - Project Work	
10	
Grand total	
100	

Section - A: POLITICAL THEORY

UNIT - I

1. Introduction to Political Theory:

7 marks/14 periods

- Meaning of Political Science and its scope
- Political Theory and its importance
- Politics in seemingly non-political domains
- Resolving political arguments through reasoning

UNIT - II

12 marks/24 periods

2. Nation and State

- Meaning and features of nation
- Meaning and elements of State
- Self-determination

3. Citizenship

- Meaning
- Procedure to acquire citizenship in India
- Global citizenship

UNIT – III

14 marks/28 periods

4. Liberty

- Meaning and dimensions
- Safeguards for liberty
- Limitation on individual liberty

5. Equality

- Meaning and forms of equality
- Means to realize equality

6. Justice

- Meaning and kinds of justice
- Ways to secure justice

UNIT – IV

12 marks/ 24 periods

7. Rights

- Meaning and kinds of rights
- Rights and responsibilities
- Rights and claims

8. Secularism

- Meaning
- Needs of secularism in modern times

9. Peace and Development

- Meaning of peace and development
- Contemporary challenges to peace
- Relationship between peace and development

Section - B : INDIAN CONSTITUTION AT WORK

UNIT – V

15 marks/30 periods

10. Making of the Constitution:

- Constituent Assembly
- Significance of constitution
- Sources
- Salient Features

11. Fundamental Rights, Duties and Directive Principles of State Policy:

- Meaning and significance
- Fundamental Rights enshrined in the constitution
- Directive Principles of State Policy and its implementation
- Fundamental Duties
- Distinction between Fundamental Rights and Directive Principles of State Policy

12. System of representation:

- Election system in India (First Past the Post System & Proportional Representation)
- Election Commission (Powers and functions)
- Provisions to ensure free and fair elections

UNIT – VI

12 marks/24 periods

13. Executive in a parliamentary system:

- Meaning of executive
- Types of executive (Political and Permanent)
- Powers and functions of the President, Prime Minister, Council of Ministers, Governor, Chief Minister

14. Legislature at the central and state level:

- Formation and composition of the Parliament and the State Assemblies
- Powers of the Lok Sabha and Rajya Sabha
- Procedure of enacting laws
- Anti defection bill

UNIT – VII

9 marks/18 periods

15. Judiciary:

- Independence of Judiciary
- Organization, power and jurisdiction of the Supreme Court and High Courts

16. Federalism:

- Meaning and features
- Conflict areas and tension in Centre-State relations
- Recommendation (Sarkaria Commission)
- Special provisions (Jammu and Kashmir and North Eastern States)

UNIT – VIII

9 marks/18 periods

17. Local Government:

- Local government and its significance
- 73rd & 74th Amendment Acts and its implementation

18. Constitution as a living document:

- Constitution is static or dynamic
- Amendment procedure of the constitution
- Effects of the constitution on the working of the democracy

Part – B: Internal - Project Work

10 marks

- Debate
- Paper presentation
- Mock Parliament etc,

A minimum of two project work is to be done in a year in relation to the syllabus

Note: The project work is compulsory and has to be done by all students.

The minimum pass criteria for the project work shall be 3 (three) marks out of 10 (ten) marks.

No question paper for the project work will be set by the Board. It is purely internal and the institution must include the project marks with the theory marks.

Prescribed textbook:

Political Science for Class XI – Arya Publishing Company

CLASS-XII
POLITICAL SCIENCE

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Units / Chapters	Marks
SECTION A: Indian Polity	
UNIT – I 1. Challenges of Nation Building	6
UNIT – II 2. Party System	11
	3. Era of One Party Dominance
UNIT – III 4. Politics of Planned Development	11
	5. Crisis of Constitutional Order
UNIT – IV 6. Interest and Pressure Groups	11
	7. Recent Development in Indian Politics
UNIT – V 8. India’s External Relation	6
SECTION B: Contemporary World Politics	
UNIT – VI 9. Cold War	12
	10. End of Bi-polarity
UNIT – VII 11. US Dominance in World Politics	7
UNIT – VIII 12. Alternative Center of Economic and Political Power	10
	13. South Asia in the Post Cold War Era
UNIT – IX 14. International Organization in a Unipolar World	10
	15. Security in Contemporary World
UNIT – X 16. Globalisation	6
Total	90
Part – B: Internal – Project Work	
	10
Grand total	100

SECTION A: Indian Polity

UNIT – 1

6 marks/12periods

1. Challenges of Nation Building

- Legacy of partition: Challenges to refugee resettlement, Kashmir problem
- Organization and re-organization of states
- Political conflicts over language

UNIT – 1I

11 marks/22 periods

2. Party System:

- Evolution and features of party system in India
- Meaning and role/functions of political party
- Role of opposition party

3. Era of One-Party Dominance:

- Congress dominance in the first three general elections
- Nature of Congress dominance

UNIT – III

11 marks/22 periods

4. Politics of planned development:

- Models of development in India
- Planning for socio-economic development- planning Commission (Functions and role), National Development Council
- Land Reforms and Green revolution

5. Crisis of constitutional order:

- Search for committed bureaucracy and judiciary
- Bihar and Gujarat movements
- Emergency – Causes and consequences
- Politics after emergency

UNIT – IV

11 marks/22 periods

6 Interest and Pressure Groups:

- Meaning and role of pressure groups
- Mandal Commission and its implementation

7. Recent developments in Indian politics

- Participatory upsurge in 1990s
- Meaning and features of coalition politics
- Coalition politics from 1990 till date
- Increasing role of regional party in coalition politics

UNIT – V

6 marks/12 periods

8. India's External Relations:

- Principles of Nehru's foreign policy
- Sino-Indian War of 1962, Indo-Pakistan War of 1965 and 1971
- India's approach towards disarmament

SECTION B: Contemporary World Politics

UNIT – VI

12 marks/24 periods

9. Cold War:

- Meaning and causes of origin
- Challenges to Bipolarity: Non Aligned Movement and New International Economic Order
- Major conflicts during Cold War Era: Korean and Cuban Crisis

10. End of Bipolarity:

- Causes for disintegration of USSR
- Post Cold War: Emergence of new states
- Shock Therapy and relevance of Non Aligned Movement

UNIT – VII

7 marks/14 periods

11. US Dominance in World Politics:

- Growth of unilateralism: First Gulf War, response to 9/11 and global war on terrorism, invasion of Iraq
- Dominance and challenge to the US in economy and ideology
- Indo-US relation (1990 onwards)

UNIT – VIII

10 marks/20 periods

12. Alternative Centers of Economic and Political Power:

- Rise of China as an economic power in post-Mao era
- Creation and expansion of European Union
- ASEAN

13. South Asia in the Post Cold War Era:

- What is South Asia?
- Military and democracy in Pakistan
- Democracy in Bangladesh
- Ethnic conflict and democracy in Sri Lanka
- Indo-Pak conflicts
- SAARC and SAFTA: Role and limitation

UNIT –IX

10 marks/20 periods

14. International Organisations in a Unipolar World:

- Evolution, structure and objective relevance of UNO
- Role of New International Economic Organisations and NGOs
- Democratic and accountability as the new institution of global governance

15. Security in Contemporary World:

- Traditional and non traditional notions of security
- New sources of threats and cooperative security

UNIT –X

6 marks/12 periods

16. Globalisation:

- Meaning, causes and circumstances leading to globalisation
- Political, economic and cultural consequences
- India and globalisation

PART B: INTERNAL

10 Marks

- *Case Study*

Report – 5 marks

Viva voce – 5 marks

A minimum of two project work is to be done in a year in relation to the syllabus

Note: The project work is compulsory and has to be done by all students.

The minimum pass criteria for the project work shall be 3 (three) marks out of 10 (ten) marks.

No question paper for the project work will be set by the board. It is purely internal and the institution must include the project marks with the theory marks.

Prescribed textbook:

Class XII Political Science

- Arya Publishing Company

HISTORY

Objectives:

- Effort in the higher secondary classes would be to emphasize to students that history is a critical discipline, a process of enquiry, a way of knowing about the past, rather than just a collection of facts.
- The syllabus would also enable students to relate/compare developments in different situations, analyse connections between similar processes located in different time periods, and discover the relationship between different methods of enquiry within history and the allied disciplines.
- The objective of this history course is to help develop an understanding of the importance of historical perspective in the study of modern issues and problems.
- The syllabus in class XI is organized around some major themes in the world history. The themes have been selected so as to (i) focus on some important developments in different spheres-political, social, cultural and economic,(ii) study not only the grand narratives of development-urbanization, industrialization and modernization-but also to know about the processes of displacements and marginalisation. Through the study of these themes students will acquire a sense of the wider historical processes as well as an idea of the specific debates around them.
- In class XII, the focus will shift to a detailed study of some themes in ancient, medieval and modern Indian history although the attempt is to soften the distinction between what is conventionally termed as ancient, medieval and modern. The object would be to study a set of these themes in some detail and depth rather than survey the entire chronological span of Indian history. In this sense the course will be built on the knowledge that the students have acquired in the earlier classes.
- While the themes in both these classes (XI and XII) are arranged in a broad chronological sequence, there are overlaps between them. This is intended to convey a sense that chronological divides and periodisation do not always operate in a neat fashion.

DESIGN OF QUESTION PAPER HISTORY

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA/MCQ	1	10	10
2.	SA-I	2	6	12
3.	SA-II	4	5	20
4.	LA-I	6	3 +1(map)	24
5.	LA-II	8	3	24
Total			28	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA/MCQ	1 word/ 1 sentence	1 minute	10 minutes
2.	SA-1	30-50 words	4 minutes	24 minutes
3.	SA - II	60-100 words	7 minutes	35 minutes
4.	LA-I	150-200 words	12 minutes	48 minutes
5.	LA-II	250-300 words	16 minutes	48 minutes
6.	Reading question & revision	-	-	15 minutes
			Total time	180 minutes

Scheme of options:

Questions of 6 & 8 marks will be general in option.

**CLASS – XI
HISTORY**

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Units	Marks
Section A: Early Societies	13
1. Introduction	
2. From the beginning of time	
3. Early cities	
Section B: Empires	24
4. Introduction	
5. An empire across three continents	
6. Central Islamic lands	
7. Nomadic Empires	
Section C: Changing Traditions	23
8. Introduction	
9. Three orders	
10. Changing cultural traditions	
11. Confrontation of cultures	
Section D: Paths to Modernization	24
12. Introduction	
13. The Industrial Revolution	
14. Displacing indigenous People	
15. Paths to modernization	
16. Map work (units 1 – 15)	6
Total	90
Part – B: Internal (Project Work)	10
Grand Total	100

SECTION A: EARLY SOCIETIES

13 marks/32 periods

1. Introduction

6 periods

2. From the Beginning of Time

14 periods

Focus: Africa, Europe till 15000 BC

- (a) Views on the origin of human beings.
- (b) Early societies.
- (c) Historians' views on present-day hunting gathering societies.

3. Early Cities

12 periods

Focus: Iraq, 3rd millennium BC

- (a) Growth of towns.
- (b) Nature of early urban societies.
- (c) Historians' Debate on uses of writing.

SECTION B: EMPIRES

24 marks/45 periods

4. Introduction

6 periods

5. An Empire across Three Continents

14 periods

Focus: Roman Empire, 27 B.C to A.D 600.

- (a) Political evolution
- (b) Economic expansion
- (c) Religion
- (d) Late Antiquity.
- (e) Historians' views on the institution of Slavery.

6. Central Islamic Lands

14 periods

Focus: 7th to 12th centuries

- (a) Polity
- (b) Economy
- (c) Culture.
- (d) Historians' viewpoints on the nature of the crusades.

7. Nomadic Empires

11 periods

Focus: The Mongol, 13th to 14th century

- (a) The nature of nomadism.
- (b) Formation of empires.
- (c) Conquests and relations with other states.
- (d) Historians' views on nomadic societies and state formation.

SECTION C: CHANGING TRADITIONS

23 marks/45 periods

8. Introduction

6 periods

9. Three Orders

13 periods

Focus: Western Europe, 13th-16th century

- (a) Feudal society and economy.
- (b) Formation of states.
- (c) Church and Society.
- (d) Historians' views on decline of feudalism.

10. Changing Cultural Traditions

14 periods

Focus on Europe, 14th to 17th century.

- (a) New ideas and new trends in literature and arts.
- (b) Relationship with earlier ideas
- (c) The contribution of West Asia.
- (d) Historians' viewpoints on the validity of the notion 'European Renaissance'.

- 11. Confrontation of Cultures** **12 periods**
 Focus on America, 15th to 18th century.
 (a) European voyages of exploration.
 (b) Search for gold; enslavement, raids, extermination.
 (c) Indigenous people and cultures - the Arawaks, the Aztecs, the Incas.
 (d) The history of displacements.
 (e) Historians' viewpoints on the slave trade.
- SECTION D: PATHS TO MODERNIZATION** **24 marks/48 periods**
- 12. Introduction** **6 periods**
- 13. The Industrial Revolution** **14 periods**
 Focus on England, 18th and 19th century.
 (a) Innovations and technological change
 (b) Patterns of growth.
 (c) Emergence of a working class.
 (d) Historians' viewpoints, Debate on 'Was there an Industrial Revolution?'
- 14. Displacing Indigenous People** **13 periods**
 Focus on North America and Australia, 18th-20th century.
 (a) European colonists in North America and Australia.
 (b) Formation of white settler societies.
 (c) Displacement and repression of local people.
 (d) Historians' viewpoints on the impact of European settlement on indigenous population.
- 15. Paths to Modernization** **15 periods**
 Focus on East Asia, late 19th and 20th century.
 (a) Militarization and economic growth in Japan.
 (b) China and the Communist alternative.
 (c) Historians' Debate on the meaning of modernization
- 16. Map Work on Units 1-15** **6 marks/5 periods**
- Part – B: Internal – Project work** **10 marks**
 Project work will help students:
- To develop skill to gather data from a variety of sources, investigate diverse viewpoints and arrive at logical deductions.
 - To develop skill to comprehend, analyze, interpret, evaluate historical evidence and understand the limitation of historical evidence.
 - To develop 21st century managerial skills of co-ordination, self-direction and time management.
 - To learn to work on diverse cultures, races, religions and lifestyles.
 - To learn through constructivism-a theory based on observation and scientific study.
 - To inculcate a spirit of inquiry and research.
 - To communicate data in the most appropriate form using a variety of techniques.
 - To provide greater opportunity for interaction and exploration.
 - To understand contemporary issues in context to our past.
 - To develop a global perspective and an international outlook.
 - To grow into caring, sensitive individuals capable of making informed, intelligent and independent choices.
 - To develop lasting interest in history discipline.

Assessment of project works:

	<u>Areas</u>	<u>Marks</u>
1.	Introduction	2
2.	Analysis/Explanation (data collection/ map work/pictures)	4
3.	Conclusion	2
4.	Oral presentation	2
	Total	10

Suggested project works:

- Organise field trips to historical sites
- Visit to museums/religious places/crafts centres
- Comparative studies of present day society/economy/ culture/religion with the past
- Interaction with old people/villagers on the customs and traditional practices
- Identifying and studying artefacts
- Making detail study of historical personalities

Note: *Besides the above, the suggested project works in the text book and any other which are relevant to the subject can be done.*

Minimum of two project works has to be done in an academic year.

The project work is compulsory and has to be done by all students.

The minimum pass criteria for the project work shall be 3 (three) marks out of 10 (ten) marks.

No question paper for the project work will be set by the Board. It is purely internal and the institution must include the project marks with the theory marks.

Prescribed textbook:

A textbook of History Class XI – VK Global Publications Pvt. Ltd.

**CLASS–XII
HISTORY**

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Units		Marks
Part-I: Themes in Indian History		26
1. The Story of the First Cities: Harappan Archaeology.		
2. Political and Economic History: How Inscriptions tell a story.		
3. Social Histories: Using the Mahabharata		
4. A History of Buddhism: Sanchi Stupa		
Part-II: Themes in Indian History		28
5. Agrarian Relations: The Ain-i- Akbari		
6. The Mughal Court: Reconstructing Histories through Chronicles		
7. New Architecture: Hampi		
8. Religious Histories: The Bhakti-Sufi Tradition		
9. Medieval Society through Travelers' accounts		
Part-III: Themes in Indian History		30
10. Colonialism and Rural Society: Evidence from Official Reports		
11. Representations of 1857		
12. Colonialism and Indian Towns: Town Plans and Municipal Reports		
13. Mahatma Gandhi through Contemporary Eyes		
14. Partition through Oral Sources		
15. The Making of the Constitution		
16. Map work (units 1-15)		6
	Total	90
Part – B: Internal – Project Work		10
	Grand Total	100

PART – I

26 Marks/45 Periods

1. The Story of the First Cities: Harappan Archaeology

Broad overview: Early urban centres.

Story of discovery: Harappan civilization

Excerpt: Archaeological report on a major site.

Discussion: How it has been utilized by archaeologists/historians.

2. Political and Economic History: How Inscriptions tell a story.

Broad overview: Political and economic history from the Mauryan to the Gupta period.

Story of discovery: Inscriptions and the decipherment of the script shifts in the understanding of political and economic history.

Excerpt: Ashokan inscription and Gupta period land grant.

Discussion: Interpretation of inscriptions by historians.

3. Social Histories: Using the Mahabharata

Broad overview: Issues in social history, including caste, class, kinship and gender.

Story of discovery: Transmission and publications of the Mahabharata.

Excerpt: from the Mahabharata, illustrating how it has been used by historians.

Discussion: Other sources for reconstructing social history.

4. A History of Buddhism: Sanchi Stupa

Broad overview: (a) A brief review of religious histories of Vedic religion, Jainism, Vaisnavism, Saivism. (b) Focus on Buddhism.

Story of discovery: Sanchi stupa

Excerpt: Reproduction of sculptures from Sanchi.

Discussion: Ways in which sculpture has been interpreted by historians, other sources for reconstructing the history of Buddhism.

PART-II

28 Marks/55 Periods

5. Agrarian Relations: The Ain-i- Akbari

Broad overview: (a) Structure of agrarian relations in the 16th and 17th centuries. (b) Patterns of change over the period.

Story of Discovery: Account of the compilation and translation of Ain-i-Akbari.

Excerpt: from the Ain-i-Akbari

Discussion: Ways in which historians have used the text to reconstruct history.

6. The Mughal Court: Reconstructing

Histories through Chronicles

Broad overview: (a) Outline of political history 15th-17th centuries. (b) Discussion of the Mughal court and politics.

Story of Discovery: Account of the production of court chronicles, and their subsequent translation and transmission.

Excerpts: from the Akbarnama and Padshahnama.

Discussion: Ways in which historians have used the texts to reconstruct political histories.

7. New Architecture: Hampi

Broad overview: (a) Outline of new buildings during Vijayanagar period-temples, forts, irrigation facilities. (b) Relationship between architecture and the political system.

Story of Discovery: Account of how Hampi was found.

Excerpt: Visuals of buildings at Hampi

Discussion: Ways in which historians have analyzed and interpreted these structures.

8. Religious Histories: The Bhakti-Sufi Tradition

Broad overview: (a) Outline of religious developments during this period.

(b) Ideas and practices of the Bhakti-Sufi saints.

Story of Transmission: How Bhakti-Sufi compositions have been preserved.

Excerpt: Extracts from selected Bhakti-Sufi works.

Discussion: Ways in which these have been interpreted by historians.

9. Medieval Society through Travelers' Accounts

Broad overview: Outline of social and cultural life as they appear in travelers' accounts.

Story of their writings: A discussion of where they travelled, why they travelled, what they wrote, and for whom they wrote.

Excerpts: from Alberuni, Ibn Batuta, Bernier.

Discussion: What these travel accounts can tell us and how they have been interpreted by historians.

PART - III

30 Marks/70 Periods

10. Colonialism and Rural Society: Evidence from Official Reports

Broad overview: (a) Life of zamindars, peasants and artisans in the late 18th century (b) East India Company, revenue settlements and surveys. (c) Changes over the nineteenth century.

Story of official records: An account of why official investigations into rural societies were undertaken and the types of records and reports produced.

Excerpts: From Firminger's Fifth Report, Accounts of Frances Buchanan-Hamilton, and Deccan Riots Report.

Discussion: What the official records tell and do not tell, and how they have been used by historians.

11. Representations of 1857

Broad overview: (a) The events of 1857-58.

(b) How these events were recorded and narrated.

Focus: Lucknow.

Excerpts: Pictures of 1857. Extracts from contemporary accounts.

Discussion: How the pictures of 1857 shaped British opinion of what had happened.

12. Colonialism and Indian Towns: (13)

Town Plans and Municipal Reports

Broad overview: The growth of Mumbai, Chennai, hill stations and cantonments in the 18th and 19th centuries.

Excerpts: Photographs and paintings. Plans of cities. Extract from town plan reports.

Focus on Kolkata town planning.

Discussion: How the above sources can be used to reconstruct the history of towns. What these sources do not reveal.

13. Mahatma Gandhi through Contemporary Eyes

Broad overview: (a) The Nationalist Movement 1918 - 48.

(b) The nature of Gandhian politics and leadership.

Focus: Mahatma Gandhi in 1931.

Excerpts: Reports from English and Indian language newspapers and other contemporary writings.

Discussion: How newspapers can be a source of history.

14. Partition through Oral Sources

Broad overview: (a) The history of the 1940s.

(b) Nationalism, Communalism and Partition.

Focus: Punjab and Bengal.

Excerpts: Oral testimonies of those who experienced partition.

Discussion: Ways in which these have been analyzed to reconstruct the history of the event.

15. The Making of the Constitution

Broad overview: (a) Independence and the new nation state.

(b) The making of the Constitution.

Focus: The Constitutional Assembly debates.

Excerpts: from the debates.

Discussion: What such debates reveal and how they can be analyzed.

16. Map Work on Units 1-15

6 marks

Part – B: Internal (Project Work)

10 Marks

Project work will help students:

- To develop skill to gather data from a variety of sources, investigate diverse viewpoints and arrive at logical deductions.
- To develop skill to comprehend, analyze, interpret, evaluate historical evidence and understand the limitation of historical evidence.
- To develop 21st century managerial skills of co-ordination, self-direction and time management.
- To learn to work on diverse cultures, races, religions and lifestyles.
- To learn through constructivism-a theory based on observation and scientific study.
- To inculcate a spirit of inquiry and research.

- To communicate data in the most appropriate form using a variety of techniques.
- To provide greater opportunity for interaction and exploration.
- To understand contemporary issues in context to our past.
- To develop a global perspective and an international outlook.
- To grow into caring, sensitive individuals capable of making informed, intelligent and independent choices.
- To develop lasting interest in history discipline.

Assessment of project works:

<u>Areas</u>	<u>Marks</u>
1. Introduction	2
2. Analysis/Explanation (data collection/map work/pictures)	4
3. Conclusion	2
4. <u>Oral presentation</u>	<u>2</u>
Total	10

Suggested project works:

- Organise field trips to historical sites
- Visit to museums/religious places/crafts centres
- Comparative studies of present day society/economy/ culture/religion with the past
- Interaction with old people/villagers on the customs and traditional practices
- Identifying and studying artefacts
- Making detail study of historical personalities

Note: *Besides the above, the suggested project works in the text book and any other which are relevant to the subject can be done.*

Minimum of two project works has to be done in an academic year.

Prescribed textbook:

Themes in Indian History - Class XII

– VK Global Publications Pvt. Ltd.

PSYCHOLOGY

Objective:

- To develop appreciation about human behaviour and human mind in the context of learners' immediate society and environment.
- To develop in learners an appreciation of multidisciplinary nature of psychological knowledge and its application to various aspects of life.
- To enable learners to become perceptive, socially aware and self-reflective.
- To facilitate students' quest for personal growth and effectiveness, and to enable them to become responsive and responsible citizens.
- To teach the techniques of adjustment while facing life problems.
- To familiarised them with the collection of data and to give some practical training in graphical representation.

DESIGN OF QUESTION PAPER PSYCHOLOGY

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	10	10
2.	SA-I	2	6	12
3.	SA-II	4	5	20
4.	LA-I	6	4	24
5.	LA-II	8	3	24
Total			28	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA	One word/ one sentence	1 minute	10 minutes
2.	SA-1	30-50 words	3 minutes	18 minutes
3.	SA - II	60-100 words	7 minutes	35 minutes
4.	LA-I	150-200 words	12 minutes	48 minutes
5.	LA-II	250-300 words	18minutes	54 minutes
6.	Reading question & Revision	-	-	15 minutes
Total time				180 minutes

Scheme of option:

Questions of 6 & 8 marks will be general in option.

**CLASS – XI
PSYCHOLOGY**

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Units		
		Marks
I. Introduction to Psychology		12
II. Methods of enquiry in psychology		12
III. Sensory and perceptual processes		8
IV. Learning		10
V. Human development		12
VI. Motivation		5
VII. Emotion		5
VIII. Attention and Interest		8
IX. Psychology and Education		8
X. Heredity and Environment		5
XI. Environment and life		5
Total		90
Part– B: Internal – Project Work		10
Grand Total		100

Part – A: External

- Unit I: Introduction to Psychology** **12 marks/20 periods**
 Meaning of Psychology; Popular notions about discipline of psychology; Understanding mind and behaviour; Evolution of Psychology; Branches of Psychology; Psychology and other disciplines; Psychologist at work; Psychology in everyday life; Development of Psychology in India.
- Unit II: Methods of enquiry in psychology** **12 marks/20 periods**
 Goals of Psychological enquiry; Steps in conducting Psychological research; Methods in Psychology – Observation method – experimental method; Survey research – interview, questionnaire, case study, ethical issues involved in Psychological studies.
- Unit III: Sensory and perceptual processes** **8 marks/12 periods**
 Knowing the world; Nature and varieties of stimulus; Sense modalities; adaptation; perceptual processes; principles of perceptual organisation; perceptual constancies; illusion; socio-cultural influences on perception.
- Unit IV: Learning** **10 marks/18 periods**
 Meaning and nature; process of learning; laws of learning – law of readiness, law of effects, law of exercises; Methods of learning – Trial and error, Conditioning, Imitation and Insightful method; Transfer of learning; Factors influencing learning – physiological, psychological and environmental.
- Unit V: Human development** **12 marks/20 periods**
 Meaning and growth of development: Principles of development; factors influencing development; Stages of development – Infancy, childhood, adolescence.
- Unit VI: Motivation** **5 marks/12 periods**
 Nature of motivation: Types of motives – Biological motives, Psycho social motives; Maslow’s Hierarchy of Needs.
- Unit VII: Emotion** **5 marks/12 periods**
 Nature of emotion: Expression of emotions; managing negative emotions; enhancing positive emotions.

- Unit VIII: Attention and Interest** **8 marks/18 periods**
 Meaning and nature of attention: factors and condition favourable for capturing attention;
 Meaning and characteristics of Interest.
- Unit IX: Psychology and Education** **8 marks/18 periods**
 Meaning and concept of education: Child Psychology; relation between Psychology and
 Education: Utilities of psychology in Education.
- Unit X: Heredity and Environment** **5 marks/12 periods**
 Meaning, Types, Schools of opinion, Relation between Heredity and Environment.
- Unit XI: Environment and life** **5 marks/18 periods**
 Man-Environment relationship; Environmental stress and their effects – Noise, Pollution,
 Crowding, Natural disaster: Promoting pro-environmental behaviour.

Part – B: Internal – Project **10 Marks**

Projects, experiments, small studies etc.

The Students shall be required to undertake minimum of two projects. The project would involve the use of different methods of inquiry and related skills, related to the topics covered in the course.

- | | | |
|----|---------------------------------------|----------------|
| a) | Reporting file including project work | 7 marks |
| b) | Viva – voce | 3 marks |

Note: *The project work is compulsory and has to be done by all students.
 The minimum pass criteria for the project work shall be 3 (three) marks out of 10 (ten) marks.*

Reference textbooks:

- | | |
|---|------------------------------------|
| 1. <i>Psychology for Class XI & XII</i> | – NCERT |
| 2. <i>Introduction to psychology</i> | – MC Graw Hill Book Company |
| 3. <i>Educational Psychology</i> | – Tandon Publications |
| 4. <i>A Book of Education for Beginners</i> | – Kalyani Publishers |
| 5. <i>Education Class XII</i> | – Frank Educational Aids Pvt. Ltd. |

**CLASS – XII
PSYCHOLOGY**

Unit-Wise weightage

Part – A: External	Time: 3 hrs	Marks: 90
Units		Marks
I. Intelligence		10
II. Memory and Forgetting		10
III. Self and Personality		10
IV. Biological bases of behaviour		6
V. Coping with life challenges		7
VI. Psychological disorders		8
VII. Therapeutic approaches		8
VIII. Language and communication		5
IX. Psychology and social problems		8
X. Social influence and group processes		8
XI. Statistics in Psychology		10
Total		90
Part – B: Internal (Project Work)		10
Grand Total		100

Part – A: External

Unit - I Intelligence 10 Marks/20 periods

Meaning of Intelligence: Theories of Intelligence – Triarchic theory, Monarchic theory, Anarchic theory, Spearman’s two-factor theory, Group factor theory; Concept of IQ: Uses of intelligence test, Types of Intelligence test.

Unit - II Memory and Forgetting 10 Marks /20 periods

Nature of memory, information processing approach, level of processing. Memory systems – Sensory memory, short-term memory, long-term memory, knowledge representation and organisation in memory, memory as a constructive process. Nature and causes of forgetting: Forgetting – causes, encoding failure, storage failure, retrieval failure, Amnesia.

Unit - III Self and Personality 10 Marks /18 periods

Concept of self – self-esteem, self-efficacy and self-regulation. Concept of personality: Major approaches – Type approaches, Trait approaches and Psycho-dynamic approaches. Assessment of personality – Self report measures and projective measures

Unit – VI Biological bases of behaviour 6 Marks/13 periods

Nervous system, Peripheral nervous system, Central nervous system, Endocrine system.

Unit - V Coping with life challenges 7 marks/13 periods

Meaning of Adjustment, Nature and sources of stress, Coping with stress, factors facilitating positive health and well being.

Unit - VI Psychological disorders 8 Marks/16 periods

Meaning of abnormal behaviour, Classification of disorders, Factors causing abnormal behaviour, Types of disorders – Anxiety disorders, Mood disorders, Schizophrenic disorders, Substances relating disorders, Behavioural disorders, Personality disorders.

Unit –VII: Therapeutic approaches **8 Marks/16 periods**
Nature and process of therapy, Types of therapies – Bio-medical, Cognitive, Psycho-dynamic, Behavioural therapy; Rehabilitation of mental illness.

Unit – VIII: Language and communication **5 Marks /10 periods**
Introduction – nature of human languages, communication process, verbal and non- verbal communication, barriers to communications.

Unit -IX Psychology and social problems **8 Marks/16 periods**
Introduction, Social problems – poverty and social disadvantages, challenges for national integration, Gender discrimination, Population explosion, Importance of media and communication

Unit - X Social influence and group processes **8 Marks/16 periods**
Introduction, Nature of groups, formation of groups, types of groups, factors influencing group formation, influence of group on individual behaviour. Conformity, Compliance and Obedience, Co-operation and Competition, Leadership – Types of leadership, qualities of leadership.

Unit XI: Statistics in Psychology **10 Marks/22 periods**
What is Statistics? Measure of central tendency, graphical representation of data-bar, histogram and polygon

Part – B: Internal (Project) **10 Marks**

Projects, experiments, small studies etc.

The Students shall be required to undertake minimum two projects. The project would involve the use of different methods of inquiry and related skills, related to the topics covered in the course.

- | | |
|--|----------------|
| a) Reporting file including project work | 7 marks |
| b) Viva – voce | 3 marks |

Note: The project work is compulsory and has to be done by all students.

The minimum pass criteria for the project work shall be 3 (three) marks out of 10 (ten) marks.

No question paper for the project work will be set by the board. It is purely internal and the institution must send the project work marks to the Board in the prescribe/pre-printed form which will be supplied by the board.

Reference textbooks:

- | | |
|---|---|
| 1. <i>Psychology for Class XI & XII</i> | - <i>NCERT</i> |
| 2. <i>Introduction to psychology</i> | - <i>MC Graw Hill Book Company</i> |
| 3. <i>Educational Psychology</i> | - <i>Tandon Publications</i> |
| 4. <i>A Book of Education for Beginners</i> | - <i>Kalyani Publishers</i> |
| 5. <i>Education Class XII</i> | - <i>Frank Educational Aids Pvt. Ltd.</i> |

PHILOSOPHY

Objectives:

This syllabus will help students in the following ways:

- Students will understand major philosophical concepts accurately.
- Students can apply their understanding of concepts in novel contexts.
- Students shall be able to argue with precision, balance and weight.
- Students shall be able to understand the formal structure of arguments and understand rules of influence.
- Students can read and think analytically, critically and empathetically.
- Students can critically assess their own commitments and ideas.
- Students speculate, in well-informed, well – supported, and plausible fashion, about what a given philosopher would say about a novel issue or problem.
- Students are able to explain why their pre-theoretical commitments have or have not changed as a result of what they have learned in the course, and if they have changed how they have done so.

DESIGN OF QUESTION PAPER PHILOSOPHY

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA/MCQ	1	10	10
2.	SA-I	2	6	12
3.	SA-II	4	6	24
4.	LA-I	6	5	30
5.	LA-II	8	3	24
Total			30	100

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	30
2.	Average	50	50
3.	Difficult	20	20

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1	MCQ/VSA	One word/ one sentence	1 minutes	10 minutes
2.	SA-1	30-50 words	3 minutes	18 minutes
3.	SA - II	60-100 words	7 minutes	42 minutes
4.	LA-I	150-200 words	10 minutes	50 minutes
5.	LA-II	250-300 words	15 minutes	45 minutes
6.	Reading of question & Revision	-	-	15 minutes
Total time			180 minutes	

Scheme of option:

Questions of 6 & 8 marks will be general in option.

**CLASS – XI
PHILOSOPHY**

Unit-Wise weightage

Time: 3 hrs

Marks: 100

Units	Marks
PART A: SCIENTIFIC	50
I Nature and method of Induction	11
II Observation and Experiment	12
III Hypothesis	12
IV Mills Method of Experimental Inquiry	15
PART B LOGIC	50
V The Nature and Subject matter of Logic	6
VI The fundamental Principles of Logic	6
VII Terms and Propositions	14
VIII Categorical Syllogism	14
IX Symbolic Logic	10
Total	100

Part A: SCIENTIFIC METHOD

Unit I: Nature and Method of Induction **11 marks/15 periods**

Scientific Induction – its marks and characteristics, Induction Improperly so called or Process simulating Induction, Induction proper, the method of Induction or the Inductive Procedure – its different steps or stages.

Unit II: Observation and Experiment **12 marks/20 periods**

Meaning and definition of observation and experiment, fallacies of observation, difference between observation and experimental, Relative advantages of observation over experiment and Relative advantages of experiment over observation.

Unit III: Hypothesis – its uses and conditions **12 marks/20 periods**

Importance of Hypothesis in Induction, Meaning and origin of Hypothesis, forms of hypothesis, conditions of a legitimate or valid hypothesis, Proof of hypothesis, uses of hypothesis.

Unit IV: Mill's Methods of Experimental Inquiry **15 marks/25 periods**

The method of Agreement.
The method of Difference.
The method of Agreement and Difference.
The method of concomitant variation.
The method of Residue.

Part B : LOGIC

Unit V : The Nature and Subject matter of Logic **6 marks/15 periods**

What is Logic? Is logic a Science or an Art? Uses of Logic, formal and material logic.

- Unit VI : The Fundamental Principles of Logic** **6 marks/15 periods**
Nature of the fundamental principles, the fundamental principles or the laws of thought.
- Unit VII: Terms and Propositions** **14 marks/25 periods**
Nature and definition of terms, Denotation and connotation of terms. Kinds of terms, analysis of logical proposition, kinds of propositions, distribution of terms.
- Unit VIII: Categorical syllogism** **14 marks/20 periods**
Syllogism – definition, Structure, kinds, general rules of categorical syllogism, Fallacies- four terms, illicit major, illicit minor, undistributed middle.
- Unit IX: Symbolic Logic** **10marks/20 periods**
Value of using symbols in logic and symbolization.
Basic Truth Table: Tautology, contingent, contradictory.

Reference textbooks:

1. *Inductive Logic* - by *Bhola Nath Roy*
2. *Deductive Logic* - by *Bhola Nath Roy*
3. *Introduction to Logic* - by *I. M. Copi*

**CLASS – XII
PHILOSOPHY**

Unit-Wise weightage

Time: 3 hrs

Marks: 100

Units	Marks
PART A: WESTERN PHILOSOPHY	40
I Definition and Scope of Philosophy	6
II Theory of Knowledge	5
III Kant's Critical Philosophy	5
IV Realism and Idealism	6
V Ethics	10
VI Social Philosophy	8
PART B INDIAN PHILOSOPHY	45
VII Nature and Schools of Indian Philosophy	10
VIII Buddhism	6
IX Jainism	6
X Advaita Vedanta, Vaisesika and Samkhya–Yoga	15
XI Nyaya	8
PART C: RELIGION	15
XII Concept of religion	15
Grand Total	100

PART A: WESTERN PHILOSOPHY

Unit I: Definition and Scope of Philosophy. 6 marks/10 periods

Unit II: Theory of Knowledge 5 marks/10 periods
Rationalism and Empiricism.

Unit III: Kant's Critical Philosophy 5 marks/10 periods

Unit IV: Realism and Idealism 6 marks/10 periods

Unit V: Ethics 10 marks/18 periods
- Meaning and definition of Ethics.
- Ethical issues: Abortion, Suicide, Cloning.

Unit VI: Social Philosophy 8 marks/18 periods
- Nature and scope of social Philosophy and its relation to social psychology and sociology.
- The concept of social Justice.
- Value or uses of social philosophy.

PART B: INDIAN PHILOSOPHY

- Unit VII: Nature and schools of Indian Philosophy** **10 marks/16 periods**
- Definition of Indian Philosophy.
- Orthodox and heterodox schools.
- Brief Introduction to Bhagavad Gita.
- Unit VIII: Buddhism** **6 marks/11 periods**
- Four noble – truths, Eight –fold path, Theory of Dependent origination, Nirvana.
- Unit IX: Jainism** **6 marks/11 periods**
- Anekantavada and Syadvada.
- Unit X: Advaita Vedanta, Vaishesika and Samkhya–Yoga** **15 marks/31 periods**
- The nature of Atman and Brahman.
- Vaishesika Theory of padartha.
- Samkhya Theory of Prakriti and Purusa.
- Yoga Theory of eight – fold practice.
- Unit XI: Nyaya** **8 marks/15 periods**
- Theory of Pramana.

PART C : RELIGION

- Unit XII: Concept of Religion** **15 marks/20 periods**
- Meaning and definition.
- Concept of God in Christianity and Islam.
- Proofs for the existence of God; ontological, teleological, cosmological arguments.

Prescribed textbook:

- 1. An Introduction to Philosophy - Heritage Publishing House, Dimapur
Class – XII
O. Lima Longkumer***

Reference textbooks:

- 1. Introduction to Ethics - by R.N Sharma
2. Outlines of Indian Philosophy - by Jagdishwar Sangal
3. Introduction to General Philosophy - by Jagdishwar Sangal
4. Introduction to Indian Philosophy – by S.C Chatterjee***

SOCIOLOGY

Objectives

- To enable learners to look at social reality objectively.
- To inculcate among the learners Scientific temper and ability to perceive reality.
- To introduce them to the basic concepts of Sociology that would enable them to observe and interpret social life.
- To exemplify these concepts with reference to empirical situations in India.
- To make the learners familiar with the contemporary processes of development and change.
- To build the capacity of students to understand and analyse the changes in contemporary Indian society.

DESIGN OF QUESTION PAPER SOCIOLOGY

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	10	10
2.	SA- I	2	6	12
3.	SA- II	4	5	20
4.	LA- I	6	4	24
5.	LA- II	8	3	24
Total			28	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA	1-25 words	1 minute	10 minutes
2.	SA- I	30-50 words	4 minutes	24 minutes
3.	SA- II	60-100 words	7 minutes	35 minutes
4.	LA- I	150-200 words	12 minutes	48 minutes
5.	LA- II	250-300 words	16 minutes	48 minutes
	Reading of question & Revision	-	-	15 minutes
Total time				180 minutes

Scheme of options:

Questions of 6 & 8 marks will be general in option.

**CLASS - XI
SOCIOLOGY**

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Unit	Marks
Section A: INTRODUCING SOCIOLOGY	
I. Sociology as a Discipline	10
II. Basic Concepts	10
III. Social Institutions	16
IV. Culture and Socialization	6
V. Social Processes	6
VI. Methods and Techniques of Social research.	8
Section B: UNDERSTANDING SOCIETY	
VII. Social Structure and function	8
VIII. Social Stratification and Mobility	10
IX. Environment and Society	6
X. Western Social Thinkers	10
Total	90
Part – B: Internal – Project work	10
Grand total	100

Section A: Introducing sociology

Unit I: Sociology as a discipline.

10 marks/18 periods

- a) Definition.
- b) Origin.
- c) Nature & Scope.
- d) Relationship with other disciplines.

Unit II: Basic concepts.

10 marks/20 periods

- a) Society: Meaning, Definition. Characteristics.
- b) Social Groups: Primary & Secondary, In-group & Out-group, Formal & Informal.
- c) Social control: Formal & Informal.

Unit III: Social Institutions.

16 marks/27 periods

- a) Marriage: Definitions, Forms (Monogamy & Polygamy)
- b) Family: Definitions, Types (Nuclear & Joint), Social functions.
- c) Kinship: Definitions, Types, Incest Taboo, Degree and Usages, Terminologies.
- d) Economic Systems: Primitive, Agrarian, Industrial, Mixed Economy, Developed & Developing Economy.
- e) Political System: Power & Authority, Monarchy, Democracy.
- f) Religion: Definition, Meaning, Characteristics.
- g) Education: Meaning, Formal & Informal.

Unit IV: Culture and Socialization.

6 marks/12 periods

- a) Culture: Definition, Characteristics, Material & Non-Material, Cultural lag.
- b) Socialization: Meaning, Stages, Agencies.

Unit V: Social Processes.

6 marks/12 periods

- a) Meaning, Definition.
- b) Types of Co-operation.
- c) Accommodation.
- d) Assimilation.
- e) Competition.
- f) Conflict.

Unit VI: Methods and Techniques of Social research.

8 marks/17 periods

- a) Observation: Participant & Non participant.
- b) Interview: Schedule & Questionnaire.

Section B: Understanding Society.

Unit VII: Social structure and function.

8 marks/17 periods

- a) Social Structure: Meaning, Elements (Status, Role, Norms, Values)
- b) Social Functions: Meaning, Classification of functions.

Unit VIII: Social Stratification and Mobility.

10 marks/20 periods

- a) Social Stratification: Meaning, Types of Stratification (Caste & Class)
- b) Social Mobility: Meaning, Types.

Unit IX: Environment and Society.

6 marks/13 periods

- a) Social Ecology.
- b) Relationship of Environment & Society.
- c) Environment crisis & Social response.

Unit X: Western Social thinkers.

10 marks/15 periods

- a) Karl Marx on Class Conflict.
- b) Emile Durkheim on Division of Labour.
- c) Max Weber on Bureaucracy.

Part – B: Internal – Project work.

10 marks

- a) Statement of the problem.
- b) Methodology/ technique
- c) Conclusion.
- d) Viva: Based on the project work.

Prescribed textbook:

***Introducing Sociology & Understanding Society - Nagaland Institute of Development studies.
by Visakhonü Hibo, Kedilezo Kikhi &
Alphonsus D'Souza***

**CLASS - XII
SOCIOLOGY**

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Unit	Marks
SECTION A: STRUCTURE OF INDIAN SOCIETY.	
I. Challenges of unity in diversity.	10
II. Structure of Society.	8
III. Institutional Structure.	10
IV. Social inequality.	10
V. Society in Nagaland.	10
SECTION B: SOCIAL CHANGE IN INDIA.	
VI. Processes of social change in India.	10
VII. State, Economic development & Social change.	12
VIII. Education, Media and Social change.	8
IX. Social Movement.	4
X. Indian Sociologist.	8
Total	90
Part – B: Internal (Project Work)	10
Grand Total	100

Section A: Structure of Indian society.

Unit I: Challenges of unity in diversity.

10 marks/20 periods

- (a) Diversity in India and Factors of unity.
- Geographic, Religious, Cultural, Political, Linguistic & Racial.
- (b) Problems of Communalism, Regionalism, Casteism.

Unit II: Structure of Society.

8 marks /15 periods

- (a) Social demographic structure, - Population growth - Birth, Death or Mortality, Migration, - Age & Sex composition, - Rural & Urban distribution, - Literacy, - Present population Policy in India.
- (b) Rural – Urban Divide and linkages in India.

Unit III: Institutional Structure.

10 marks/20 periods

Marriage, Family & Kinship in India.

- (a) Ways of acquiring mates among the tribal communities.
- (b) Marriage among: Hindus, Muslims, Christians.
- (c) Joint family: Meaning and changes,
- (d) Kinship.

Unit IV: Social inequality.

10 marks/20 periods

- (a) Cast prejudice, Scheduled castes and other backward classes.
- (b) Scheduled Tribes: Problems and Measures.
- (c) The protection of Religious minorities.
- (d) Women: Status, Measures to empower them.

Unit V: Society in Nagaland.

10 marks /20 periods

- (a) People: Tribes & Festivals.
- (b) Economy: Shifting & Terrace cultivation.
- (c) Religion: Traditional religion & Christianity.
- (d) Education: Traditional institution, Advent of modern education.
- (e) Politics: Statehood & Special provisions in the Constitution of India.

Section B: Social change in India

Unit VI: Processes of social change in India. 10 marks /20 periods

- (a) Structural processes.
- Social consequences of Industrialization, Urbanization, Modernization.
(b) Cultural processes.
- Sanskritisation, Westernization, Secularization.

Unit VII: State, Economic development & Social change. 12 marks /20 periods

- (a) Land reforms: Meaning, Objectives of land reforms in India.
Green Revolution: Meaning, Consequences.
Globalization & Liberalization: Meaning & Implication.
(d) Panchayati Raj: Meaning, Aims & Structure.

Unit VIII: Education, Media and Social change. 8 marks /14 periods

- (a) Education as a factor of social change.
(b) Media and social change.

Unit IX: Social Movement. 4 marks/8 periods

Meaning, Characteristics & Types.

Unit X: Indian Sociologist. 8 marks/14 periods

- (a) G.S Ghurye on Caste.
(b) Yogendra Singh: Tradition and Modernity.
(c) Radhakamal Mukerjee on Values.

Part-B: Internal (Project work) 10 marks /9 periods

- (a) Statement of the problem.
(b) Methodology/ technique.
(c) Conclusion.
(d) Viva: Based on the Project work.

Project work.

The students shall be required to undertake one project work. The project work would involve the use of different methods / techniques of enquiry relevant for the topic. The following topics are highlighted for reference.

- Submit a report on the significance of your own Tribal festival.
- Conduct a study on the problems faced by our society due to immigration.

Note: - Subject teacher is free to give any other topic from the syllabus covered.

Teachers are advised to keep in mind the following marking pattern.

- | | |
|-----------------------------|-------------|
| 1. Statement of the problem | - 2 mark. |
| 2. Methodology/ techniques | - 2 marks. |
| 3. Conclusion | - 3 marks. |
| 4. Viva | - 3 marks. |
| Total | - 10 marks. |

Prescribed book:

Sociology Class XII - Structures of Indian Society & Social Change in India
Visakuonü Hibo, Kedilezo Kikhi and Alphonsus D' Souza

GEOGRAPHY

Objectives:

The course in Geography will help learners to:

- Familiarise themselves with the terms, key concepts and basic principles of geography;
- Search for, recognize and understand the processes and patterns of the spatial arrangement of the natural as well as human features and phenomena on the earth's surface;
- Understand and analyse the inter-relationship between physical and human environments and their impact;
- Apply geographical knowledge and methods of inquiry to new situations or problems at different levels-local/regional, national and global;
- Develop geographical skills, relating to collection, processing and analysis of data/information and preparation of report including maps and graphics and use of computers wherever possible; and
- Utilize geographical knowledge in understanding issues concerning the community such as environmental issues, socio-economic concerns, gender and become responsible and effective member of the community.

DESIGN OF QUESTION PAPER GEOGRAPHY

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	5	5
2.	SA - I	2	8	16
3.	SA - II	3	8	24
4.	LA	5	4	20
5.	Map Question	2 + 3	2	5
Total			27	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	20	14
2.	Average	60	42
3.	Difficult	20	14

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length of answer	Expected time for each question	Total expected time
1.	VSA	20-30 words	2 minutes	10 minutes
2.	SA - I	40-50 words	4 minutes	32 minutes
3.	SA - II	50-70 words	7 minutes	56 minutes
4.	LA	200 words	13 minutes	52 minutes
5.	Map Question	-	7.5x2=15 minutes	15 minutes
6.	Reading Q. Paper & Revision	-	-	15 minutes
			Total time	180 minutes

Scheme of Options:

There will be no overall choice. However, an internal choice shall be provided in

- i. 4 (four) questions of 3 marks each
- ii. 2(two) questions of 5 marks each.

**CLASS - XI
GEOGRAPHY**

Unit-wise weightage**Part – A: External****Time: 3 hours****Marks: 70**

Unit	Marks
SECTION A: FUNDAMENTALS OF PHYSICAL GEOGRAPHY	35
I. Geography as a discipline	3
II. The Earth	5
III. Landforms	8
IV. Climate	10
V. The Oceans	4
VI. Life on the Earth	3
VII. Map Work	2
SECTION B: INDIA – PHYSICAL ENVIRONMENT	35
VIII. Introduction	5
IX. Physiography	10
X. Climate, Vegetation and Soil	10
XI. Natural Hazards and Disasters	7
XII. Map Work	3
Total	70
Part – B: Internal – PRACTICAL	30
1. Fundamentals of Cartography	12
2. Topography and Weather Maps	10
3. Practical Record Book	5
4. Viva Voce	3
Total	30
Grand Total	100

SECTION A : FUNDAMENTALS OF PHYSICAL GEOGRAPHY**Unit I: Geography as a Discipline.****3 marks/4 periods**

Nature, Scope and evolution of geography as a discipline.

Branches of geography with emphasis on the importance of physical geography.

Unit II: The Earth.**5 marks/10 periods**

Origin and evolution of the Earth; Interior of the earth; Earthquakes and volcanoes – their types and distribution; Wegener’s continental drift theory, plate tectonics, sea floor spreading.

Unit III: Landforms.**8 marks/16 periods**

Rocks: major types of rocks and their characteristics; Soils – major types and formation; Concepts of evolution of land forms, Hierarchy of land forms.

Geomorphic processes – weathering and mass wasting, works of running water, wind, glacier and waves.

Unit IV: Climate. **10 marks/25 periods**
Atmosphere – composition and structure, elements of weather and climate. Insulation – factors controlling insulation distribution; Heat budget of the earth – heating and cooling of atmosphere, conduction, convection, terrestrial radiation, advection; Temperature – factors controlling temperature, horizontal and vertical distribution of temperature, inversion of temperature; Pressure – pressure belts, winds – planetary, periodical and local; air masses, fronts and cyclones.
Precipitation – types – Rainfall – types and distribution; types of cloud. Hydrological cycle.
World climate – classification (Trewartha), greenhouse effect, global warming and climatic changes.

Unit V: The Oceans. **4 marks/8 periods**
Water bodies on the earth’s surface – types; Relief of the ocean floor.
Distribution of temperature and salinity of oceans; Types and distribution of ocean currents.

Unit VI: Life on the Earth. **3 marks/6 periods**
The biosphere classification of organisms; Ecosystems – components (biotic and abiotic) and types (terrestrial, aquatic, man-made); conservation of ecosystems.

Unit VII: Map Work. **2 marks/4 periods**
Map works-for identification only/relating to Units 1-VI.
Map work on World map.

SECTION B : INDIA PHYSICAL ENVIRONMENT

Unit VIII: Introduction. **5 marks/5 periods**
Location, and its factor in shaping India’s place in the world. Geological history.

Unit IX: Physiography. **10 marks/19 periods**
Geological structure, physiographic divisions, Drainage system (with emphasis on the Himalayas and the Peninsular); concept of watershed.

Unit X: Climate, Vegetation and Soil. **10 marks/25 periods**
Weather and climate – Spatial and temporal distribution of temperature, pressure, winds and rainfall; Mechanism of the monsoon, monsoon seasons, impact of the monsoon on the people of the region; climatic regions of India.
Natural Vegetation – types and distribution, conservation and management of forests; wildlife – conservation and management.
Soil – classification (ICAR) and distribution, conservation of soil.

Unit XI: Natural Hazards and Disasters. **7 marks/14 periods**
Causes, consequences and Management.
Earthquakes, Landslides, Droughts, Floods, Cyclones.

Unit XII: Map works, relating to Units –VIII - XI. **3 marks/4 periods**

Part – B: Internal - Practical

30 marks

1. Fundamentals of Cartography.

12 marks/12 periods

Maps – types; Scale – types; construction of Linear scale, measuring distance, finding directions (in the field and on the map), use of conventional symbols in topographic maps and weather maps.

Latitudes, Longitudes and time.

Map projection-graphical construction of cylindrical equal area, Conical with one standard parallel and zenithal equidistant along with properties and uses.

2. Topographic and Weather Maps.

10 marks/28 periods

Study of topographic maps; contour cross – section and identification of landforms (hills, valleys, waterfalls, cliffs).

Aerial photograph and satellite imageries; identification of physical and cultural features on the basis of tone and shape. Use of weather instruments and weather charts; wet and dry bulb thermometer, barometer, windvane, rain gauge; use of weather charts describing pressure, wind and rainfall distribution.

3. Practical Record Book.

5 marks

4. Viva Voce.

3 marks

NOTE : *No question paper for practical work will be set by the Board.*

Prescribed textbooks:

Textbook of Geography

– *New Saraswati House (India) Pvt. Ltd.*

Reference book:

A Textbook of Geography

– *Arya Publications*

Sanjana Mahajan and R.K. Gupta.

**Class -XII
GEOGRAPHY**

Unit-wise weightage

Part – A: External

Time: 3 hours

Marks: 70

Unit	Marks
SECTION A: FUNDAMENTALS OF HUMAN GEOGRAPHY	35
I. Human Geography	3
II. People	5
III. Human Activities	10
IV. Transport, Communication and Trade	10
V. Human Settlements	5
VI. Map work	2
SECTION B: INDIA – PEOPLE AND ECONOMY	35
VII. People	5
VIII. Human settlements	4
IX. Resources and Development	12
X. Transport, Communication and International Trade	7
XI. Geographical perspective on selected issues and problems	4
XII. Map Work	3
Total	70
Part – B: Internal – PRACTICAL	
1. Processing of Data and Thematic Mapping	12
2. Field study or Spatial Information Technology	10
3. Practical record book	5
4. Viva Voce	3
Total	30
Grand Total	100

SECTION A : Fundamentals of Human Geography

Unit I: Human Geography

3 marks/4 periods

- Nature, Scope.

Unit II: People

5 marks/15 Periods

- Population of the world - growth, distribution and density; components of population.
- Urban – rural composition; Age-sex Ratio, Determinants of population change.
- Human development – concept, selected indicators, international comparisons.

Unit III: Human Activities

10 marks/25 Periods

- Primary activities - concept and changing trends; gathering, pastoral, mining, subsistence agriculture, modern agriculture; people engaged in agricultural and allied activities.
- Secondary activities-concept; manufacturing industries; agro-processing, household, small scale and large scale industries; people engaged in secondary activities.
- Tertiary activities-concept; health, business, transport and communication; people engaged in tertiary activities.
- Quaternary activities-concept; knowledge based activities.

Unit IV: Transport, Communication and Trade **10 marks/20 Periods**

- Land transport - roads, railways; trans-continental railways.
- Water transport- inland waterways; major ocean routes and ports.
- Air transport and the shrinking world; Intercontinental air routes.
- Oil and gas pipelines.
- Mass Communication; Satellite communication and cyber space; including computer networking: importance and usage for geographical information.
- International trade- its basis and changing patterns; ports as gateways of international trade; role of WTO in International trade.

Unit V: Human Settlements **5 marks/7 Periods**

- Settlement types - rural and urban; functional classification; problems of human settlement in developing countries.

Unit VI: Map Work. **2 marks /4 periods**

SECTION B : India: People and Economy

Unit VII: People **5 marks /12 periods**

- Population: distribution, and density; population change through time with regional variations.
- The people of India- ethnic, linguistic and religious composition.
- Demographic patterns in terms of rural-urban, age, sex.
- Human Development - Regional patterns.

Unit VIII: Human Settlements **4 marks /8 Periods**

- Rural settlements - types and distribution (forms, structure and function).
- Urban settlements – distribution, census; distribution of large cities.

Unit IX: Resources and Development **12 marks/30 Periods**

- Resources- concept of resources; types and distribution; conservation of natural resources, sustainable development.
- Water resources-availability and utilization; scarcity of water and conservation methods- water harvesting and watershed management.
- Land use-general land use, agricultural land use; major crops (wheat, rice, tea, coffee, cotton, jute, sugarcane and rubber); agricultural problems and development.
- Mineral and energy resources, distribution, major metallic (iron ore, copper, bauxite, manganese); non-metallic (mica, salt) minerals; conventional (coal, petroleum, natural gas and hydroelectricity) non-conventional energy source (solar, wind, biogas).
- Industries – types and distribution, factors affecting industrial location, changing pattern of selected industries-iron and steel, cotton textiles, sugar, petrochemical, and knowledge based industries, impact of liberalization, privatisation and globalisation on industries and its location.

Unit X: Transport, Communication and International Trade **7 marks /12 Periods**

- Transport and communication-roads, railways, waterways and airways, oil and gas pipelines; national electric grids; communication networking - radio, television, satellite and computer.
- International trade- changing pattern of India's foreign trade; sea ports and airports as gateways of international trade.

Unit XI: Geographical Perspective on selected issues and problems **4 marks/9 periods**

- Environmental degradation.
- Hunger and poverty.
- Urbanisation, Urbanisation-growth of cities; rural-urban migration; problems of slums; Urban waste disposal management.

Unit XII: Map work **3 marks/4 periods**

PART B: PRACTICAL

1. Data Processing and Thematic Mapping. 12 marks/20 periods

- a. Data analysis, diagrams and maps.
- b. Tabulation and processing of data matrix; uses and calculating of averages, deviation measures and correlation.
- c. Representation of data – construction of diagrams (bars, circles and flow charts).
- d. Preparation of thematic maps; dot, choropleth and isopleths.
- e. Use of computers in data processing and mapping.

2. Field Study or Spatial Information Technology 10 marks/10 periods

Field trip: Map orientation, observation and preparation of sketch map; survey on any one of local concerns.

- i) population,
- ii) ground water changes,
- iii) Land – use and land-use changes,
- iv) Poverty,
- v) Energy issues,
- vi) Land degradation, and
- vii) Drought and flood.

3. Practical Record Book. 5 marks

4. Viva Voce. 3 marks

- Note:**
1. In survey, observation and questionnaire method may be adopted for data collection.
 2. (Any one topic of local concern maybe taken up for the study); observation and questionnaire survey may be adopted for data collection; collected data may be tabulated and analysed with diagrams and maps.

OR

Spatial Information Technology.

Use of computers : Components of computers, raster and vector data, data sources, data entry, data manipulation, construction of diagrams and data mappings.

Prescribed textbooks:

Geography Class XII : New Saraswati House (India) Pvt. Ltd.

EDUCATION

Objectives:

- To familiarize students with ideas, practices, institutions and systems prevailing in the field of education.
- To make students aware of different thoughts given by educational thinkers.
- To make the students understand that psychology and education are deeply related to each other.
- To make students familiarized with basic concepts of educational psychology.
- To give students a glimpse into the history of educational development.
- To help them to understand the behavioural patterns of human beings.
- To create in students an interest in the study of human behaviour.
- To have a sympathetic understanding on others behaviour either as parents or as teachers in due course of their life.

DESIGN OF QUESTION PAPER EDUCATION

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	10	10
2.	SA- I	2	6	12
3.	SA- II	4	5	20
4.	LA- I	6	4	24
5.	LA- II	8	3	24
Total			28	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA	1-20 words	1 minute	10 minutes
2.	SA- I	30-50 words	4 minutes	24 minutes
3.	SA- II	60-100 words	7 minutes	35 minutes
4.	LA- I	150-200 words	12 minutes	48 minutes
5.	LA- II	250-300 words	16 minutes	48 minutes
6.	Reading of question & Revision	-	-	15 minutes
Total time				180 minutes

Scheme of options:

Questions of 6 & 8 marks will be general in option.

**CLASS - XI
EDUCATION**

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Unit	Marks
I. Concept of education	7
II. Aims of education	7
III. Types and Agencies of education	10
IV. Educational Thinkers	8
V. Constitutional Provisions relating to education.	8
VI. Indigenous education in India.	8
VII. Indigenous system of education in Nagaland	5
VIII. Development of education in India	10
IX. Concept of Discipline and Freedom.	6
X. Cultural perspective of education.	6
XI. Concept of Evaluation.	7
XII. Introduction to statistics in Education	8
Total	90
Part – B: Internal (Project Work)	10
Grand total	100

Unit I: Concept of Education.

7 marks/12 periods

- a) Meaning.
- b) Definition.
- c) Synonyms.
- d) Different Concepts.
- e) Meaning – Narrow and Broader.
- f) Literacy and Education.

Unit II: Aims of Education.

7 marks/14 periods

- a) Necessity of Aims in Education.
- b) Individual Aim and Social Aim.
- c) Synthesis of Individual Aim and Social Aim.
- d) Specific Aims of Education.
 - Citizenship, Vocational, National Integration.

Unit III: Types and Agencies of Education.

10 marks/18 periods

- a) Formal, Informal and Non-Formal.
- b) Agencies of Formal Education. - School and its Influences, Colleges.
- c) Agencies of Informal Education. - Home, Mass Media.
- d) Agencies of Non-Formal Education.
 - Open Schools, Open Universities, Distance Education.
- e) Guiding Agencies of Education.
 - NCERT, UGC, UNISCO.

Unit IV: Educational Thinkers.

8 marks/15 periods

- a) Pestalozzi.
- b) Froebel.
- c) Maria Montessori.
- d) Mahatma Gandhi.
- e) Rabindranath Tagore.
- f) The Relevance of their Ideas in the present System of Education.

Unit V: Constitutional Provisions relating to Education.

8 marks/16 periods

- a) Free and Compulsory Education.
- b) Education for Minorities
- c) Religious Instruction
- d) Education of Socially and Educationally backward Classes.
- e) Instruction in Mother tongue.
- f) National Language.

Unit VI: Indigenous Education in India.

8 marks/14 periods

- a) Vedic Education.
- b) Gurukula.
- c) Pathasala.
- d) Parishads.
- e) Buddhist.
- f) Islamic
- g) Christian Missionaries.

Unit VII: Indigenous System of Education in Nagaland.

5 marks/7 periods

- a) Family.
- b) Morung.
- c) Festivals.

Unit VIII: Development of Education in India.

10 marks/18 periods

- a) The Charter Act of 1813.
- b) Woods Dispatch 1854.
- c) Hunter's Commission 1882.
- d) Mudhaliar's Commission 1952.
- e) Kothari's Commission 1946.
- f) National Policy of Education 1986 and 1992.
- g) New Initiatives of the Government
 - SSA
 - Communitisation in Nagaland.
 - RMSA.

Unit IX: Concept of Discipline and Freedom.

6 marks/15 periods

- a) Freedom.
- b) Discipline
- c) Order
- d) Relationship between Discipline and Order.
- e) Reward and Punishment.
- f) Importance of Discipline in Social life.

Unit X: Cultural Perspective of Education.**6 marks/14 periods**

- a) Meaning and Definitions.
- b) Functions.
- c) Preservation, Transmission and Development.
- d) Socialization.

Unit XI: Concept of Evaluation.**7 marks/12 periods**

- a) Function.
- b) Types of Examination
- c) Formative and Summative Approach.
- d) Continuous and Comprehensive Evaluation.

Unit XII: Introduction to Statistics in Education.**8 marks/18 periods**

- a) Statistics: Meaning and its Uses in the field of Education.
- b) Collection, Tabulation and Graphic representation of data (Bar, Histogram & Polygon).

Part – B: Internal – Project Work.**10 marks****Project work.**

The student shall be required to undertake one project. The project would involve the use of different methods of enquiry and related skills, related to the topics covered in the course. Some of the topics are highlighted below:-

- Conduct a comparative study on the examination result of any three classes in any institution for the last five years by applying your knowledge on unit-XII.
- Give a historical survey of the role of church in spreading education in the context of Nagaland.
- Conduct a survey in your institution and identify the problems and grievances faced by the students in any two consecutive classes.
- Give a detail report on any three Naga tribal festivals.
- Prepare a report on the influences of mass media on younger generations.
- Suggest the utility of modern mass media materials for classroom teaching.

Note: - Subject teacher is free to give any other topic from the syllabus covered.

Teachers are advised to keep in mind the following marking pattern.

5. Cover - 1 mark.
6. Introduction - 2 marks.
7. Presentation - 5 marks.
8. Conclusion - 2 marks.

Total - 10 marks.

Prescribed textbook:

Education Class XI – Goyal Brothers Prakashan

**CLASS - XII
EDUCATION**

Unit-Wise weightage

Part – A: External

Time: 3 hrs

Marks: 90

Unit	Marks
I. Educational Psychology	8
II. Growth and development.	6
III. Stages of human development.	8
IV. Heredity and Environment.	8
V. Physical basis of mental life.	5
VII. Mental health and hygiene.	5
VIII. Attention and Interest.	6
IX. Learning.	8
X. Memory and Forgetting.	8
XI. Habits.	5
XII. Intelligence.	6
XIII. Personality.	6
XIV. Individual differences.	7
XV. Measurement of central tendencies	4
Total	90
Part – B: Internal – Project Work	10
Grand Total	100

Unit I – Educational Psychology

8 marks /14 periods

- (a) Meaning.
- (b) Definitions.
- (c) Psychology – a developing positive science.
- (d) Branches of Psychology.
- (e) Utility of psychology in education.
- (f) Relationship between psychology and education.
- (g) Differences between psychology and education.

Unit II – Growth and development.

6 marks/10 periods

- (a) Meaning of Growth, Development and Maturation.
- (b) Characteristics and principles of growth and development.
- (c) Differences between growth and development.

Unit III – Stages of human development.

8 marks /15 periods

- (b) Introduction.
- (c) Classification of stages.
 - Infancy.
 - Childhood.
 - Adolescence
 - Physical, emotional, intellectual and social development in each stage.
- (d) Educational significance of each stage.

Unit IV – Heredity and Environment.

8 marks /15 periods

- (a) Introduction.
- (b) Meaning and definitions.
- (c) Classification of heredity.
 - Biological.
 - Mental.
 - Social.
- (e) Transmission of acquired traits.
- (f) Laws of heredity.
 - Like begets like.
 - Law of variation.
 - Law of regression.
- (g) Environment.
- (h) Classification of environment.
 - Physical.
 - Mental.
 - Social.
 - Culture.
- (i) Controversy between Heredity and Environment.
- (j) Synthesis between Heredity and Environment.
- (k) Educational Significance.

Unit V – Physical basis of mental life.

5marks/13 periods

- (a) Nervous system.
- (b) Central nervous system and peripheral nervous system.
- (c) Receptors.
- (d) Effectors.
- (e) Sensation.
- (f) Perception.
- (g) Conception.

Unit VI – Mental health and hygiene.

5 marks/8 periods

- (a) Meaning.
- (b) Characteristics.
- (c) Nature and scope.
- (d) Forms of maladjustment.
- (e) Factors of mental health in school.

Unit VII – Attention and Interest.

6 marks/12 periods

- (l) Attention.
 - Meaning and definition.
 - Nature of attention.
 - Conditions of attention.
 - Types of attention.
- (m) Interest.
 - Meaning and definition.
 - Characteristics of interest.
- (n) Relationship between attention and interest.

Unit VIII – Learning.

8 marks/15 periods

- (a) Meaning and definition.
- (b) Nature of learning.
- (c) Theories of learning.
- (d) Laws of learning.
- (e) Methods of learning.
- (f) Educational significance.

Unit IX – Memory and Forgetting.

8marks/15 periods

- (a) Definition.
- (b) Factors of memory.
- (c) Signs of good memory.
- (d) Improvement of memory.
- (e) Meaning of forgetting.
- (f) Causes of forgetting.

Unit X – Habits.

5 marks/7 periods

- (a) Introduction.
- (b) Nature of habits.
- (c) Advantages of habits formation.
- (d) Bad habits.
- (e) Breaking of bad habits.

Unit XI – Intelligence.

6 marks/12 periods

- (a) Meaning and definitions.
- (b) Characteristics.
- (c) Theories of intelligence.
 - Monarchic theory.
 - Anarchic theory.
 - Two factor theory.
- (d) Measurements of intelligence.
- (e) Classifications of intelligence tests
- (f) Concept of I.Q.

Unit XII – Personality.

6 marks/12 periods

- (a) Meaning and definitions
- (b) Nature and characteristics.
- (c) Types of personality.
 - Extrovert.
 - Introvert.
 - Ambiverts.
- (d) Methods of personality assessment:
 - Non – projective test.
 - Observation.
 - Situations.
 - Questionnaire.
 - Case study.
 - Interview.
 - Rating scale.

Unit XIII – Individual differences.

7 marks/10 periods

- (a) Meaning.
- (b) Areas of individual differences.
- (c) Causes of individual differences.
- (d) Educational significance.
- (b) Special children.
 - Differently abled.

Unit XIV – Measurement of central tendencies.

4marks/12 periods

- (a) Mean.
- (b) Median.
- (c) Mode.

Part-B: Internal – project work.

10 marks/10 Periods

Project work.

The students shall be required to undertake two projects. The projects would involve the use of different methods of inquiry and related skills, related to the topics covered in the course. Some of the topics are highlighted below:-

- Prepare a survey on the factors that affect personality development of a child.
- Make a sample survey of problems faced by adolescent students in your locality and suggest the measures to address the problems.
- Prepare a questionnaire to assess the personality of 10 children and classify it according to the personality classification.
- Observe an infant and write down the observation to support the characteristics of infancy period that you have studied.
- Which school of thought do you support, (Heredity or Environment)? Justify your answers with examples.
-

Note: - Subject teacher is free to give any other topic from the syllabus covered.

Teachers are advised to keep in mind the following marking pattern.

1. Cover - 1 mark.
 2. Introduction - 2 marks.
 3. Presentation - 5 marks.
 4. Conclusion - 2 marks.
- Total - 10 marks.

Prescribed textbook:

Education Class XII

– Frank Educational Aids Pvt. Ltd.

MUSIC

Objectives:

- This textbook takes the student a little deeper into the actual structure of music writing and music making. Further complexity of musical structure with regard to keys, rhythm and harmony are developed.
- The Alto Clef is introduced leading to an introduction to orchestration and transposition. The Tenor Clef also, which is used for writing music for instruments that required a lower register of pitch easing the necessity of using a lot of ledger lines. More complex harmonic and melodic structures are introduced with special emphasis given to chord progression and writing of the Bass line.
- New musical terms and symbols are added to the student's vocabulary of musical idioms. They are also introduced to the basic knowledge of various western classical instruments and their families eg. Strings, Brass, Wood winds etc. Modulation is introduced as this leads to greater interest and richer harmonies. New words symbols and words describing musical textures are introduced. Rudimentary Form is introduced.
- There is a new chapter on the basic History of classical music. Care has been taken to collate the theoretical information given to students with its practical applications.

DESIGN OF QUESTION PAPER MUSIC

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	12	12
2.	SA-I	2	10	20
3.	SA-II	4	5	20
4.	LA-I	6	3	18
Total			30	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	25	18
2.	Average	60	42
3.	Difficult	15	10

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected time for each question	Total expected time
1.	VSA	2 minutes	24 minutes
2.	SA - I	4 minutes	40 minutes
3.	SA - II	10 minutes	50 minutes
4.	LA - I	17 minutes	51 minutes
5.	Reading of question & Revision	-	15 minutes
Total time			180 minutes

Scheme of Options:

Questions of 4 & 6 marks will be general in option.

**CLASS – XI
MUSIC**



Unit-Wise weightage	Marks 100
Unit	Marks
Part – A Internal	
- Music Theory	70
Part – B: Internal (Practical)	30
Grand Total	100

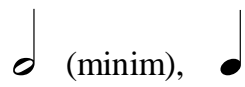

Part – A: Internal **Time : 3 hrs** **70 marks**

- Music Theory

1. Alto Clef.
2. New Time signatures.
3. Harmonic rhythm
4. Setting words to a rhythm
5. Enharmonic equivalents.
6. The chromatic scale.
7. The circle of 5ths, more new keys, Labelling scales, Working out the key of a piece.
8. Labelling inversions of tonic triads, Arpeggios, Broken chords, Subdominant triads, Chord progression.
9. Writing your own tunes to a given rhythm, Writing a bass line, Writing a tune,
10. Unaccented passing notes.
11. 4-part chords.
12. Plagal Cadences.
13. Intervals – augmented 4ths and diminished 5ths.
14. Transposing tunes up or down a perfect 4th or 5th
15. The dominant 7th chord.
16. Musical words and symbols.
17. Analysis

Part – B: Internal (Practical) **30 Marks**

- i. Identify a played scale as Major, Natural, Harmonic or Melodic minor or Chromatic. 6
- ii. Identify any one of given or played interval as: 3
 - i) a unison
 - ii) a major second
 - iii) a major third
 - iv) a perfect fourth
 - v) a perfect fifth
- iii. Identify Meters: duple (2/4), triple (3/4), quadruple (4/4), fast compound duple (6/8) 3
- iv. Sing the interval of either: Augmented 4th or Diminished 5th, Minor 6th or Augmented 5th from any given note. 6
- v. Sight-sing a simple melodic passage in 3/4 or 4/4 of 4 measures / 6
bars in length using  (semi-breve),  (dotted minim),

 (minim),  (crotchet) (only in the key of C major)

(2 marks each for pitch, time and rhythm)

- vi. Identify 3 cadences which will be played twice:
- a) Perfect cadence
 - b) Plagal cadence
 - c) Imperfect cadence
 - d) Interrupted cadence

6

Prescribed textbook:

A textbook of Music for Class XI – Publication of NBSE, Kohima.

**CLASS – XII
MUSIC**

Unit-Wise weightage	Time: 3 hrs	Marks: 70
Part – A: External		
Unit		Marks
I. Music Theory		60
II. History of Western Music		10
	Total	70
Part – B: Internal (Practical)		30
	Grand total	100

Part – A: External

1. Tenor Clef
2. Note values and rests
3. New Time signatures
4. Writing your own tunes to a given rhythm, setting words to a rhythm, writing a bass line, writing a tune.
5. Pentatonic major scales on C and G
6. The circle of 5ths, more about the new keys, G sharp minor and the double sharp.
7. Labelling scales, Arpeggios.
8. Working out the key of a piece.
9. Transposing tunes up or down.
10. Supertonic triads, Chord progression.
11. Accented passing notes and auxiliary notes.
12. Imperfect cadences.
13. Inverting Intervals.
14. 4-parts chords.
15. Modulation.
16. Analysis, including Musical words and symbols.
17. History of Western music

Part B: Internal (Practical)

I. Group:

30 Marks

1. Melodic Dictation- To write out a short melodic passage played in any major key (upto 4 sharp or 4 flats only). Length will be for 4 bars only and specified meter times are 4/4 and 3/4 only.

3

2. Identify Intervals- To identify the interval formed by any 2 notes played by the examiner: 3
- | | |
|------------------|-----------------|
| a unison | a perfect fifth |
| a minor second | a minor sixth |
| a major second | a major sixth |
| a minor third | a minor seventh |
| a major third | a major seventh |
| a perfect fourth | an octave |
3. Modulation – Listen to a passage played and state whether it modulates to the subdominant or the dominant key. 3
- The Examiner will state the starting Tonic key of the passage. The student can respond by using either terms – subdominant or specific key, dominant or specific key.
4. Musical period- To listen to a recording of any one of the musical periods studied in the course – Baroque, Classical and Romantic. 3
- After listening, the student will be required to state the musical period only.

II. Individual:

1. Rhythm Assessment- Tap a conduct a given passage (played) of any one hymn and of a short musical excerpt or piece. +3=6
- a) in 3/4 or 4/4 meter b) in 6/8 meter.
- The student will listen to the music for the first time and then respond by tapping or conducting along with the examiner during the second time.
After conducting or tapping, the student will be required to state the meter.
2. To listen to a passage in any major key and then state the cadence as Perfect/ Imperfect/ Plagal/ Interrupted. 3
3. To listen to a short passage and state whether it was in major or minor key. 3
4. To Sight-sing on 8 measure passage in 3+3= 6
- a) Soprano or Alto (female voice)
- b) Tenor or Bass (male voice)

Prescribed textbook:

**Music textbook XII – Publication of NBSE, Kohima.
(Theory & Practical)**

ECONOMICS

Rationale

Economics is one of the social sciences, which has greater influence on every human being, yet it has received little attention in the school curriculum in India. As economics life and the economy go through changes, the need to give education in children's own experience becomes essential. While doing so, it is to observe and understand the economics realities. Bringing in economics as an abstract knowledge at the early stages of school education would promote rote methods of learning the subject.

At higher secondary stage, the learners are in a position to understand abstract ideas, exercise the power of thinking and to develop their own perception. It is at this stage, the learners are exposed to the rigour of the discipline of economics in a systematic way.

The economics courses are introduced in such a way that in the initial stage, the learners are introduced to the economic realities that the nation is facing today along with some basic statistical tools to understand these broader economic realities. In the later stage, the learners are introduced to economics as a theory of abstraction.

The economic courses also contain many projects and activities. These will provide opportunities for the learner to explore various economic issues both from their day-to-day life and also from issues, which are broader and invisible in nature. The academic skills that they learn in these courses would help to develop the projects and activities. The syllabus is also expected to provide opportunities to use information and communication technologies to facilitate their learning process.

OBJECTIVES

- Understanding of some basic economic concepts and develop economic reasoning which the learners can apply in their day-to-day life as citizens, workers and consumers.
- Realisation of learner's role in nation building and sensitise them to the economic issues that the nation is facing today.
- To equip with basic tools of economics and statistics to analyse economic issues. This is pertinent for even those who may not pursue this course beyond higher secondary stage.
- To develop an understanding that there can be more than one view on any economic issues and to develop the skills to argue logically with reasoning.

DESIGN OF QUESTION PAPER ECONOMICS

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	10 – Part I – 6 Q Part II – 4 Q	10
2.	SA-I	2	5 – Part I – 3 Q Part II – 2 Q	10
3.	SA-II	4	6 – Part I – 3 Q Part II – 3 Q	24
4.	LA-I	6	5 – Part I – 3 Q Part II – 2 Q	30

5.	LA-II	8	2	16
Total			28	90

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	30	27
2.	Average	50	45
3.	Difficult	20	18

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl. no.	Forms of questions	Expected length	Expected time for each question	Total expected time
1.	VSA	One word/one sentence	1 minute	10 minutes
2.	SA-I	30-50 words	3 minutes	15 minutes
3.	SA-II	60-80 words	7 minutes	42 minutes
4.	LA-I	90-120 words	12 minutes	60 minutes
5.	LA-II	130-200 words	19 minutes	38 minutes
6.	Reading Q.paper & revision	-	-	15 minutes
			Total time	180 minutes

Scheme of options:

Questions of 6 & 8 marks will be general in option.

**CLASS-XI
ECONOMICS**

Unit-wise weightage

Part – A: External

Time: 3 Hrs.

Marks: 90

Units	Marks
PART I: MICRO ECONOMICS	
1. Introduction	7
2. Demand, Supply & Market Mechanism	15
3. Elasticity (Demand and Supply)	10
4. Behavior of Consumers & Producers.	8
5. Form of Market & Price Determination	10
PART II: STATISTICS FOR ECONOMICS	
1. Introduction	5
2. Collection, Presentation and Organisation of Data	10
3. Statistical Averages and Dispersion	15
4. Correlation, Index Numbers and Time series	10
Total	90
Part – B: Internal (Project on application of Statistic in Economics)	
	10
Grand Total	100

Part- 1 MICRO ECONOMICS

Unit 1: Introduction

7 marks/12 periods

- Definition of Economics, Positive & Normative Economics, Micro & Macro Economics, Factors of production- Land, Labour, Capital, Entrepreneur, Central problems of an economy: what, how and for whom to produce; concepts of production possibility frontier and opportunity cost, Difference between Accounting Cost & Opportunity Cost, Economics System – Basic Features.

Unit 2: Demand, Supply & Market Mechanism

15 marks/23 Periods

- Demand: Demand and its determinants, law of demand, Individual and Market Demand, Demand Schedule, Demand Curve, movement along and shift in the demand curve, Exception to Law of Demand.
- Supply – Supply and its Determinants, Law of Supply, Individual and Market supply, supply schedule, supply curve, movement along and shifts in supply curve, Exception to the law of Supply.
- Market Mechanism – Equilibrium and Disequilibrium, Shortage and Surplus, Application of Demand and Supply Analysis.

Unit 3: Elasticity

10 marks/20 Periods

- (a) Price Elasticity of Demand.
 - (b) Income Elasticity of Demand.
 - (c) Cross Elasticity of Demand.
- * (Definitions only)**

Factors Affecting the Elasticity of Demand.

Methods of Calculating Price Elasticity-

1. Percentage Method
2. Geometric Method
3. Total Expenditure Method.

Simple Numerical Problems on Each Method.

Elasticity of Supply –Measurement of Elasticity of Supply.

1. Percent change Method.
2. Geometric Method

Unit 4. Behavior of Consumers & Producers.

8 marks /15 Periods

- **Consumers Behavior** – Meaning of Utility, Total Utility, marginal Utility, Law of Diminishing Marginal Utility, Consumer's Equilibrium.
- **Cost** – Concepts and Relationship Between Short Run and Long Run Costs (all cost total cost, total fixed cost, total variable cost; Average fixed cost, average variable cost and marginal cost)
- **Revenue** – Total revenue Average Revenue Marginal Revenue Producer's Equilibrium-meaning and its conditions – under (a) Total Revenue – Total Cost Approach and (b) Marginal Revenue- Marginal Cost Approach.

Unit 5. Form of Market and Price Determination.

10 marks/10 Periods

Forms of Market – Perfect Competition, Monopoly, Monopolistic Competition, Oligopoly and Monophony – their meaning and basic features.

Price determination under perfect competition.

Part-II STATISTICS FOR ECONOMICS

Unit 1: Introduction

5 marks/7 Periods

Meaning, Scope, Importance and limitations of Statistics with special reference to Economics.

Unit 2: Collection, Presentation and Organisation of Data

10 marks /20 Periods

Collection of Data – Source of Data – Primary and Secondary, Method of Collecting Data. Some Important Source of Secondary Data, Organisation of Data - Meaning and Types of Variables, Frequency, Presentation of data – Tabulation, Diagrammatic presentation (bar diagrams, pie-diagrams, line graphs, histograms, polygon and Ogive Curves).

Unit 3: Statistical Averages and Dispersion.

15 marks/30 Periods

Mean, Mode, Median and Quartiles.

Dispersion- Measures of Dispersion (range, quartile deviation, mean deviation, standard deviation) and co-efficient of variation.

Unit 4: Correlation and Index Numbers and Time Series

10 marks/23 Periods

Meaning and significant, Scatter diagram, Measures of correlation – Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation.

Introduction to index numbers, meaning Laspeyre's & Paasche's & Fisher's index – Wholesale price index, Consumer Price Index and Index of Industrial Production, uses of index numbers.

Time Series: meaning, Importance of time series Analysis, Components of time series.

Part – B: Internal – Project Work (any one)

10 marks/10 Periods

(The list of Project is only Exemplary & not exhaustive)

- (i) Consumer Awareness amongst households through collection of Primary Data by designing a questionnaire.
- (ii) Productivity Awareness amongst enterprises through uses of statistical data from statistical tables from Newspaper/RBI Bulletin/Budget/Census Reports/Economic Survey, etc.
- (iii) Demand, Supply and Market Equilibrium: Each student shall choose any vegetable of her choice. Interview three consumers to find out what their demand would be at 5 different price levels of the commodity. Interview 3 vegetable vendors to find out what they would supply at each of the same 5 price levels.

Based on the data collected, a student will:

- a. Construct individual and market demand and supply schedules
- b. Determine if there is an equilibrium price that will prevail in the market explain how the market will react if the price is above and below the determined equilibrium price.

The results of project should highlight

- Understanding of the concepts of demand, supply and equilibrium price.
- Construction of an individual and market demands and supply schedules.
- Understanding of how equilibrium price is determined in the market.

- (iv) Producer's equilibrium:

Visit a local shop/industry/school/restaurant and understand its production process. Interview the owner to understand what the accountancy profit is for the production unit.

Your discussion should also be able to detail:

- a. The fixed and variable factors and their associated costs.
- b. The normal profit of the production unit.
- c. Are there and implicit costs.

The conclusion should show:

- Understanding of a production process.
 - Reorganization of fixed and variables factors in a production process.
 - Association of fixed and variables costs of production.
 - Determination of revenue of production unit.
- (v) Role of PDS in assuring supply of necessities in rural areas.
=>Students will visit the local ration shop to collect information on
- a) Number of consumers
 - b) Availability/Shortage of necessary goods.

Note: The Project work is compulsory and has to be done by all students. The minimum pass criteria for the project work shall be 3 (three) marks out of 10 (ten) marks.

No question paper for project work will be set by the Board. It is purely internal and the institution must include the project work marks with the theory marks.

Prescribed textbook:

Economics for Class XI – Geeta Publishing House

**CLASS XII
ECONOMICS**

Unit-wise weightage

Time 3 Hrs

90 Marks

Units	Periods	Marks
PART I: Macro Economics		
1. Introduction	10	5
2. National Income and related Aggregates: Basic Concepts and Measurements	25	16
3. Theory of income and Employment	22	14
4. Money and Banking	16	7
5. Monetary Policy, Fiscal Policy and Government Budget.	17	8
Total	90	50

PART II: Indian Economic Development

1. Introduction	10	5
2. Structural Changes in the Indian Economy After liberalization	16	8
3. Current challenges Facing Indian Economy	24	12
4. Planning and Economic Development in India	14	7
5. Economic Growth and Development	16	8
6. Project Work	10	10
Total	90	50

Part- I MACRO ECONOMIC

Unit 1: Introduction

10 Periods/5 marks

Macroeconomics: Its meaning and scope viz Central Problems: - Growth, Inflation, Employment. Some basic concepts of macroeconomics: Business Cycle, Aggregate Demand, Aggregate Supply, Consumption goods, Capital Goods, Final Goods, Intermediate Goods; Stock and Flows; Gross Investment and Depreciation.

Unit 2: National Income and related Aggregates: Basic Concepts and Measurement.

25 periods/16 marks

Circular flow of income; Methods of calculating National Income – Value Added or Product method, Expenditure method, Income method.

Concepts and aggregates related to National Income: Gross National Product (GNP), Net National Product (NNP), Gross and Net Domestic Product (GDP and NDP) – at market

price, at factor cost; National Disposal Income (gross and net), Personal Income and Personal Disposable Income; Real and Nominal GDP. GDP and Welfare.
Simple Numerical Examples.

Unit 3: Theory of Income and Employment **22 Periods/14 marks**

Aggregate demand and its components. Consumption Function and Investment Function, Propensity to consume and propensity to save, equilibrium output, Types of unemployment.

Unit 4: Money and Banking **16 Periods/7 marks**

Money – Meaning, Functions and types. Supply of money – Currency held by the public and net demand deposits held by commercial banks – Definition and Functions, Money and Credit Creation by Commercial banks. Central Bank – Meaning and Functions.

Unit 5: Monetary Policy, Fiscal Policy and Government Budget. **17 Periods/8 marks**

Monetary policy – Meaning types and tools.

Fiscal policy – Meaning types and tools.

Government budget – meaning, objectives, components and types. Classification of receipts – revenue receipt and capital receipt; classification of expenditure – revenue expenditure and capital expenditure. Various measures of government deficit – revenue deficit, fiscal deficit, primary deficit: their meaning and implications.

Part-II INDIAN ECONOMIC DEVELOPMENT

Unit 1: Introduction **10 Periods/5 marks**

- Parameters of Development – Per capita Income, Human Development in India.
- A brief introduction of the state of the Indian Economy on the eve of Independence. Main features, problems and policies of agriculture and Foreign Trade.

Unit 2: Structural Changes in Indian Economic after liberalization **16 Periods/8marks**

- Meaning, Need, Significant, and Features of Liberalization, Globalization, Disinvestment and Privatization. Present Features of Indian Economy.

Unit 3: Current challenges Facing Indian economy **24 Periods/12 marks**

- Poverty – absolute and relative; Main programmes for poverty alleviation: A critical assessment; Rural development: Key issues – credit and marketing – role of cooperatives; agricultural diversification; alternate farming- organic farming.
- Human Capital Formation: How people become resource; Role of human capital in economic development; Growth of Education Sector in India. Informal Economy Employment: Problems and Policies.
- Sustainable Economic Growth: Meaning, Effects of Economic Development on Resources and Environment.

Unit 4: Planning and Economic Development in India **14 Periods/7 marks**

- Objectives, Targets, Achievements and Drawbacks of different Five Year Plans in India (A brief account).

Unit 5: Economic Growth and Development.

16 Periods/8 marks

- Economic Growth and Development – Meaning and Difference, Comparative Study of India and China on the Following Indicators: i) unemployment ii) GDP growth, iii) GDP per capita, iv) GDP purchasing power parity, v) amount in direct foreign investment, vi) inflation, vii) poverty.

Unit 6: Project Work (any one)

10 Periods/10 marks

Macro Economics

- 1) Effect of changing rate on interest on automobiles sale.
- 2) Collect logos of 10 nationalized commercial Bank also collect data on rates of interest (last 1year) (CRR, SLR)
- 3) Information and pictures projecting evolution of money.
- 4) **Economic Growth and Development**
Identify any two indicators of economic growth and three indicators of economic development.
Collect data on these indicators for the last 5 years for atleast 4 countries- of which two are developing and 2 are developed.
Analyze the data that is collected to see the differences between economic growth and economic development.
- 5) **Globalization**
Divide the class into suitable groups. Each group shall make a wall magazines or collage that will critically analyse the impact of globalization and their family lives.
- 6) **Unemployment & Poverty.**
Conduct a comparative study of any 2 localities and present the data by questionnaire or interview method. To find out type of unemployment that exist, how it leads to poverty.

Note: The Project work is compulsory and has to be done by all students. The minimum pass criteria for the project work shall be 3 (three) marks out of 10 (ten) marks.

No question paper for project work will be set by the Board. It is purely internal and the institution must ensure that the project works specified in the syllabus are done. The marks of the project work must be sent to the Board in the prescribed/pre-printed form which will be supplied by the Board.

Prescribed book:

Economics for class XII - Geeta Publishing House

PHYSICS

OBJECTIVES:

Emphasis on the basic conceptual understanding of the content.

- Emphasis on use of SI units, symbols, nomenclature of physical quantities and formulations as per international standards.
- Providing logical sequencing of units of the subject matter and proper placement of concepts with their linkage for better learning.
- Reducing the curriculum load by eliminating overlapping of concepts/content within the discipline and other disciplines.
- Promotion of process-skills, problem-solving abilities and applications of Physics concepts.
- Strengthen the concepts developed at the secondary stage to provide firm foundation for further learning in the subject.
- Expose the learners to different processes used in Physics-related industrial and technological applications.
- Develop process-skills and experimental, observational, manipulative, decision making and investigatory skills in the learners.
- Promote problem solving abilities and creative thinking in learners.
- Develop conceptual competence in the learners and make them realize and appreciate the interface of Physics with other disciplines.

DESIGN OF QUESTION PAPER PHYSICS

Weightage to different forms of questions:

Sl. no.	Forms of Questions	Marks for each question	No. of questions	Total marks
1.	MCQ	1	5	5
2.	VSA	1	5	5
3.	SA- I	2	6	12
4.	SA- II	3	11	33
5.	LA	5	3	15
Total			30	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	15	11
2.	Average	70	49
3.	Difficult	15	10

The expected time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected time for each question	Total expected time
1.	MCQ	-	3 minutes
2.	VSA	1 minute	5 minutes
3.	SA- I	4 minutes	24 minutes
4.	SA- II	8 minutes	88 minutes
5.	LA	15 minutes	45 minutes
6.	Reading Q.paper & Revision	15 minutes	15 minutes

		Total time	180 minutes
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Scheme of Options :

1. There will be no overall options.
2. Internal choice (parallel question) shall be provided in :
 - i. any 3(three) questions in 2 marks
 - ii. any 4(four) questions in 3 marks
 - iii. 3(three) questions in 5 marks
3. Weightage of about 10 marks shall be given for numerical problems.

**CLASS - XI
PHYSICS (Theory)**

Unit-wise weightage

Theory Paper	Time: 3 Hrs.	Marks: 70
Unit		Marks
I. Physical World & Measurement		04
II. Kinematics		10
III. Laws of Motion		08
IV. Work, Energy & Power		06
V. Motion of System of Particles & Rigid Body		06
VI. Gravitation		06
VII. Properties of Bulk Matter		10
VIII. Thermodynamics		05
IX. Behaviour of Perfect Gas & Kinetic Theory of Gases		05
X. Oscillations & Waves		10
Total		70

Part – A: External

Unit-I: Physical World and Measurement

4 marks/10 periods

Physics : scope and excitement; nature of physical laws; Physics, technology and society.

Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures.

Dimensions of physical quantities, dimensional analysis and its applications.

Unit II: Kinematics

10 marks/30 periods

Frame of reference, Motion in a straight line: Position-time graph, speed and velocity. Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity-time and position-time graphs, relations for uniformly accelerated motion (graphical treatment).

Elementary concepts of differentiation and integration for describing motion. *Scalar and vector quantities*: Position and displacement vectors, general vectors and notation, equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors. Relative velocity.

Unit vector. Resolution of a vector in a plane – rectangular components.

Scalar and Vector products of Vectors. Motion in a plane. Cases of uniform velocity and uniform acceleration-projectile motion. Uniform circular motion.

Unit III: Laws of Motion

8 marks/16 periods

Intuitive concept of force. Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications.

Equilibrium of concurrent forces. Static and kinetic friction, laws of friction, rolling friction, lubrication.

Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on level circular road, vehicle on banked road).

Unit IV : Work, Energy and Power

6 marks/16 periods

Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power.

Notion of potential energy, potential energy of a spring, conservative forces: conservation of mechanical energy (kinetic and potential energies); non-conservative forces; motion in a vertical circle, elastic and inelastic collisions in one and two dimensions.

Unit V : Motion of System of Particles and Rigid Body

6 marks/18 periods

Centre of mass of a two-particle system, momentum conservation and center of mass motion. Centre of mass of rigid body; Centre of mass of uniform rod.

Moment of a force, torque, angular momentum, conservation of angular momentum with some examples.

Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions; moment of inertia, radius of gyration. Values of M.I. for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their applications.

Unit VI: Gravitation

6 marks/14 periods

Kepler's laws of planetary motion. The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth.

Gravitational potential energy; gravitational potential. Escape velocity, Orbital velocity of a satellite. Geo-stationary satellites.

Unit VII: Properties of Bulk Matter

10 marks/28 periods

Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear, modulus of rigidity. Poisson's ratio; elastic energy.

Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes). Effect of gravity on fluid pressure.

Viscosity, Stokes' law, terminal velocity, Reynold's number, streamline and turbulent flow. Critical velocity, Bernoulli's theorem and its applications.

Surface energy and surface tension, angle of contact, excess of pressure, application of surface tension ideas to drops, bubbles and capillary rise.

Heat, temperature, thermal expansion; thermal expansion of solids, liquids, and gases. Anomalous expansion. Specific heat capacity: C_p , C_v - calorimetry; change of state – latent heat.

Heat transfer-conduction and thermal conductivity, convection and radiation, Qualitative ideas of Black body Radiation, Wein's displacement law and Green House Effect.

Newton's law of cooling and Stefan's Law.

Unit VIII: Thermodynamics**5 marks/12 periods**

Thermal equilibrium and definition of temperature (zeroth law of thermodynamics). Heat, work and internal energy. First law of thermodynamics. Isothermal and adiabatic process.

Second law of thermodynamics: reversible and irreversible processes. Heat engines and refrigerators.

Unit IX: Behaviour of Perfect Gas and Kinetic Theory**5 marks/8 periods**

Equation of state of a perfect gas, work done on compressing a gas.

Kinetic theory of gases : Assumptions, concept of pressure. Kinetic energy and temperature; rms speed of gas molecules; degrees of freedom, law of equipartition of energy (statement only) and application of specific heat capacities of gases; concept of mean free path, Avogadro's number.

Unit X: Oscillations and Waves**10 marks/28 periods**

Periodic motion – period, frequency, displacement as a function of time. Periodic functions. Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a spring – restoring force and force constant; energy in S.H.M. – kinetic and potential energies; simple pendulum – derivation of expression for its time period; free, forced and damped oscillations (qualitative ideas only), resonance.

Wave motion. Longitudinal and transverse waves, speed of wave motion. Displacement relation for a progressive wave. Principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect.

Part – B: Internal (Practical)**Section A****Experiments**

1. To measure diameter of a small spherical/cylindrical body using Vernier calipers.
2. to measure internal diameter and depth of a given beaker/calorimeter using Vernier calipers and hence find its volume.
3. To measure diameter of a given wire, using screw gauge.
4. To measure thickness of a given sheet using screw gauge.
5. To measure volume of an irregular lamina using screw gauge.
6. To determine radius of curvature of a given spherical surface by a spherometer.
7. To determine the mass of two different objects using a beam balance.
8. To find the weight of a given body using parallelogram law of vectors.
9. Using a simple pendulum, plot L-T and L-T² graphs. Hence find the effective length of second's pendulum using appropriate graph.
10. To study the relationship between force of limiting friction and normal reaction and to find co-efficient of friction between a block and a horizontal surface.
11. To find the downward force, along an inclined plane, acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination (θ) by plotting graph between force and $\sin \theta$.

Activities

1. To make a paper scale of given least count, e.g. 0.2cm, 0.5cm.

2. To determine mass of a given body using a metre scale by principle of moments.
3. To plot a graph for a given set of data, with proper choice of scales and error bars.
4. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
5. To study the variation in range of a jet of water with angle of projection.
6. To study the conservation of energy of a ball rolling down on inclined plane (using a double inclined plane).
7. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

Section B

Experiments

1. To determine Young's modulus of elasticity of the material of a given wire.
2. To find the force constant of a helical spring by plotting graph between load and extension.
3. To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V, and between P and I/V.
4. To determine the surface tension of water by capillary rise method.
5. To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body.
6. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.
7. To determine specific heat capacity of a given (i) solid (ii) liquid, by method of mixtures.
8. (i) To study the relation between frequency and length of a given wire under constant tension using sonometer.
(ii) To study the relation between the length of a given wire and tension for constant frequency using sonometer.
9. To find the speed of sound in air at room temperature using a resonance tube by two-resonance positions.

Activities

1. To observe change of state and plot a cooling curve for molten wax.
2. To observe and explain the effect of heating on a bi-metallic strip.
3. To note the change in level of liquid in a container on heating and interpret the observations.
4. To study the effect of detergent on surface tension by observing capillary rise.
5. To study the factors affecting the rate of loss of heat of a liquid.
6. To study the effect of load on depression of a suitably clamped metre scale loaded (i) at its end (ii) in the middle.

Evaluation Scheme for Practical Examination:

1. One experiment from each section.	6+6=12 marks
2. One activity from any section.	4 marks
3. Practical record (experiments & activities).	6 marks
4. Record of demonstration experiments & viva based on these experiment.	3 marks
5. Viva on experiment & activities.	5 marks
Total	30 marks

1. Prescribed textbook:

Physics Class XI

- *NCERT Textbook (Nagaland Edition)*

Printed & distributed by Goyal Brothers Prakashan

2. Reference book:

*Modern abc of Physics
by Satish K. Gupta*

- *Modern Publishers*

*MBD House, Railway Road
Jalandhar City*

3. Laboratory Manual Book:

CLASS - XII
PHYSICS (Theory)

Unit-wise weightage

Theory Paper

Time: 3 Hrs.

Marks: 70

Unit	Marks
I. Electrostatics	08
II. Current Electricity	08
III. Magnetic effect of current & Magnetism	08
IV. Electromagnetic Induction and Alternating current	08
V. Electromagnetic Waves	03
VI. Optics	12
VII. Dual nature of Matter	04
VIII. Atoms and Nuclei	07
IX. Electronic Devices	07
X. Communication Systems	05
Total	70

Part – A: External

Unit I : Electrostatics

25 periods/8 marks

Electric Charges and their conservation, Coulomb's law –force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution.

Electric field, electric field due to a point charge, electric field lines; electric dipole, electric field due to a dipole; torque on a dipole in uniform electric field.

Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).

Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field.

Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor. Van de Graff generator.

Unit II : Current Electricity

22 periods/8 marks

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility, and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity.

Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance.

Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel.

Kirchhoff's laws and simple applications. Wheatstone bridge, metre bridge.

Potentiometer – principle and its applications to measure potential difference, and for comparing emf of two cells; measurement of internal resistance of a cell.

Unit III : Magnetic Effects of Current and Magnetism

25 periods/8 marks

Concept of magnetic field, Oersted's experiment. Biot – Savart law and its application to current carrying circular loop.

Ampere's law and its applications to infinitely long straight wire, straight and toroidal solenoids. Force on a moving charge in uniform magnetic and electric field. Cyclotron.

Force on a current-carrying conductor in a uniform magnetic field. Force between two parallel current-carrying conductors-definition of ampere. Torque experienced by a current loop in uniform magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Current loop as a magnetic dipole and its magnetic dipole moment. Magnetic dipole moment of a revolving electron. Magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. Torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines; Earth's magnetic field and magnetic elements.

Para, dia and ferro – magnetic substances, with examples.

Electromagnets and factors affecting their strengths. Permanent magnets.

Unit IV: Electromagnetic Induction and Alternating Currents

19 periods/8 marks

Electromagnetic induction; Faraday's law, induced emf and current; Lenz's law, Eddy currents. Self and mutual inductance.

Alternating currents, peak and rms value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, wattless current.

AC generator and transformer.

Unit V : Electromagnetic waves

5 periods/3 marks

Need for displacement current.

Electromagnetic waves and their characteristics (qualitative ideas only). Transverse nature of electromagnetic waves.

Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

Unit VI : Optics

30 periods/12 marks

Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lens-maker's formula. Magnification, power of a lens, combination of thin lenses in contact, combination of a lens and a mirror. Refraction and dispersion of light through a prism.

Scattering of light – blue colour of the sky and reddish appearance of the sun at sunrise and sunset.

Optical instruments: Human eye, image formation and accommodation, correction of eye defects (myopia, hypermetropia)

Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

Wave optics: wave front and Huygens' principle, reflection and refraction of plane wave at a plane surface using wave fronts.

Proof of laws of reflection and refraction using Huygens' principle.

Interference, Young's double hole experiment and expression for fringe width coherent sources and sustained interference of light.

Diffraction due to single slit, width of central maximum.

Resolving power of microscopes and astronomical telescopes. Polarisation, plane polarized light; Brewster's law, uses of plane polarized light and Polaroids.

Unit VII : Dual Nature of Matter and Radiation **8 periods/4 marks**

Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light.

Matter waves-wave nature of particles, de Broglie relation. Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained.)

Unit VIII : Atoms & Nuclei **18 periods/7 marks**

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum. Composition and size of nucleus, atomic masses, isotopes, isobars; isotones.

Radioactivity-alpha, beta and gamma particles/rays and their properties; radioactive decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission and fusion.

Unit IX : Electronic Devices **18 periods/7 marks**

Energy bands in solids (qualitative ideas only), conductors, insulators and semiconductors; semiconductor diode – I-V characteristics in forward and reverse bias, diode as a rectifier; I-V characteristics of LED, photodiode, solar cell, and Zener diode; Zener diode as a voltage regulator. Junction transistor, transistor action, characteristics of a transistor; transistor as an amplifier (common emitter configuration) and oscillator. Logic gates (OR, AND, NOT, NAND and NOR). Transistor as a switch.

Unit X : Communication Systems **10 periods/5 marks**

Elements of a communication system (block diagram only); bandwidth of signals (speech, TV and digital data); bandwidth of transmission medium. Propagation of electromagnetic waves in the atmosphere, sky and space wave propagation. Need for modulation. Production and detection of an amplitude-modulated wave.

Part –B: Internal (Practical)

Section A

Experiments

1. To find resistance of a given wire using metre bridge and hence determine the specific resistance of its material.
2. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
3. To verify the laws of combination (series/parallel) of resistance using a metre bridge.
4. To compare the emf of two given primary cells using potentiometer.
5. To determine the internal resistance of given primary cell using potentiometer.
6. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
7. To convert the given galvanometer (of known resistance and figure of merit) into an ammeter and voltmeter of desired range and to verify the same.

8. To find the frequency of the a.c. mains with a sonometer.

Activities

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To assemble the components of a given electrical circuit.
5. To study the variation in potential drop with length of a wire for a steady current.
6. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

Section B

Experiments

1. To find the value of v for different values of u in case of a concave mirror and to find the focal length.
2. To find the focal length of a convex lens, using a convex lens.
3. To find the focal length of a convex lens by plotting graphs between u and v or between $\frac{1}{u}$ and $\frac{1}{v}$.
4. To find the focal length of a concave lens, using a convex lens.
5. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
6. To determine refractive index of a glass slab using a traveling microscope.
7. To find refractive index of a liquid by using (i) concave mirror, (ii) convex lens and plane mirror.
8. To draw the I-V characteristic curve of a p-n junction in forward bias and reverse bias.
9. To draw the characteristic curve of a zener diode and to determine its reverse break down voltage.
10. To study the characteristics of a common – emitter npn or pnp transistor and to find out the values of current and voltage gains.

Activities

1. To identify a diode, an LED, a transistor, an IC, a resistor and a capacitor from mixed collection of such items.
1. Use of multimeter to (i) identify base of transistor, (ii) distinguish between npn and pnp type transistors, (iii) see the unidirectional flow of current in case of a diode and an LED, (iv) check whether a given electronic component (e.g. diode, transistor or IC) is in working order.
2. To study effect of intensity of light (by varying distance of the source) on an LDR.
3. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
4. To observe polarization of light using two Polaroids.
5. To observe diffraction of light due to a thin slit.
6. To study the nature and size of the image formed by (i) convex lens (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).

7. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

Evaluation Scheme

Every student will perform minimum 12 experiment (6 from each section) & 8 activities (4 from each section) during the academic year. Two demonstration experiments must be performed by the teacher with participation of students. The students will maintain a record of these demonstration experiments.

Evaluation Scheme for Practical Examination:

1. One experiment from each section.	6+6=12 marks
2. One activity from any section.	4 marks
3. Practical record (experiments & activities).	6 marks
4. Record of demonstration experiments & viva based on these experiment.	3 marks
5. Viva on experiment & activities.	5 marks
Total	30 marks

1. Prescribed textbook:

Physics Class XII - *NCERT Textbook (Nagaland Edition)*
Printed & distributed by Goyal Brothers Prakashan

2. Reference book:

Modern abc of Physics - *Modern Publishers*
Class XII *MBD House, Railway Road*
By Prof. B. K. Sharma *Jalandhar City*

3. Laboratory Manual Book:

PHYSICS Class XII - *Academic Publishers*
Kohima, Nagaland

CHEMISTRY

Objectives:

The broad objectives of teaching chemistry at Higher Secondary stage are to help the learners:

- To promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.
- To develop an interest in students to study chemistry as discipline.
- To strengthen the concepts developed at the secondary stage and to provide firm; foundation for further learning of chemistry at tertiary level more effectively.
- To make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.
- To develop positive scientific attitude and to appreciate contribution of chemistry towards the improvement of quality of human life.
- To expose the students to various emerging new areas of chemistry, and to different processes used in industries and their technological applications.
- To equip students to face various changes related to health, nutrition, environment, population, weather, industries and agriculture.
- To develop problem solving skills and nature curiosity, aesthetic sense and creativity.
- To inculcate values of honesty, integrity, concern for life and preservation of the environment.
- To make the learner realize the interface of chemistry with other discipline of science such as Physics, Biology, Geology, Geography etc.
- To acquaint students with different aspects of chemistry used in daily life.

DESIGN OF QUESTION PAPER

CHEMISTRY

Weightage to different forms of questions:

Sl. no.	Forms of Questions	Marks for each question	No. of questions	Total marks
1.	MCQ	1	5	5
2.	VSA	1	5	5
3.	SA- I	2	6	12
4.	SA- II	3	11	33
5.	LA	5	3	15
	Total		30	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	15	11
2.	Average	70	49
3.	Difficult	15	10

The expected time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected time for each question	Total expected time
1.	MCQ	-	3 minutes
2.	VSA	1 minute	5 minutes
3.	SA- I	4 minutes	24 minutes
4.	SA- II	8 minutes	88 minutes

5.	LA	15 minutes	45 minutes
6.	Reading Q.paper & Revision	15 minutes	15 minutes
		Total time	180 minutes

Scheme of options:

- There will be no overall option.
- Internal choice (parallel question) shall be provided in :
 - any 3(three) questions in 2 marks
 - any 4(four) questions in 3 marks
 - 3(three) questions in 5 marks
- Weightage of about 10 marks shall be assigned to numerical problems.

CLASS - XI
CHEMISTRY (Theory)

Unit-wise weightage

Theory Paper		Time: 3 Hrs.	Marks: 70
Unit			Marks
I.	Some Basic Concepts of Chemistry		3
II.	Structure of Atom		6
III.	Classification of Elements and Periodicity in Properties		4
IV.	Chemical Bonding and Molecular Structure		6
V.	States of Matter: Gases and Liquids		4
VI.	Thermodynamics		6
VII.	Equilibrium		6
VIII.	Redox Reactions		3
IX.	Hydrogen		3
X.	s-Block Elements		5
XI.	Some p-Block Elements		6
XII.	Organic Chemistry: Some Basic Principles & Techniques		7
XIII.	Hydrocarbons		8
XIV.	Environmental Chemistry		3
Total			70

Part – A: External

Unit I: Some Basic Concepts of Chemistry **3 marks/14 periods**

General Introduction: Importance and scope of chemistry.

Historical approach to particulate nature of matter, laws of chemical combination.
Dalton's atomic theory: concepts of elements, atoms and molecules.

Atomic and molecular masses. Mole concept and molar mass: percentage composition, empirical and molecular formula; chemical reactions, stoichiometry and calculations based on stoichiometry.

Unit II: Structure of Atom **6 marks/16 periods**

Discovery of electron, proton and neutron; atomic number, isotopes and isobars. Thompson's model and its limitations, Rutherford's model and its limitations. Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p, and d orbitals, rules for filling electrons in orbitals-Aufbau's principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

- Unit III: Classification of Elements and Periodicity in Properties** **4 marks/8 periods**
 Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements-atomic radii, ionic radii, inert gas radii ionization enthalpy, electron gain enthalpy, electro negativity, valence. Nomenclature of elements with atomic number greater than 100.
- Unit IV: Chemical Bonding and Molecular Structure** **6 marks/16 periods**
 Valence electrons, ionic bond, covalent bond: bond parameters. Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving *s*, *p* and *d* orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), Hydrogen bond.
- Unit V: States of Matter: Gases and Liquids** **4 marks/12 periods**
 Three states of matter. Intermolecular interactions, type of bonding, melting and boiling points. Role of gas laws in elucidating the concept of the molecule, Boyle's law, Charle's law, Gay Lussac's law, Avogadro's law. Ideal behaviour, empirical derivation of gas equation, Avogadro's number. Ideal gas equation. Kinetic energy and molecular speeds (elementary idea). derivation from ideal behaviour, liquefaction of gases, critical temperature.
 Liquid State-Vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations).
- Unit VI: Thermodynamics** **6 marks/18 periods**
 Concepts of system, types of systems, surroundings. Work, heat, energy, extensive and intensive properties, state functions.
 First law of thermodynamics-internal energy and enthalpy, heat capacity and specific heat, measurement of (ΔU) and (ΔH), Hess's law of constant heat summation, enthalpy of: bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution.
 Introduction of entropy as a state function, Second law of thermodynamics. Gibbs energy change for spontaneous and non-spontaneous process, criteria for equilibrium.
 Third law of thermodynamics – Brief introduction.
- Unit VII: Equilibrium** **6 marks/20 periods**
 Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium-Le Chatelier's principle; ionic equilibrium-ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of polybasic acids, acid strength, concept of pH, Hydrolysis of salts (elementary idea). Buffer solutions, Henderson Equation, solubility product, common ion effect (with illustrative examples).
- Unit VIII: Redox Reactions** **3 marks/6 periods**
 Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions in terms of loss and gain of electron and change in oxidations numbers, applications of redox reactions.
- Unit IX: Hydrogen** **3 marks/8 periods**
 Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen; hydrides-ionic, covalent and interstitial; physical and chemical

properties of water, heavy water; hydrogen peroxide-preparation, properties, use and structure; hydrogen as a fuel.

Unit X: s-Block Elements (Alkali and Alkaline earth metals) 5 marks/12 periods

Group 1 and Group 2 elements:

General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens; uses.

Preparation and properties of some important compounds:

Sodium carbonate, sodium chloride, sodium hydroxide and sodium hydrogen carbonate, biological importance of sodium and potassium.

CaO, CaCO₃ and industrial use of lime and limestone, biological importance of Mg and Ca.

Unit XI: Some p-Block Elements. 6 marks/16 periods

General Introduction to p-Block Elements.

Group 13 elements: General introduction, electronic configuration, occurrence. Variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group; Boron-physical and chemical properties, some important compounds: borax, boric acids, boron hydrides. Aluminium: uses, reactions with acids and alkalis.

Group 14 elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first element, Carbon-catenation, allotropic forms, physical and chemical properties; uses of some important compounds: oxides.

Important compounds of silicon and a few uses: silicon tetrachloride, silicones, silicates and zeolites, their uses.

Unit XII: Organic Chemistry-Some Basic Principles and Techniques. 7 marks/14 periods

General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds.

Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation.

Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions; electrophiles and nucleophiles, types of organic reactions.

Unit XIII: Hydrocarbons 8 marks/16 periods

Classification of hydrocarbons

Aliphatic Hydrocarbons:

Alkanes–Nomenclature, isomerism, conformations (ethane only), Physical properties, chemical reactions including free radical, mechanism of halogenation, combustion and pyrolysis.

Alkenes–Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation; chemical reactions: addition of hydrogen,

halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.

Alkynes–Nomenclature, structure of triple bond (ethyne), physical properties. Methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of hydrogen, halogens, hydrogen halides and water.

Aromatic hydrocarbons: Introduction, IUPAC nomenclature; Benzene: resonance aromaticity; chemical properties: mechanism of electrophilic substitution – nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation; directive influence of functional group in mono-substituted benzene; carcinogenicity and toxicity.

Unit XIV: Environmental Chemistry

3 marks/4 periods

Environmental pollutant-air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants; acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming-pollution due to industrial wastes; green chemistry as an alternative tool for reducing pollution, strategy for control of environmental pollution.

Part – B: Internal (Practical)

Micro-chemical methods are available for several of the practical experiments. Whenever possible such techniques should be used.

A. Basic Laboratory Techniques

1. Cutting glass tube and glass rod
2. Bending a glass tube
3. Drawing out a glass jet
4. Boring a cork

B. Characterization and Purification of chemical substance.

1. Determination of melting point of an organic compound.
2. Determination of boiling point of an organic compound.
3. Crystallization involving impure sample of any one of the following:
Alum, copper sulphate, Benzoic acid.

C. Experiments related to pH change

- (a) Any one of the following experiments:
- i. Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator.
 - ii. Comparing the pH of solutions of strong and weak acid of same concentration.
 - iii. Study the pH change in the titration of a strong acid with a strong base using universal indicator.
- (b) Study of pH change by common-ion effect in case of weak acids and weak bases.

D. Chemical Equilibrium

One of the following experiments:

- (a) Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing/decreasing the concentration of either of the ions.

- (b) Study the shift in equilibrium between $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ and chloride ions by changing the concentration of either of the ions.

E. Quantitative Estimation

- Using a chemical balance
- Preparation of standard solution of oxalic acid.
- Determination of strength of a given solution of sodium hydroxide by titrating it against standard solution of oxalic acid.
- Preparation of standard solution of sodium carbonate.
- Determination of strength of a given solution of hydrochloric acid by titrating it against standard sodium carbonate solution.

F. Qualitative Analysis

- (a) Determination of one anion and one cation in a given salt.

Cations - Pb^{2+} , Cu^{2+} , As^{3+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Ni^{2+} , Zn^{2+} , Co^{2+} , Ca^{2+} ,
 Sr^{2+} , Ba^{2+} , Mg^{2+} , NH_4^+

Anions - CO_3^{2-} , S^{2-} , SO_3^{2-} , SO_4^{2-} , NO_2^- , NO_3^- , Cl^- , Br^- , I^- , PO_4^{3-} ,
 $\text{C}_2\text{O}_4^{2-}$, CH_3COO^-

(Note: Insoluble salts excluded)

- (b) Detection of nitrogen, sulphur, chlorine, in organic compounds.

Project

Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested Projects

- Checking the bacterial contamination in drinking water by testing sulphide ion.
- Study of the methods of purification of water.
- Testing the hardness, presence of iron, fluoride, chloride etc., depending upon the regional variation in drinking water and the study of causes of presence of these ions above permissible limit (if any).
- Investigation of the foaming capacity of different washing soaps and the effect of addition of sodium carbonate on them.
- Study of the acidity of different samples of the tea leaves.
- Determination of the rate of evaporation of different liquids.
- Study of the effect of acids and bases on the tensile strength of fibres.
- Analysis of fruit and vegetables juices for their acidity.

Note: *Any other investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher.*

Practical

Evaluation Scheme for Practical Examination	Marks
Volumetric Analysis .	10 marks
Salt Analysis.	8marks
Content Based Experiment.	6 marks
Class record and viva on experiment & project.	6 marks
Total	30 marks

1. *Prescribed textbook:*

Chemistry for class XI - S. Chand & Company Ltd, Ram Nagar,
by Dr. S.K. Jain New Delhi – 110055

2. *Reference book:*

Modern ABC of Chemistry - Modern Publishers
by Dr. S.P Jauhar MBD House, Railway Road,
Jalandhar City.

3. *Laboratory Manual Book:*

CHEMISTRY Class XI - Academic Publishers
Kohima, Nagaland

CLASS – XII
CHEMISTRY (Theory)

Unit-wise weightage
Theory Paper

Time: 3 Hrs.

Marks: 70

Unit	Topic/Chapter	Marks
I.	Solid state	4
II.	Solutions	5
III.	Electrochemistry	6
IV.	Chemical Kinetics	4
V.	Surface Chemistry	4
VI.	General Principles and Processes of Isolation of Elements	3
VII.	p-Block elements	8
VIII.	d-and f-Block Elements	5
IX.	Coordination Compounds	3
X.	Haloalkanes and Haloarenes	4
XI.	Alcohols, Phenols and Ethers	4
XII.	Aldehydes, Ketones and Carboxylic acids	6
XIII.	Organic Compounds containing nitrogen	4
XIV.	Biomolecules	4
XV.	Polymers	3
XVI.	Chemistry in Everyday life	3
Total		70

Part – A: External

Unit I: Solid State

12 periods/4 marks

Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea), unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties, Band theory of metals, conductors, semiconductors and insulators and *n* and *p* type semiconductors.

Unit II: Solutions

12 periods/5 marks

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties-relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass. Vant Hoff factor.

Unit III: Electrochemistry**14 periods/6 marks**

Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's law, electrolysis and laws of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells; lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells. Relation between Gibbs energy change and EMF of a cell, fuel cells; corrosion.

Unit IV: Chemical Kinetics.**12 periods/4 marks**

Rate of a reaction (average and instantaneous), factors affecting rates of reaction; concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions); concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation.

Unit V: Surface Chemistry**8 periods/4 marks**

Adsorption-physisorption and chemisorption; factors affecting adsorption of gases on solid; catalysis: homogeneous and heterogeneous, activity and selectivity: enzyme catalysis; colloidal state: distinction between true solutions, colloids and suspensions; lyophilic, lyophobic, multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation; emulsion-types of emulsions.

Unit VI: General Principles and Processes of Isolation of Elements**8 periods/3 marks**

Principles and methods of extraction-concentration, oxidation, reduction electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.

Unit VII: p-Block elements**14 periods/8 marks**

Group 15 elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen-preparation; properties and uses; compounds of nitrogen: preparation and properties of ammonia and nitric acid, oxides of nitrogen (structure only); Phosphorous-allotropic forms; compounds of phosphorous: preparation and properties of phosphine, halides (PCl_3 , PCl_5) and oxoacids (elementary idea only)

Group 16 elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: preparation, properties and uses; classification of oxides; ozone. Sulphur-allotropic forms; compounds of Sulphur: preparation, properties and uses of Sulphur dioxide; sulphuric acid: industrial process of manufacture, properties and uses, oxoacids of sulphur (structures only)

Group 17 elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens: preparation, properties and uses of chlorine and hydrochloric acid, interhalogen compounds, oxoacids of halogens (structure only)

Group 18 elements: General introduction, electronic configuration. Occurrence, trends in physical and chemical properties, uses.

Unit VIII: d and f Block elements**14 periods/5 marks**

General introduction, electronic configuration, occurrence and characters of transition metals, general trends in properties of the first row transition metals-metallic character,

ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation. Preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$.

Lanthanoids-electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.

Actinoids-Electronic configuration, oxidation states and comparison with Lanthanoids.

Unit IX: Coordination compounds **12 periods/3 marks**

Coordination compounds-Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, bonding, Werner's theory, VBT, CFT; isomerism (structural and stereo) importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems).

Unit X: Haloalkanes and Haloarenes. **12 periods/4 marks**

Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions. Optical rotation.

Haloarenes: Nature of C-X bond, substitution reactions (directive influence of halogen for monosubstituted compounds only)

Uses and environmental effects of-dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

Unit XI: Alcohols, Phenols and Ethers **12 periods/4 marks**

Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only); identification of primary, secondary and tertiary alcohols; mechanism of dehydration, uses with special reference to methanol and ethanol.

Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reaction, uses of phenols.

Ethers: Nomenclature, methods of preparation, physical and chemical properties, uses.

Unit XII: Aldehydes, Ketones and Carboxylic Acids **12 periods/6 marks**

Aldehydes and Ketones: Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; uses.

Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.

Unit XIII: Organic compounds containing Nitrogen **10 periods/4 marks**

Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

Cyanides and Isocyanides – will be mentioned at relevant places in context.

Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

Unit XIV: Biomolecules

12 periods/4 marks

Carbohydrates – Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration, oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); importance.

Proteins – Elementary idea of α - amino acids, peptide bond, polypeptides proteins, primary structure, secondary structure, tertiary structure and quaternary structure (qualitative idea only), denaturation of proteins; enzymes.

Hormones – Elementary idea (excluding structure)

Vitamins-classification and functions.

Nucleic Acids: DNA & RNA.

Unit XV: Polymers

8 periods/3 marks

Classification-natural and synthetic, methods of polymerization (addition and condensation), copolymerization. Some important polymers: nature and synthetic like polythene, nylon, polyesters, bakelite, rubber. Biodegradable and non-biodegradable polymers.

Unit XVI: Chemistry in Everyday life:

8 periods/3 marks

1. Chemicals in medicines- analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.
2. Chemicals in food- preservatives, artificial sweetening agents, elementary idea of antioxidants.
3. Cleansing agents- soaps and detergents, cleansing action.

Part – B: Internal (Practical)

Micro- chemical methods are available for several of the practical experiments. Wherever possible such techniques should be used.

A. Surface Chemistry

- (a) Preparation of one lyophilic and one lyophobic sol.

Lyophilic Sol-starch, egg albumin and gum

Lyophobic Sol-aluminium hydroxide, ferric hydroxide, arsenous sulphide.

- (b) Dialysis of sol prepared in (a) above.
- (c) Study of the role of emulsifying agents in stabilizing the emulsions of different oils.

B. Chemical Kinetics

- (a) Effect of concentration and temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid.
- (b) Study of reaction rates of any one of the following:

- (i) Reaction of iodide ion with hydrogen peroxide at room temperature using different concentration of iodide ions.
- (ii) Reaction between potassium iodate (KIO) and sodium sulphite: (Na_2SO_3) using starch solution as indicator (clock reaction).

C. Thermochemistry

Any one of the following experiments

- a. Enthalpy of dissolution of copper sulphates or potassium nitrate.
- b. Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH)
- c. Determination of enthalpy change during interaction (Hydrogen bond formation) between acetone and chloroform

D. Electrochemistry

Variation cell potential in $\text{Zn}/\text{Zn}^{2+} || \text{Cu}^{2+}/\text{Cu}$ with change in concentration of electrolytes (CuSO_4 or ZnSO_4) at room temperature.

E. Chromatography

- i. Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of R_f values.
- ii. Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in R_f values to be provided).

F. Preparation of Inorganic Compounds

- (a) Preparation of double salt of ferrous ammonium sulphates or potash alum.
- (b) Preparation of potassium ferric oxalate.

G. Preparation of Organic compounds

Preparation of any two of the following compounds:

- (i) Acetanilide
- (ii) Di-benzal acetone
- (iii) P-Nitroacetanilide
- (iv) Aniline yellow or 2-Naphthol aniline dye

H. Tests for the functional groups present in organic compounds

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (primary) groups.

I. Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given food stuffs.

J. Determination of Concentration/Molarity of KMnO_4 solution by titrating it against a standard Solution of –

- (i) Oxalic acid
- (ii) Ferrous ammonium sulphate

(Students will be required to prepare standard solutions by weighing themselves.)

K. Qualitative Analysis

- Determination of one cation and one anion in a given salt.

Cations – Pb^{2+} , Cu^{2+} , As^{3+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Ni^{2+} , Zn^{2+} , Co^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , NH_4^+

Anions – CO_3^{2-} , S^{2-} , SO_3^{2-} , SO_4^{2-} , NO_2^- , NO_3^- , Cl^- , Br^- , I^- , PO_4^{3-} , $\text{C}_2\text{O}_4^{2-}$, CH_3COO^-

(Note : Insoluble salts excluded)

Project

Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested projects

- Study of presence of oxalate ions in guava fruit at different stages of ripening.
- Study of quantity of casein present in different samples of milk.
- Preparation of soybean milk and its comparison with the natural milk with respect to curd formation effect of temperature, etc.
- Study of the effect of potassium bisulphate as food preservative under various conditions (temperature, concentration, time etc.)
- Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
- Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice etc.
- Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamim).
- Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.

Note: Any other investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher. In addition models and exhibits for exhibition, depicting basic principles and application in daily life may also be included.

Practicals

Evaluation Scheme for Practical Examination	marks
Volumetric Analysis .	10 marks
Salt Analysis.	8 marks
Content Based Experiment.	6 marks
Class record and viva on experiment & project.	6 marks
Total	30 marks

1. Prescribed textbook:

Chemistry for class XII - S.Chand & Company Ltd, Ram Nagar,
by Dr. S.K. Jain New Delhi – 110055

2. Reference book:

Chemistry Class XII - Modern Publishers
by Dr. S.P Jauhar MBD House, Railway Road,
Jalandhar City.

3. Laboratory Manual Book:

CHEMISTRY Class XII - Academic Publishers
Kohima, Nagaland

BIOLOGY

Objectives:

- To promote understanding of basic principles of biology.
- To expose the learners to emerging knowledge and its relevance to individuals and society.
- To acquaint the students with benefits of knowing about issue related to nutrition, health, population, environment and development.
- To encourage rationale/specific attitude to issues related to population, environment and development.
- To develop skills essentials to study and understand complexities of living world and harmonious co-existence.
- To enhance awareness about environment issues, problems and the appropriate solutions.
- To develop appropriate environmental ethics and values.
- To enable the students to appreciate the complexity of living world and the role of biology vis-a-vis other disciplines.
- To enable the students to appreciate role of Biology in dispelling myths, misconceptions and misbeliefs.

DESIGN OF QUESTION PAPER BIOLOGY

Weightage to different forms of questions:

Sl.no.	Forms of Questions	Marks for each question	No. of questions	Total marks
1.	MCQ	1	10	10
2.	SA- I	2	6	12
3.	SA- II	3	6	18
4.	LA	5	6	30
Total			28	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	20	14
2.	Average	60	42
3.	Difficult	20	14
Total		100	70

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length of answer	Expected time for each question	Total expected time
1.	MCQ	-	1 minute	10 minutes
2.	SA - I	30-35 words	5 minutes	30 minutes
3.	SA - II	40-60 words	6 minutes	36 minutes
4.	LA	100-200 words	15 minutes	90 minutes
5.	Reading Q. Paper &	-	-	14 minutes

	Revision			
			Total time	180 minutes

Scheme of options:

1. There will be no overall option.
2. Internal choice shall be provided in 1(one) question of 3 marks and 3(three) questions of 5 marks each.

**CLASS-XI
BIOLOGY (Theory)**

**Unit-wise weightage
Theory Paper**

Time: 3 Hrs.

Marks: 70

Unit		Marks
I.	Diversity in Living world	8
II.	Structural Organisation in Animals and Plants	10
III.	Cell Structure and Function	16
IV.	Plant physiology	18
V.	Human physiology	18
Total		70

Part – A: External

Unit I. Diversity in Living World

Section A:

4 marks/13 Periods

What is living?; Biodiversity; Need for classification; Three domain of life; Taxonomy & Systematics; Concept of species and taxonomical hierarchy; Binomial nomenclature; Tools for study of Taxonomy- Museums, Zoos, Herbaria, Botanical gardens.

Salient features and classification of plants into major groups- Algae, Bryophytes, Pteridophytes, Gymnosperm and Angiosperm (three to five salient and distinguishing features and at least two examples of each category); Angiosperms- classification up to class, characteristic features and examples.

Section B:

4 marks/12 Periods

Five kingdom classification; Salient features and classification of Monera; Protista and Fungi into major groups; Lichens; Viruses and Viroids.

Salient features and classification of animals - non chordate up to phyla level and chordate up to classes level (three to five salient features and at least two examples).

Unit II. Structural Organisation in Animals and Plants

Section A:

5 marks/12 Periods

Morphology and modifications; Tissues; Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence- cymose and racemose, flower, fruit and seed (To be dealt along with the relevant practical of the Practical Syllabus).

Section B:

5 marks/13 Periods

Animal tissues; Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach). (Brief account only).

Unit III. Cell Structure and Function

Section A: **8 marks/20 Periods**

Cell theory and cell as the basic unit of life; Structure of prokaryotic and eukaryotic cell; Plant cell; Cell envelope, cell membrane, cell wall; Cell organelles- structure and function; Endomembrane system- endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies.

Section B: **8 marks/20 Periods**

Animal cell: Nucleus-nuclear membrane, chromatin, nucleolus. Cytoskeleton, cilia, flagella, centrioles (ultra structure and function)

Chemical constituents of living cells: Biomolecules- structure and function of proteins, carbohydrates, lipid, nucleic acids; Enzymes- types, properties, enzyme action.

Cell division; Cell cycle, mitosis, meiosis and their significance.

Unit IV. Plant Physiology **18 marks/45 Periods**

Transport in plants; Movement of water, gases and nutrients; Cell to cell transport- Diffusion, facilitated diffusion, active transport; Plant- water relations- Imbibition, water potential, osmosis, plasmolysis; Long distance transport of water- Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; Transpiration- Opening and closing of stomata; Uptake and translocation of mineral nutrients- Transport of food, phloem transport, Mass flow hypothesis; Diffusion of gases (brief mention).

Mineral nutrition: Essential minerals, macro and micronutrients and their role; Deficiency symptoms; Mineral toxicity; Elementary idea of Hydroponics as a method to study mineral nutrition; Nitrogen metabolism- Nitrogen cycle, biological nitrogen fixation.

Photosynthesis; Photosynthesis as a means of Autotrophic nutrition; Where does photosynthesis take place; How many pigments are involved in Photosynthesis (Elementary idea); Photochemical and biosynthetic phases of photosynthesis; Cyclic and non cyclic photophosphorylation; Chemiosmotic hypothesis; Photorespiration; C₃ and C₄ pathways; Factors affecting photosynthesis.

Respiration: Exchange of gases; Cellular respiration- glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); Energy relations- Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient.

Plant growth and development: Seed germination; Phases of plant growth and plant growth rate; Conditions of growth; Differentiation, dedifferentiation and redifferentiation; Sequence of developmental process in a plant cell; Growth regulators-auxin, gibberellin, cytokinin, ethylene, ABA; Seed dormancy; Vernalisation; Photoperiodism.

Unit V. Human Physiology **18 marks/45 Periods**

Digestion and absorption: Alimentary canal and digestive glands; Role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; Calorific value of proteins, Egestion; Nutritional and digestive disorders- PEM, indigestion, constipation, vomiting, jaundice, diarrhoea.

Breathing and Respiration: Respiratory organs in animals (recall only); Respiratory system in humans; Mechanism of breathing and its regulation in humans- Exchange of gases, transport of gases and regulation of respiration, Respiratory volumes; Disorders related to respiration- Asthma, Emphysema, Occupational respiratory disorders.

Body fluids and circulation: Composition of blood, blood groups, coagulation of blood; Composition of lymph and its function; Human circulatory system- Structure of human heart and blood vessels; Cardiac cycle, cardiac output, ECG; Double circulation; Regulation of cardiac activity; Disorders of circulatory system- Hypertension, Coronary artery disease, Angina pectoris, Heart failure.

Excretory products and their elimination: Modes of excretion- Ammonotelism, ureotelism, uricotelism; Human excretory system- structure and function; Urine formation, Osmoregulation; Regulation of kidney function- Renin-angiotensin, Atrial Natriuretic Factor, ADH and Diabetes insipidus; Role of other organs in excretion; Disorders- Uraemia, Renal failure, Renal calculi, Nephritis; Dialysis and artificial kidney.

Locomotion and Movement: Types of movement- ciliary, flagellar, muscular, Skeletal muscle- contractile proteins and muscle contraction; Skeletal system and its functions (To be dealt with the relevant practical of Practical syllabus); Joints; Disorders of muscular and skeletal system- Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, Osteoporosis, Gout.

Neural control and coordination: Neuron and nerves; Nervous system in humans- central nervous system, peripheral nervous system and visceral nervous system; Generation and conduction of nerve impulse; Reflex action; Sensory perception; Sense organs; Elementary structure and function of eye and ear.

Chemical coordination and regulation: Endocrine glands and hormones; Human endocrine system- Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action (Elementary Idea); Role of hormones as messengers and regulators, Hypo- and hyperactivity and related disorders (Common disorders e.g. Dwarfism, Acromegaly, Cretinism, goitre, exophthalmic goitre, diabetes, Addison's disease).

Imp: Diseases related to all the human physiology systems to be taught in brief.

Part – B: Internal (Practical)

Unit-wise weightage

Practical Paper		Time: 3 Hrs.	Marks: 30
Unit			Marks
I.	Experiment and Spotting		20
II.	Record of one investigatory project and viva based on the project		5
III.	Class record and viva based on experiments		5
Total			30

A. List of experiments

1. Study and describe three locally available common flowering plants from each of the following families (Solanaceae, Fabaceae and Liliaceae) including dissection and display of floral whorls and anther and ovary to show number of chambers. Types of root (Tap and Adventitious); Stem (Herbaceous and woody); Leaf (arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary).
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoec leaves)
5. Study of distribution of stomata in the upper and lower surface of leaves.
6. Comparative study of the rates of transpiration in the upper and lower surface of leaves.
7. Test for the presence of sugar, starch, proteins and fats. To detect them in suitable plant and animal materials.
8. Separation of plant pigments through paper chromatography.
9. To study the rate of respiration in flower buds/leaf tissue and germinating seeds.

10. To test the presence of urea in urine.
11. To detect the presence of sugar in urine/blood sample.
12. To detect the presence of albumin in urine.
13. To detect the presence of bile salts in urine.

B. Study/observation of the following (spotting)

1. Study parts of a compound microscope.
2. Study of the specimens and identification with reasons- Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant and one dicotyledonous plant and one lichen.
3. Study of specimens and identification with reasons- Amoeba, Hydra, Liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.
4. Study of tissues and diversity in shapes and sizes of plant and animal cells (e.g. palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium, muscle fibres and mammalian blood smear) through temporary/permanent slides.
5. Study of mitosis in onion root tips cells and animals cells (grasshopper) from permanent slides.
6. Study of different modifications in root, stem and leaves.
7. Study and identification of different types of inflorescence.
8. Study of imbibition in seeds/raisins.
9. Observation and comments on the experimental set up for showing:
 - a. Anaerobic respiration
 - b. Phototropism
 - c. Apical bud removal
 - d. Suction due to transpiration
10. Study of human skeleton and different types of joints.
11. Study of external morphology of cockroach through models.

NOTE : No question paper for practical work will be set by the Board.

Prescribed textbook:

***A textbook of Biology for Class XI - Madhubun Educational Books
by Sarita Aggarwal***

Reference book

***Modern ABC of Biology - Modern Publishers
by Dr. B.B. Arora & A.K. Sabhawal***

CLASS - XII
BIOLOGY (Theory)

Unit-wise weightage

Theory Paper

Time: 3 Hrs.

Marks: 70

Unit	Marks
I. Reproduction	14
II. Genetic and Evolution	20
III. Biology and Human Welfare	12
IV. Biotechnology and Its Applications	10
V. Ecology and Environment	14
Total	70

Part – A: External

Unit 1. Reproduction

35 Periods/14marks

Section A:

17 Periods/7 marks

Reproduction in organisms: Reproduction, a characteristic feature of all organisms for continuation of species; Modes of reproduction- Asexual and sexual; Asexual reproduction; Modes- Binary fission, sporulation, budding, gemmule, fragmentation; vegetative propagation in plants.

Sexual reproduction in flowering plants: Flower structure; Development of male and female gametophytes; Pollination- types, agencies and examples; Outbreedings devices; Pollen- Pistil interaction; Double fertilization; Post fertilization events- Development of endosperm and embryo, Development of seed and formation of fruit; Special modes- apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation.

Section B:

18 Periods/7 marks

Human Reproduction: Male and female reproductive system; Microscopic anatomy of testis and ovary; Gametogenesis- spermatogenesis & oogenesis; Menstrual cycle; Fertilization, embryo development upto blastocyst formation, implantation; Pregnancy and placenta formation (Elementary idea); Parturition (elementary idea); Lactation (Elementary idea).

Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control- Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies- IVF, ZIFT, GIFT (Elementary idea for general awareness).

Unit II. Genetics and Evolution

45 Periods/20marks

Section A:

15 Periods/9 marks

Molecular Basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation- Lac Operon.

Section B:

30 Periods/11 marks

Heredity and variation: Mendelian Inheritance; Deviations from Mendelism- Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination- In humans, birds, honeybee; Linkage and crossing over; Sex linked inheritance- Haemophilia, Colour blindness; Mendelian

disorders in humans- Thalassemia; Chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes. Genome and human genome project; DNA finger printing.

Evolution: Origin of life; Biological evolution and evidences for biological evolution (Paleontological, comparative anatomy, embryology and molecular evidence); Darwin's contribution, Modern Synthetic theory of Evolution; Mechanism of evolution- Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy-Weinberg's Principle; Adaptive Radiation; Human evolution.

Unit III. Biology and Human Welfare

35 Periods/12 marks

Section A:

10 Periods/4 marks

Improvement in food production: Plant breeding, tissue culture, single cell protein, Biofortification;

Section B:

25 Periods/8 marks

Health and Disease: Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic concept of immunology- vaccines, Cancer, HIV and AIDS, Adolescence, drug and alcohol abuse.

Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers. Apiculture and Animal husbandry.

Unit IV. Biotechnology and Its Applications

30 Periods/10 marks

Section A:

10 Periods/5 marks

Principles and process of Biotechnology: Genetic engineering (Recombinant DNA technology), Bt crops.

Section B:

20 Periods/5 marks

Application of Biotechnology in health and agriculture: Human insulin and vaccine production, gene therapy; Genetically modified organisms- Transgenic Animals; Biosafety issues- Biopiracy and patents.

Unit V. Ecology and environment

35 Periods/14 marks

Section A:

27 Periods/10 marks

Ecosystems: Patterns, components, productivity and decomposition; Energy flow; Pyramids of number, biomass, energy; Nutrient cycling (carbon and phosphorous); Ecological succession; Ecological Services- Carbon fixation, pollination, oxygen release.

Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity; Importance of Biodiversity; Loss of Biodiversity; Biodiversity conservation; Hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, National parks and sanctuaries.

Environmental issues: Air pollution and its control; Water pollution and its control; Agrochemicals and their effects; Solid waste management; Radioactive waste management, Greenhouse effect and global warming; Ozone depletion; Deforestation; Any three case studies as success stories addressing environmental issues.

Section B:

8 Periods/4 marks

Organisms and environment: Habitat and niche; Population and ecological adaptations; Population interactions- mutualism, competition, predation, parasitism; Population attributes- growth, birth rate and death rate, age distribution.

Part – B: Internal (Practical)

Unit-wise weightage		Time: 3 Hrs.	Marks: 30
Unit			Marks
I.	Two experiments		4+4=8
II.	Slide preparation		5
III.	Spotting		7
IV.	Investigatory project and viva based on the project		5
V.	Record and viva based on the experiment		5
Total			30

PRACTICALS**List of Experiments****60 Periods**

1. Study pollen germination on a slide.
2. Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
3. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms.
4. Study the presence of suspended particulate matter in air at the two widely different sites.
5. Study of plant population density by quadrat method.
6. Study of plant population frequency by quadrat method.
7. Prepare a temporary mount of onion root tip to study mitosis.
8. To study the effect of the different temperatures and three different pH on the activity of salivary amylase on starch.

Study/observation of the following (Spotting)

1. Flowers adapted to pollination by different agencies (wind, insect).
2. Pollen germination on stigma through a permanent slide.
3. Identification of stages of gamete development i.e. T.S. testis and T.S. ovary through permanent slides (from any mammal).
4. Meiosis in onion bud cell or grasshopper testis through permanent slides.
5. T.S. of blastula through permanent slides.
6. Mendelian inheritance using seeds of different colour/size of any plant.
7. Prepared pedigree charts of genetic traits such as rolling of tongue, blood groups, widow's peak, colour blindness.
8. Exercise on controlled pollination- Emasculation, tagging and bagging.
9. Identification of common disease causing organisms like Ascaris, Entamoeba, Plasmodium, ringworm through permanent slides or specimens. Comment on symptoms of diseases that they cause.
10. Two plants and two animals found in xerophytic conditions. Comment upon their morphological adaptations.
11. Plants and animals found in aquatic conditions. Comments upon their morphological adaptations.

Prescribed text book:

1. *Biology Class- XII* by *Veer Bala Rastogi*, - *Srijan Publishers Private Limited*
Plot No.10, 1st Floor, Vishal Market Commercial Complex,
West Mukherjee Nagar, Delhi – 110 009
2. *Biology Laboratory Manual Class - XII* - *Academic Publishers, Kohima – 797001,*
Nagaland

Reference book:

Modern Abc of Biology Class – XII - Modern Books
by Dr. B. B. Arora, A. K. Sabharwal

MATHEMATICS**Objectives**

The broad objectives of teaching Mathematics at Higher Secondary School stage intend to help the pupil to:

- acquire knowledge and critical understanding, particularly by way of motivation and visualization of basic concepts, terms, principles, symbols and mastery of underlying processes and skills;
- feel the flow of reasons while proving a result or solving a problem;
- apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method;
- develop positive attitude to think, analyze and articulate logically;
- develop interest in the subject by participating in related competitions;
- acquaint students with different aspects of Mathematics used in daily life;
- develop an interest in students to study Mathematics as a discipline;
- develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of sex biases;
- develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.

**DESIGN OF QUESTION PAPER
MATHEMATICS**

Weightage to different forms of questions:

Sl. No.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	MCQ	1	10	10
2.	SA- I	2	10	20
3.	SA- II	4	10	40
4.	LA	6	5	30
Total			35	100

Weightage level of questions:

Sl. No.	Level	Percentage	Marks
1.	Easy	15	15
2.	Average	70	70
3.	Difficult	15	15
Total		100	100

The expected time to be taken under different forms of questions shall be as follows:

Sl. No.	Forms of questions	No. of question	Expected time for each question	Total expected time
1.	Reading Question paper	-	-	5 minutes
2.	MCQ	10	2 minutes	20 minutes
3.	SA- I	10	4 minutes	40 minutes
4.	SA- II	10	6 minutes	60 minutes

5.	LA	5	9 minutes	45 minutes
6.	Revision	-	-	10 minutes
			Total time	180 minutes

Scheme of Options:

- Internal choice shall be provided in:
 - any five questions of SA-II
 - all five question of LA
- The options for the internal choice shall be set from the same unit with the same difficulty level.
- The question setter has the liberty to modify the textual questions but set questions within the purview of the syllabus.

Class XI Mathematics -Core Structure

Unit-wise weightage

Time: 3 Hrs

Marks : 100

Units	Marks
1. Sets and Functions	26
2. Algebra	37
3. Coordinate Geometry	16
4. Calculus	06
5. Mathematical Reasoning	03
6. Statistics and Probability	12
Total	100

Unit 1: Sets and Functions

26 marks

1. Sets

12 Periods

Sets and their representation. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of the set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and intersection of sets. Difference of sets. Complement of a set. Properties of Complement sets.

2. Relations and Functions

14 Periods

Ordered pairs, Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the reals with itself (upto $\mathbb{R} \times \mathbb{R} \times \mathbb{R}$).

Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special kind of relation from one set to another. Pictorial representation of a function, domain, co-domain and range of a function. Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions with their graphs. Sum, difference, product and quotients of functions.

3. Trigonometric Functions

18 Periods

Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x . Signs of trigonometric functions and sketch of their graphs. Expressing $\sin(x + y)$ and $\cos(x + y)$ in terms of $\sin x$, $\sin y$, $\cos x$ and $\cos y$. Deducing the identities like following:

$$\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}, \cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$$

$$\sin x + \sin y = 2 \sin \frac{x+y}{2} \cos \frac{x-y}{2}, \cos x + \cos y = 2 \cos \frac{x+y}{2} \cos \frac{x-y}{2}$$

$$\sin x - \sin y = 2 \cos \frac{x+y}{2} \sin \frac{x-y}{2}, \cos x - \cos y = -2 \sin \frac{x+y}{2} \sin \frac{x-y}{2}$$

Identities related to $\sin 2x$, $\cos 2x$, $\tan 2x$, $\sin 3x$, $\cos 3x$ and $\tan 3x$. General solution of trigonometric equations of the type $\sin \theta = \sin \alpha$, $\cos \theta = \cos \alpha$ and $\tan \theta = \tan \alpha$. Proofs and simple applications of sine and cosine formulae.

Unit II: Algebra

37 marks

1. Principle of Mathematical Induction

6 Periods

Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.

2. Complex Numbers and Quadratic Equations

10 Periods

Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve every quadratic equation. Brief description of algebraic properties of complex numbers. Argand plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system, Square-root of a complex number.

3. Linear Inequalities

10 Periods

Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Solution of system of linear inequalities in two variables – graphically.

4. Permutations and Combinations

12 Periods

Fundamental principle of counting. Factorial n . Permutations and combinations: derivation of formulae and their connections, simple applications.

5. Binomial Theorem

8 Periods

History, statement and proof of the Binomial Theorem for positive integral indices. Pascal's triangle, general and middle term in Binomial expansion, simple applications.

6. Sequence and Series

10 Periods

Sequence and Series. Arithmetic Progression (A.P.), Arithmetic Mean (A.M.), Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P. Arithmetic and geometric series, infinite G.P. and its sum, Geometric Mean (G.M.). Relation between A.M. and G.M. Sum to n terms of the special series: $\sum n$, $\sum n^2$ and $\sum n^3$

Unit III: Coordinate Geometry

16 marks

1. Straight Lines

9 Periods

Brief recall of 2-D from earlier classes, shifting of origin. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axes, point-slope form, slope-intercept form, two-point form, intercepts form and normal form. General equation of a line. Equation of family of lines passing through the point of intersection of two lines. Distance of a point from a line.

2. Conic Sections

12 Periods

Sections of a cone: Circles, ellipse, parabola, hyperbola, a point, a straight line and pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.

- 3. Introduction to Three-dimensional Geometry** **8 Periods**
Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.

Unit IV: Calculus **6 marks**
Limits and Derivatives **18 Periods**
Derivative introduced as rate of change both as that of distance function and geometrically, intuitive idea of limit. $\lim_{x \rightarrow 0} \frac{\log_e(1+x)}{x}$, $\lim_{x \rightarrow 0} \frac{e^x - 1}{x}$. Definition of derivative, relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.

Unit V: Mathematical Reasoning **3 marks**
Mathematical Reasoning **8 Periods**
Mathematically acceptable statements. Connecting words/phrases – consolidating the understanding of “if and only if (necessary and sufficient) condition”, “implies”, “and/or”, “implied by”, “and”, “or”, “there exists” and their use through variety of examples related to real life and Mathematics. Validating the statements involving the connecting words – difference between contradiction, converse and contrapositive.

Unit VI: Statistics and Probability **12 marks**
1. Statistics **10 Periods**
Measure of dispersion; mean deviation, variance and standard deviation of ungrouped/grouped data. Analysis of frequency distributions with equal means but different variances.
2. Probability **15 Periods**
Random experiments: outcomes, sample spaces (set representation). Events: Occurrence of events, ‘not’, ‘and’ & ‘or’ events, exhaustive events, mutually exclusive events. Axiomatic (set theoretic) probability, connections with the theories of earlier classes. Probability of an event, probability of ‘not’, ‘and’ & ‘or’ events.

Prescribed textbook:

Mathematics for Class XI – *Academic Publishers, Kohima, Nagaland*
by Dr. S.N. Pandey, Khrietuo Doulo,
Jane Roseline Yimchunger & Teisovi Gerard Meyase.

CLASS - XII
Mathematics (Core Structure)

Unit-wise weightage

Time: 3 Hrs

Marks: 100

Units	Marks
1. Relations and Functions	10
2. Algebra	13
3. Calculus	44
4. Vectors and Three-Dimensional Geometry	17
5. Linear Programming	06
6. Probability	10
Total	100

Unit I: Relations and Functions **10 marks**

1. Relations and Functions **10 Periods**

Types of relations: Reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.

2. Inverse Trigonometric Functions **12 Periods**

Definition, range, domain, principal value branches. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions.

Unit II: Algebra **13 marks**

1. Matrices **18 Periods**

Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric and skew-symmetric matrices. Addition, multiplication and scalar multiplication of matrices, simple properties of addition, multiplication and scalar multiplication. Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists (Here all matrices will have real entries).

2. Determinants **20 Periods**

Determinant of a square matrix (upto 3×3 matrices), properties of determinants, minors, cofactors and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.

Unit III: Calculus **44 marks**

1. Continuity and Differentiability **18 Periods**

Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit function. Concepts of

exponential, logarithmic functions. Derivatives of $\log_e x$ and e^x . Logarithmic differentiation. Derivative of functions expressed in parametric forms. Second order derivatives. Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretations.

2. Applications of Derivatives **10 Periods**

Applications of derivatives: Rate of change, increasing/decreasing functions, tangents and normals, approximation, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).

3. Integrals **20 Periods**

Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, only simple integrals of the type:

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{ax^2 + bx + c}, \int \frac{dx}{\sqrt{ax^2 + bx + c}},$$

$$\int \frac{(px + q)}{ax^2 + bx + c} dx, \int \frac{(px + q)}{\sqrt{ax^2 + bx + c}} dx, \int \sqrt{a^2 \pm x^2} dx, \int \sqrt{x^2 - a^2} dx,$$

$$\int \sqrt{ax^2 + bx + c} dx \text{ and } \int (px + q)\sqrt{ax^2 + bx + c} dx$$

to be evaluated.

Definite integrals as a limit of a sum. Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.

4. Applications of the Integrals **10 Periods**

Applications in finding the area under simple curves, especially lines, arcs of circles/parabolas/ellipses (in standard form only), area between the two above said curves (the region should be clearly identifiable).

5. Differential Equations **10 Periods**

Definition, order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given. Solution of differential equations by method of separation of variables, homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type:

$$\frac{dy}{dx} + Py = Q, \text{ where P and Q are functions of } x \text{ or constant}$$

$$\frac{dx}{dy} + Px = Q, \text{ where P and Q are functions of } y \text{ or constant}$$

Unit IV: Vectors and Three-Dimensional Geometry **17 marks**

1. Vectors **10 Periods**

Vectors and scalars, magnitude and direction of a vector. Direction cosines/ratios of vectors. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Scalar (dot) product of vectors, projection of a vector on a line. Vector (cross) product of vectors, scalar triple product.

2. Three-dimensional Geometry **12 Periods**

Direction cosines/ratios of a line joining two points. Cartesian and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines, (ii) two planes, (iii) a line and a plane. Distance of a point from a plane.

Unit V:	Linear Programming	6 marks
	Linear Programming	12 Periods
	Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, graphical method of solution for problems in two variables, feasible and infeasible regions, feasible and infeasible solutions, optimal feasible solutions (upto three non-trivial constraints).	
Unit VI:	Probability	10 marks
	Probability	18 Periods
	Multiplication theorem on probability. Conditional probability, independent events, total probability, Baye's theorem. Random variable and its probability distribution, mean and variance of haphazard variable. Repeated independent (Bernoulli) trials and Binomial distribution.	

Prescribed textbook:

Mathematics for Class XII - ***Academic Publishers, Kohima, Nagaland.***

COMPUTER SCIENCE

Learning Objectives:

- To develop logic for Problem Solving
- To understand the concept of Object Oriented Methodology
- To implement Object Oriented Programming using C++
- To understand the concept of working with Relational Database
- To understand the basic concept of Logic of Computing
- To understand the basic concepts of Communication and Networking technologies
- To understand Open Source Software

Competencies:

The student will develop the following proficiency:

1. Identifying Computer Components / Subsystems / Peripherals
2. Problem Solving using Object Oriented Programming
3. Database Handling

DESIGN OF QUESTION PAPER COMPUTER SCIENCE

Weightage to different forms of questions:

Sl.no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	VSA	1	12	12
2.	SA	2	11	22
3.	LA	4	9	36
	Total		32	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	15	11
2.	Average	70	49
3.	Difficult	15	10
	Total	100	70

The expected time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected time for each question	Total expected time
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1.	Reading Q. Paper	-	5 minutes
2.	VSA	2 minutes	24 minutes
3.	SA	5 minutes	55 minutes
4.	LA	9 minutes	81 minutes
5.	Revision	-	15 minutes
		Total time	180 minutes

Scheme of options:

- i. Internal choice shall be provided in 5(five) questions of 4 marks each
- ii. The option for internal choice shall be set from the same unit with the same difficulty level.

**CLASS - XI
COMPUTER SCIENCE**

Unit-Wise weightage

100 marks

Unit		Marks		
		Th	Pr	Total
1.	COMPUTER FUNDAMENTALS	12	2	14
2.	INTRODUCTION TO C++	14	8	22
3.	PROGRAMMING METHODOLOGY	08	2	10
4.	PROGRAMMING IN C++	36	18	54
Total		70	30	100

Part – A: External

Time: 3 hrs

70 marks

UNIT 1: COMPUTER FUNDAMENTALS

12 marks

Evolution of computers; Basics of computer system and its operation: Functional Components and their inter-connections; concept of Booting.

Software Concepts:

Types of Software - System Software, Utility Software and Application Software;

System Software: Operating System, Compiler, Interpreter and Assembler;

Operating System: Need for operating system, Functions of Operating System (Processor Management, Memory Management, File Management and Device Management), Types of operating system –Interactive (GUI based), Real Time and Distributed; Commonly used operating systems: UNIX, LINUX, Windows, Solaris, BOSS (Bharat Operating System Solutions); Mobile OS - Android, Symbian.

Illustration and practice of the following tasks using any one of the above Operating Systems:

- Opening/Closing Windows
- Creating/Moving/Deleting Files/Folders
- Renaming Files/Folders
- Switching between Tasks

Utility Software: Anti Virus, File Management tools, Compression tools and Disk Management tools (Disk Cleanup, Disk Defragmenter, Backup)

Application software: Office Tools - Word Processor, Presentation Tool, Spreadsheet Package, Database Management System; Domain specific tools - School Management System, Inventory Management System, Payroll System, Financial Accounting, Hotel Management, Reservation System and Weather Forecasting System

Number System: Binary, Octal, Decimal, Hexadecimal and conversion amongst these number systems.

Internal Storage encoding of Characters: ASCII, ISCII (Indian scripts Standard Code for Information Interchange), and UNICODE (for multilingual computing)

Microprocessor: Basic concepts, Clock speed (MHz, GHz), 32 bit, 64 bit processors, 128 bit processors; Types - CISC Processors (Complex Instruction set computing), RISC Processors (Reduced Instruction set computing), and EPIC (Explicitly parallel Instruction computing).

Memory Concepts: Units: Byte, Kilo Byte, Mega Byte, Giga Byte, Tera Byte, Peta Byte, Exa Byte, Zetta Byte, Yotta Byte

Primary Memory: Cache, RAM, ROM

Secondary Memory: Fixed and Removable Storage - Hard Disk Drive, CD/DVD Drive, Pen Drive, Blue Ray Disk

Input Output Ports/Connections: Serial, Parallel and Universal Serial Bus, PS-2 port, Infrared port, Bluetooth, Firewire.

Note: Exploring inside computer system in the computer lab class.

UNIT 2: INTRODUCTION TO C++

14 marks

Getting Started:

C++ character set, C++ Tokens (Identifiers, Keywords, Constants, Operators), Structure of a C++ Program (include files, main function), Header files - iostream.h, iomanip.h, **cout**, **cin**; Use of I/O operators (<< and >>), Use of endl and setw (), Cascading of I/O operators, Error Messages; Use of editor, basic commands of editor, compilation, linking and execution.

Data Types, Variables and Constants:

Concept of Data types; Built-in Data types: **char**, **int**, **float** and **double**; Constants: Integer Constants, Character constants - \n, \t, \b), Floating Point Constants, String Constants; Access modifier: **const**; Variables of built-in data types, Declaration/Initialisation of variables, Assignment statement; Type modifier: **signed**, **unsigned**, **long**

Operator and Expressions : Operators: Arithmetic operators (-,+,*./,%), Unary operator (-), Increment (++) and Decrement (--) Operators, Relational operator (>,>=,<,<=,=,!=), Logical operators (!, &&,||), Conditional operator: <condition>? <if true>:<if false>; Precedence of Operators; Automatic type conversion in expressions, Type casting; C++ shorthands (+=, -=, *=, /=, %=)

UNIT 3: PROGRAMMING METHODOLOGY

8 marks

General Concepts; Modular approach; Clarity and Simplicity of Expressions, Use of proper Names for identifiers, Comments, Indentation; Documentation and Program Maintenance; Running and Debugging programs, Syntax Errors, Run-Time Errors, Logical Errors.

Problem Solving Methodologies: Understanding of the problem, Identifying minimum number of inputs required for output, Writing code to optimizing execution time and memory storage, step by step solution for the problem, breaking down solution into simple steps, Identification of arithmetic and logical operations required for solution, Control Structure: Conditional control and looping (finite and infinite)

UNIT 4: PROGRAMMING IN C++

36 marks

Flow of control:

Conditional statements: **if-else**, Nested **if**, **switch**, Nested **switch**, **break** statement (to be used in **switch only**); Loops: **while**, **do - while**, **for** and Nested loops.

Built-in Functions:

Header file categorization	Header file	Function
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Standard input/output functions	stdio.h	gets (), puts()
Character functions	ctype.h	isalnum (), isalpha (), isdigit (), islower (), isupper (), tolower (), toupper ()
String Functions	string.h	strcpy (), strcat (), strlen (), strcmp (), strcmpi (), strrev (), strlen (),strupr (), strlwr ()
Mathematical Functions	math.h	fabs (), pow (), sqrt (), sin (), cos (), abs ()
Other Functions	stdlib.h	randomize (), random (), itoa (), atoi ()

User Defined Functions:

Introduction to user-defined function and its requirements.

Defining a function; function prototype, Invoking/calling a function, passing arguments to function, specifying argument data types, default argument, constant argument, call by value, call by reference, returning values from a function, calling functions with arrays, scope rules of functions and variables local and global variables. Relating the Parameters and return type concepts in built-in functions.

Structured Data Type:

Arrays: Introduction to Array and its advantages.

One Dimensional Array : Declaration/initialization of One-dimensional array, Inputting array elements, Accessing array elements, Manipulation of Array elements (sum of elements, product of elements, average of elements, linear search, finding maximum/minimum value)
Declaration/Initialization of a String, string manipulations (counting vowels/consonants/digits/special characters, case conversion, reversing a string, reversing each word of a string)

Two-dimensional Array

Declaration/initialization of a two-dimensional array, inputting array elements, Accessing array elements, Manipulation of Array elements (sum of row element, column elements, diagonal elements, finding maximum/minimum values)

User-defined Data Types:

Introduction to user defined data types.

Structure

Defining a Structure (Keyword **struct**), Declaring structure variables, Accessing structure elements, Passing structure to Functions as value and reference argument/parameter, Function returning structure, Array of structures, passing an array of structure as an argument/ a parameter to a function. Defining a symbol name using **typedef** keyword and defining a macro using **#define** directive.

Part – B: Practical

30Marks

1. Programming in C++

10 marks

One programming problem in C++ to be developed and tested in Computer during the examination. Marks are allotted on the basis of following:

- Logic : 5 Marks
- Documentation/Indentation : 2 Marks
- Output presentation : 3 Marks

2. Project Work

6 marks

Problems related to String, Number and Array manipulation

General Guidelines: Initial Requirement, developing an interface for user (it is advised to use text based interface screen), developing logic for playing the game and developing logic for scoring points.

1. Memory Game: A number guessing game with application of 2 dimensional arrays

containing randomly generated numbers in pairs hidden inside boxes.

2. Cross 'N Knots Game: A regular tic-tac-toe game
3. Hollywood/Hangman: A word Guessing game
4. Cows 'N Bulls: A word/number Guessing game

or

Similar projects may be undertaken in other domains

(As mentioned in general guidelines for project, given at the end of the curriculum in a group of 2-4 students)

3. Presentation based on research

2 marks

It will be a group presentation based on a detailed study of at least two technology inventions in the field of information technology, which may include Inventor's name with country, out of box contributions year of invention, characteristics, social impact and uses. A partial list of inventors is in the Annexure.

(The project can be done in a group of 2-3 students)

4. Practical File

7 marks

(a) Record of the configuration of computer system used by the student in the computer lab (by exploring inside computer system in the first 2 lab classes).

2 marks

(b) Must have minimum 15 programs from the topics covered in class XI course.

5 marks

- 5 Programs on Control structures
- 4 Programs on Array manipulations
- 4 Programs on String Manipulations
- 2 Programs on structure manipulations

5. Viva Voce

5 marks

Viva will be asked from the syllabus covered in class XI and the project developed by the student(s).

Prescribed textbook:

*Computer Science with C++ – Saraswati House Pvt. Ltd.
by Reeta Sahoo and Gangan Sahoo.*

Class - XII
COMPUTER SCIENCE

Unit-Wise weightage
Part 'A' External

Time: 3 hrs

Marks: 70

Unit		Marks		
		Th	Pr	Total
5.	OBJECT ORIENTED PROGRAMMING IN C++	30	13	43
6.	DATA STRUCTURE	14	10	24
7.	DATABASE MANAGEMENT SYSTEM AND SQL	8	7	15
8.	BOOLEAN ALGEBRA	8	0	8
5.	NETWORKING AND OPEN SOURCE SOFTWARE	10	0	10
	Total	70	30	100

UNIT 1: OBJECT ORIENTED PROGRAMMING IN C++

REVIEW: C++ covered In Class –XI;

Object Oriented Programming:

Concept of Object Oriented Programming - Data hiding, Data encapsulation, Class and Object, Abstract class and Concrete class, Polymorphism (Implementation of polymorphism using Function overloading as an example in C++); Inheritance, Advantages of Object Oriented Programming over earlier programming methodologies.

Implementation of Object Oriented Programming concepts in C++:

Definition of a class, Members of a class - Data Members and Member Functions (methods), Using Private and Public visibility modes, default visibility mode (private); Member function definition: inside class definition and outside class definition using scope resolution operator (::); Declaration of objects as instances of a class; accessing members from object(s), Objects as function arguments - pass by value and pass by reference.

Constructor and Destructor:

Constructor: Special Characteristics, Declaration and Definition of a constructor, Default Constructor, Overloaded Constructors, Copy Constructor, Constructor with default arguments;
Destructor: Special Characteristics, Declaration and definition of destructor;

Inheritance (Extending Classes):

Concept of Inheritance, Base Class, Derived Class, Defining derived classes, protected visibility mode; Single level inheritance, Multilevel inheritance and Multiple inheritance, Privately derived, Publicly derived and Protectedly derived class, accessibility of members from objects and within derived class(es);

Data File Handling:

Need for a data file, Types of data files - Text file and Binary file;

Text File: Basic file operations on text file: Creating/Writing text into file, Reading and Manipulation of text from an already existing text File (accessing sequentially);

Binary File: Creation of file, Writing data into file, Searching for required data from file, Appending data to a file, Insertion of data in sorted file, Deletion of data from file, Modification of data in a file; Implementation of above mentioned data file handling in C++;

Components of C++ to be used with file handling:

Header file: fstream.h; ifstream, ofstream, fstream classes;

Opening a text file in **in**, **out**, and **app** modes;

Using cascading operators (>> <<) for writing text to the file and reading text from the file; open(), get(), put(), getline() and close() functions; Detecting end-of-file (with or without using eof() function);

Opening a binary file using **in**, **out**, and **app** modes;

open(), **read()**, **write()** and **close()** functions; Detecting end-of-file (with or without using **eof()** function); **tellg()**, **tellp()**, **seekg()**, **seekp()** functions.

Pointers:

Introduction to pointer, Declaration and Initialization of Pointers; Dynamic memory allocation/deallocation operators: **new**, **delete**; Pointers and Arrays: Array of Pointers, Pointer to an array (1 dimensional array), Function returning a pointer, Reference variables and use of alias; Function call by reference. Pointer to structures: De-reference/Deference operator: *, ->; self-referential structures;

UNIT 2: DATA STRUCTURES

Introduction to data structure, primitive and non-primitive data structure, linear and non-linear structure, static and dynamic data structure.

Arrays:

One and two Dimensional arrays: Sequential allocation and address calculation;

One dimensional array: Traversal, Searching (Linear, Binary Search), Insertion of an element in an array, deletion of an element from an array, Sorting (Insertion, Selection)

Two-dimensional arrays: Traversal, Finding sum/difference of two NxM arrays containing numeric values, Interchanging Row and Column elements in a two dimensional array;

Stack (Array and Linked implementation of Stack):

Introduction to stack (LIFO - Last In First Out Operations)

Operations on Stack (PUSH and POP) and its Implementation in C++, Converting expressions from INFIX to POSTFIX notation and evaluation of Postfix expression;

Queue: (Circular Array and Linked Implementation):

Introduction to Queue (FIFO - First In First out operations).
Operations on Queue (Insert and Delete) and its Implementation in C++.

UNIT 3: DATABASES MANAGEMENT SYSTEM AND SQL

Database Concepts: Introduction to database concepts and its need.

Relational data model: Concept of domain, tuple, relation, key, primary key, alternate key, candidate key;

Relational algebra: Selection, Projection, Union and Cartesian product;

Structured Query Language:

General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language;

Data types: NUMBER/DECIMAL, CHARACTER/VARCHAR/VARCHAR2, DATE;

SQL commands:

CREATE TABLE, DROP TABLE, ALTER TABLE, UPDATE...SET..., INSERT, DELETE;
SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, GROUP BY, HAVING, ORDER BY;
SQL functions: SUM, AVG, COUNT, MAX and MIN;

Obtaining results (SELECT query) from 2 tables using equi-join, Cartesian Product and Union
Note: Implementation of the above mentioned commands could be done on any SQL supported software on one or two tables.

UNIT 4: BOOLEAN ALGEBRA

Role of Logical Operations in Computing:

Binary-valued Quantities, Logical Variable, Logical Constant and Logical Operators: AND, OR, NOT; Truth Tables; Closure Property, Commutative Law, Associative Law, Identity law, Inverse law, Principle of Duality, Idem potent Law, Distributive Law, Absorption Law, Involution law, DeMorgan's Law and their applications;

Obtaining Sum of Product (SOP) and Product of Sum (POS) form from the Truth Table, Reducing Boolean Expression (SOP and POS) to its minimal form, Use of Karnaugh Map for minimization of Boolean expressions (up to 4 variables);

Application of Computing Logic:

Building up logic circuits using basic Logic Gates (NOT, AND, OR, NAND, NOT).
Use of Boolean operators (AND, OR) in search engine queries.

UNIT 5: NETWORKING AND OPEN SOURCE SOFTWARE

COMMUNICATION TECHNOLOGIES

Evolution of Networking: ARPANET, www, Internet, Interspace;

Different ways of sending data across the network with reference to switching techniques (Circuit, Message and Packet switching).

Data Communication terminologies: Concept of Channel and Data transfer rate (bps, kbps, Mbps, Gbps, Tbps)

Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link.

Network devices: Modem RJ11 and RJ45 connectors, Ethernet Card, Hub, Switch, Gateway
Network Topologies and types: Bus, Star, Tree; PAN, LAN, MAN, WAN

Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, Remote Login (Telnet), Internet Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, WLL,
Mobile Telecommunication Technologies: 1G, 2G, 3G and 4G
Electronic mail protocols such as SMTP, POP3
Protocols for Chat and Video Conferencing VOIP
Wireless protocols such as Wi-Fi and WiMax

Network Security Concepts:

Threats and prevention from Viruses, Worms, Trojan horse, Spams.
Use of Cookies, Protection using Firewall;
India IT Act, Cyber Law, Cyber Crimes, IPR issues, Hacking.

Web Services:

WWW, Hyper Text Markup Language (HTML), eXtensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Protocol Address; Website, Web browser, Web Servers; Web Hosting.

Open Standards

Introduction to open standards and its advantage in development of inter-operable environment.

Open Source Concepts

Proprietary and Open Source Software, Freeware, Shareware, FLOSS/FOSS, GNU, FSF, OSI, W3C

Cloud Computing

Characteristics, layers-client, Application, platform and infrastructure, Deployment models-Private cloud, Public cloud, Community cloud and hybrid cloud, Issues- Privacy, Compliance, Security, Sustainability and abuse.

Class XII (Practicals)

Duration: 3 hours

Total Marks: 30

1. Programming in C++

10 marks

One programming problem in C++ to be developed and tested in Computer during the examination. Marks are allotted on the basis of following:

Logic : 5 Marks

Documentation/Indentation : 2 Marks

Output presentation : 3 Marks

Notes: The types of problems to be given will be of application type from the following topics

- Arrays (One dimensional and two dimensional)
- Class(es) and objects
- Stack using arrays and or linked implementation
- Queue using arrays (circular) and or linked implementation
- Binary File operations (Creation, Displaying, Searching and modification)
- Text File operations (Creation, Displaying and modification)

2. SQL Commands

5 marks

Five Query questions based on a particular Table/Relation to be tested practically on Computer during the examination. The command along with the result must be written in the answer sheet.

3. Project Work

5 marks

The project has to be developed in C++ language with Object Oriented Technology and also should have use of Data files. (The project is required to be developed in a group of 2-4 students)

- Presentation on the computer
- Project report (Listing, Sample, Outputs, Documentation).
- Viva

4. Practical File

5 marks

Must have minimum 20 programs from the following topics

- Arrays (One dimensional and two dimensional, sorting, searching, merging, deletion'& insertion of elements)
- Class(es) and objects
- Stacks using arrays and linked implementation
- Queues using arrays (linear and circular) and linked implementation
- File (Binary and Text) operations (Creation, Updation, Query)
- Any computational based problems.

15 SQL commands along with the output based on any table/relation:

5. Viva Voce

5 marks

Viva will be asked from syllabus covered in class XII and the project developed by student.

GUIDELINES FOR PROJECTS (Class XI and XII)

1. Preamble

- 1.1 The academic course in Computer Science includes one Project in each year.
The Purpose behind this is to consolidate the concepts and practices imparted during the course and to serve as a record of competence.
- 1.2 A group of 2-3 students as team may be allowed to work on one project.

2. Project content

- 2.1 Project for class XI can be selected from the topics mentioned in the syllabus or domains on the similar lines
- 2.2 Project for class XII should ensure the coverage of following areas of curriculum:
 - a. Flow of control
 - b. Data Structure
 - c. Object Oriented Programming in C++
 - d. Data File Handling

Theme of the project can be:

- Any subsystem of a System Software or Tool
- Any Scientific or a fairly complex algorithmic situation.
- School Management, Banking, Library information system, Hotel or Hospital management system, Transport query system
- Quizzes/Games;
- Tutor/Computer Aided Learning Systems

2.3 It is suggested to prepare a bilingual (English and other Indian language) user manual part of project file

2.4 The aim of the project is to highlight the abilities of algorithmic formulation, modular programming, optimized code preparation, systematic documentation and other associated aspects of Software Development.

Suggested Reference Books

Computer Fundamentals and Boolean Algebra

1. Rajaraman, FUNDAMENTALS OF COMPUTERS 4th Edition, Prentice Hall of India.
2. Peter Norton, INTRODUCTION TO COMPUTER 4th Edition, Tata McGraw Hill.
3. Thomas C. Barte, DIGITAL COMPUTER FUNDAMENTALS, McGraw Hill International.

Problem Solving and Programming in C++Pearson?.....

Note: Prior knowledge of C is not required in the learning of C++, eventhough reference about C are made in some of the books.

1. Robert Lafore, OBJECT ORIENTED PROGRAMMING IN TURBO C++, Galgotia Publications Pvt. Ltd.
2. David Parsons, OBJECT ORIENTED PROGRAMMING WITH C++, BPB Publications.
3. Bjarne Stroustrup, THE C++ PROGRAMMING LANGUAGE, Adison Wesley.

Data Structures

1. M.A. Weiss, Data Structures and Algorithm Analysis in C++. the Benjamin/Cummings Pub. Co., Inc.
2. Sartaj & Sahni, Fundamentals of Data Structure, Galgotia Book Source.

Database Management System and SQL

1. C.J. Date, DATABASE PRIMER, Adison Wesley.

Communication and Open Source Concepts

1. A.S. Tanenbaum, Computer Network 4th Edition, Prentice Hall of India P. Ltd.
2. Williams Stalling, Data Communication and Networks 5th Edition, Prentice Hall of India P. Ltd.
3. Hancock, Network Concept and Architectures, BPB Publications.

Web References - www.opensource.org, www.w3schools.com

INFORMATICS PRACTICES

Learning Objectives:

- To gain working knowledge of a computer and peripherals
- To understand the application development process.
- To gain programming skill in front-end development
- To gain skills in Relational Database Creation and Management.

Competencies:

- Sound knowledge of computer system
- Familiarity with Application Development process using simple IDEs
- Ability to use, develop and debug programs independently.
- Ability to store and retrieve data using an RDBMS.

DESIGN OF QUESTION PAPER INFORMATICS PRACTICES

Weightage to different forms of questions:

Sl.no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	MCQ	1	5	5
2.	VSA	1	8	8
3.	SA -I	2	11	22
4.	SA - II	4	5	20
5.	LA	5	3	15
	Total		32	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	21	15
2.	Average	64	45
3.	Difficult	15	10
	Total	100	70

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length of answer	Expected time for each question	Total expected time
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1.	Reading Q. Paper	-	-	5 minutes
2.	MCQ	-	2 minutes	10 minutes
3.	VSA	10-20 words	2 minutes	16 minutes
4.	SA- I	25-50 words	5 minutes	55 minutes
5.	SA- II	80-100 words	10 minutes	50 minutes
6.	LA	100-150 words	13 minutes	39 minutes
7.	Revision	-	-	5 minutes
			Total time	180 minutes

Scheme of ptions:

Internal choice shall be provided in:

- i. 5(five) questions of 4 marks each
- ii. 3(three) questions of 5 marks each.

The options for internal choice shall be set from the same unit with the same difficulty level.

**CLASS - XI
INFORMATICS PRACTICES**

Unit-Wise weightage

100 marks

Unit	Topic	Marks	
		Theory	Practical
1.	INTRODUCTION TO COMPUTER SYSTEM	10	02
2.	INTRODUCTION TO PROGRAMMING	25	16
3.	RELATIONAL DATABASE MANAGEMENT	30	6
4.	IT APPLICATIONS	05	6
TOTAL		70	30

Part – A: External

Time: 3 hrs

70 marks

UNIT 1: INTRODUCTION TO COMPUTER SYSTEMS

10 marks

Hardware Concepts:

Computer organization (basic concepts): CPU, Memory (Cache, RAM and ROM), I/O devices, communication bus, ports (serial, parallel), device specific ports.

Input devices:

Keyboard, Mouse, Light pen, Touch Screen, Graphics Tablets, Joystick, Microphone, OCR, Scanner, Smart Card reader, Barcode reader, Biometric sensor, web camera.

Output Devices:

Monitor/Visual Display Unit (VDU), LCD screen, Television, Printer (Dot Matrix Printer, Desk jet/ Inkjet/ Bubble jet Printer, Laser Printer), Plotter, Speaker.

Secondary Storage Devices:

Floppy Disk, Hard Disk, Compact Disk, Magnetic Tape, Digital Versatile Disk (DVD), Flash Drive, Memory cards, Comparative properties of storage media.

Memory Units:

Bit (Binary Digit)/Byte/Binary Variants (Kilobyte, Megabyte, Gigabyte, Terabyte, Petabyte)

Security of computer system:

Sources of attack and possible damages, malware-virus and related entities - virus, trojan, spyware, worms, propagation of these entities, virus detection using a tool, digital certificates, digital signature, cookies, firewall, password, file access permissions.

Types of Software:

- **System Software**
 - (i) Operating systems, Need for operating system, major functions of Operating System.
 - (ii) Language Processors : Assembler, Interpreter and Compiler.
- **Utility Software:**
Compression tools, disk defragmenter, anti-virus.
- **Application Software :**
 - (i) General Purpose Application Software: Word Processor, Presentation Tool, Spreadsheet Package, Database Management System.
 - (ii) Specific Purpose application Software: Inventory Management System, Purchasing System, Human Resource Management System, Payroll System, Financial Accounting, Hotel Management and Reservation System etc.
- **Developer Tools:**
Interpreter / Compiler, Integrated Development Environment (IDE)

UNIT 2: INTRODUCTION TO PROGRAMMING

25 marks

Getting started with Programming using IDE

- Introduction, Rapid Application Development using IDE (Integrated Development Environment),
Familiarization of IDE using basic Interface components-Label, Text Field, Text Area, Button, Checkbox, Radio Button. (As per appendix B).
- Developing General Application (As per the guidelines at appendix B) - Getting Familiar with Java
Swing User Interface components - Frame, Dialog, Option Pane, Label, Text Field, Password Field, Text Area, Button, Check Box, Radio Button, Combo Box, List, Table.
- Basic component handling methods and properties:
Set Text, Get Text, Add, isSelected, setSelected. (As per appendix B).

Programming Fundamentals

- **Data Types:**
Concept of data types; Built-in data types - byte, short, int, long, float, double, char, String, Boolean.
- **Variables:**
Need to use variable, Declaring Variables, Variable Naming Convention, Assigning value to Variable(s).
- **Integer object method:** parseInt
- **Double object method:** parse double, parse float
- **Control Structures:**
 - **Decision Structure-** if, if-else, switch;
 - **Looping Structure-** while, do-while, for;

Programming Guidelines

- **Modular approach:**

Stylistic Guidelines:

Clarity and Simplicity of Expressions, Names, Comments, Indentation; Running and debugging programs, Syntax Errors, Run-Time Errors, Logical Errors.

• Problem Solving Methodology:

Understanding of the problem, Identifying minimum number of inputs required for output, breaking down problem into simple logical steps.

UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM**30 marks****Relational Database Concepts****• Database Management System**

Introduction to database concepts: Data base, Relation/Table, attribute/field, Tuple/Rows.

• Data Types

Number, Character and Date

• Key:

Primary Key, Candidate key, Alternate key, Foreign key.

• Examples of common Database Management System

MySQL, INGRES, POSTGRES, ORACLE, DB2, MS SQL, Sybase.

Introduction to MySQL (ANSI SQL 99 standard commands)**• Classification of SQL Statements****○ DML(Data Manipulation Language):**

SELECT, INSERT, UPDATE, DELETE

○ DDL(Data Definition Language):

CREATE, DROP, ALTER

• Creating and using a database:

SQL CREATE command to create a database, USE command to select a database.

• Creating a table:

CREATE command to create a table, DESC command to display a table structure, INSERT command for: Inserting New Rows, Inserting New Rows with Null Values, Inserting NUMBER, CHAR and DATE Values.

• Displaying table data:

SELECT command for Selecting all the Columns, Selecting Specific Column, Using Arithmetic Operators, Operator Precedence, Defining and using column Alias, Eliminating duplicate values from display (DISTINCT Keyword), Limiting Rows during selection (using WHERE clause), Working with Character Strings and Dates, Working with NULL values.

• Using Comparison Operators - =, <, >, <=, >=, <>, BETWEEN, IN, LIKE (%,_), Logical Operators - AND, OR, NOT, Operator Precedence.

• ORDER BY Clause, Sorting in Ascending/Descending Order, Sorting By Column Alias Name, Sorting On Multiple Columns.

• Manipulating Data of a Table/Relation:

Update command to Change Existing Data of a Table, Delete command for removing row(s) from a Table.

• Restructuring a table: ALTER TABLE for adding new column(s), deleting a column.**Functions in MySQL****• String Function:**

CHAR(), CONCAT(), INSTR(), LCASE(), LEFT(), LOWER(), LENGTH(), LTRIM(), MID(), RIGHT(), RTRIM(), SUBSTR(), TRIM(), UCASE(), UPPER().

• Mathematical Functions:

POWER(), ROUND(), TRUNCATE().

- **Date and Time Functions:**

CURDATE() , DATE(), MONTH(), YEAR(), DAYNAME(), DAYOFMONTH(), DAYOFWEEK(), DAYOFYEAR(), NOW(), SYSDATE().

UNIT 4: IT APPLICATIONS

5

marks

- **e-Governance:**

Definition, Benefits to citizens, e-Governance websites and their salient features and societal impacts; e-Governance challenges.

- **e-Business:**

Definition, Benefits to customers and business, e-Business websites and their salient features and societal impacts, e-Business challenges.

- **e-Learning:**

Definition; Benefits to students (Learners), Teachers (Trainers) and School (Institution) Management; e-Learning websites and their salient features and societal impacts; e-Business Challenges.

In each of the above domains, identify at least two real-life problems, list the input(s) required for the expected output(s), and describe the problem solving approach.

Part – B: Practical

Marks: 30

S.No.	Description	Marks
1	Problem solving using Java	12
2	SQL Queries	4
3	Practical Record <ul style="list-style-type: none">• Productivity Tools• Simple Problems using Java• SQL Queries• IT Applications	8
4	Presentation on contributions by computer scientists	2
5	Viva Voce	4
Total		30

Evaluation of Practical Examination

1. Problem solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file. Student will be given a problem to be solved using Java during final practical examination to be conducted at the end of the academic session

2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year along with course coverage in theory. Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- Print out of at least 2 documents with use of Different Style, Page Setting/Formatting, Bulleting/Numbering and Tabulation.
- Print out of at least 2 spreadsheets with simple calculations, basic functions, macros and graphs/charts.
- At least 10 solutions of simple problems using IDE based Java (refer to Appendix 'A' & 'B').
- At least 3 IT applications - problems solving framework.
- At least 20 SQL queries.

4. Presentation

Group of 3-4 students will prepare presentation(s) on salient contributions by atleast two computer scientist and their brief life sketch.

5. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session. Out of 4 marks, 2 marks are allotted to test student's understanding of basic computer hardware and their functions.

Prescribed textbook:

Informatics Practices – ***Saraswati House Pvt. Ltd.***
by Reeta Sahoo & Gagan Sahoo

CLASS -XII
INFORMATICS PRACTICES

Unit-Wise weightage
Part 'A' External
Theory paper

Time: 3 hrs

Marks: 70

Unit	Topic	Marks	
		Theory	Practical
1.	NETWORKING AND OPEN STANDARDS	10	02
2.	PROGRAMMING	25	16
3.	RELATIONAL DATABASE MANAGEMENT SYSTEM	30	8
4.	IT APPLICATIONS	05	4
	TOTAL	70	30

UNIT 1: NETWORKING AND OPEN STANDARDS

Computer Networking:

- **Networking:** a brief overview.
- **Communication Media:**
 - **Wired Technologies:** Co-Axial, Ethernet Cable, Optical Fiber.
 - **Wireless Technologies:** Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link.
- **Network Devices:** Hub, Switch, Repeater, Gateway - and their functions.
- **Types of network:** LAN, MAN, WAN, PAN.
- **Network Topologies:** Star, Bus, Tree.
- **Network Protocols:** HTTP, TCP/IP, PPP.
- **Identifying computers and users over a network:** Basic concept of domain name, MAC (Domain Control) and IP address, domain name resolution.
- **Network security:** denial of service, intrusion problems, snooping.

Open Source Concepts:

- **Open Source Software (OSS):** common FOSS/FLOSS examples (e.g. Gnu/Linux, Firefox, OpenOffice, Java, Netbeans, MySQL), common open standards (WWW, HTML, XML, ODF, IP, TCP)

- **Indian Language Computing:** character encoding, UNICODE, different types of fonts (open type vs true type, static vs dynamic), Entering Indian Language Text - phonetic and key map based.

UNIT 2: PROGRAMMING

Review of Class XI

Programming Fundamentals

(Refer to Appendix A for sample guidelines of GUI Programming, and Appendix B for Swing Control Methods & Properties)

- **Basic concept of:**
 - Access specifier for classes.
 - Members and methods.
 - Concept of package.
 - **Inheritance:** need and implementation, Method Overloading and Overriding, Abstract Class and Interfaces, use of interface.
- **Commonly used libraries:**
 - **String class and methods:** toString(), concat(), length(), toLowerCase(), toUpperCase(), trim(), substring()
- **Math object:** pow(), round()

Accessing MySQL database using ODBC/JDBC to connect with database.

- **Web application development:** URL, Web Server, Communicating with the web server, concept of Client and Server Side.
- **HTML based web pages covering basic tags:** - HTML, TITLE, BODY, H1..H6, Paragraph (P), Line Break (BR), Section Separator (HR), FONT, TABLE, LIST (UL, OL), FORM, Creating and accessing static pages using HTML and introduction to XML.

UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM

Review of RDBMS from Class XI

- **Database Fundamentals**
 - Concept of Database Transaction, Committing and cancelling a Transaction using COMMIT and ROLLBACK.
- **Grouping Records:**
 - GROUP BY, Group functions - MAX(), MIN(), AVG(), SUM(), COUNT(); using COUNT(*), DISTINCT clause with COUNT, Group Functions and Null Values,
- **Displaying Data From Multiple Tables:**
 - Cartesian product, Union, concept of Foreign Key, Equi-Join
- **Creating a Table:**
 - Using PRIMARY KEY and NOT NULL constraints, adding a Constraint, enabling Constraints, Viewing Constraints, Viewing the Columns Associated with Constraints using DESC Command.
- **ALTER TABLE:**
 - Deleting a column, Modifying data types of a column, adding constraints, enabling constraints and dropping constraints.
- **DROP Table for deleting a table.**

UNIT 4: IT APPLICATIONS

- **Front-end Interface:**
 - Introduction; content and features; identifying and using appropriate component (Text Box, Radio Button, CheckBox, List) for data entry, validation and display.
- **Back-end Database:**
 - Introduction and its purpose; exploring the requirement of tables and its essential attributes;
- **Front-End and Database Connectivity:**
 - Introduction, requirement and benefits, Demonstration and development of appropriate Front-end interface and Back-end Database for e-Governance, e-Business and e-Learning applications.
- **Impact of ICT on Society:**
 - Social and Economical benefits and Informania.

Class XII (Practical)

S.No.	Description	Marks
1	Problem solving using Java	10
2	SQL Queries	4
3	Practical Record	6
	• Simple Problems using IDE Java	
	• SQL Queries	
	• IT Applications	
4	Project Work	4
5	Viva Voce	6
	Total	30

Evaluation of Practical Examination

1. Problem Solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file. Student will be given a problem to be solved using Java during final practical examination to be conducted at the end of the academic session.

2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year along with course coverage in theory.

Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- At least 12 solutions of simple problems and 2 IT applications using IDE based Java (refer to Appendix 'A' & 'B')
- At least 24 SQL queries based on one and/or two tables
- Solution of at least 2 simple problems incorporating Java Application & Database connectivity

4. Project File

Students in group of 2-3 are required to work collaboratively to develop a project using Programming and Database skills learnt during the course. The project should be an application with GUI front-end based on any one of the following domains - e-Governance, e-Business and e-Learning

5. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session.

Prescribed textbook:

Informatics Practices – *Saraswati House Pvt. Ltd.*
by *Reeta Sahoo & Gagan Sahoo*

ENVIRONMENTAL EDUCATION

Objectives:

- to develop an in-depth understanding of various environmental issues and concern of national and global importance;
- to develop a balanced view of the relationship between environment and development;
- to understand basic concepts related to sustainable development vis-à-vis improvement of quality of life;
- to develop a deeper concern for the environment and a sense of commitment and responsibility to take proactive action;
- to appreciate the variety in living organism and recognize India as a mega diversity nation;
- to appreciate the role of the individual, community, national and international agencies in resolving environmental problems;
- to practise ways of bringing about qualitative improvement in the environment by assuming leadership role;
- to identify self with one's environment with an attitude to personally contribute towards its improvement;
- to respect customs and traditions related to local conservation practices and accept indigenous eco-friendly technologies;
- to develop skills to undertake and participate in investigative studies on various environmental issues; and
- to motivate them and participate in social and community activities in dealing with environmental problems.

DESIGN OF QUESTION PAPER ENVIRONMENTAL EDUCATION

Weightage to different forms of questions:

Sl. no.	Forms of questions	Marks for each question	No. of questions	Total marks
1.	MCQ	1	10	10
2.	SA-I	2	7	14
3.	SA-II	4	5	20
4.	LA-I	6	3	18

5.	LA-II	8	1	8
	Total		26	70

Weightage level of questions:

Sl.no.	Level	Percentage	Marks
1.	Easy	20	14
2.	Average	60	42
3.	Difficult	20	14
	Total	100	70

The expected length of answer and time to be taken under different forms of questions shall be as follows:

Sl.no.	Forms of questions	Expected length of answer	Expected time for each question	Total expected time
1.	Reading	-	-	10 minutes
2.	MCQ	-	1 minute	10 minutes
3.	SA - I	30-50 words	5 minutes	35 minutes
4.	SA - II	50-100 words	10 minutes	50 minutes
5.	LA - I	100-150 words	15 minutes	45 minutes
6.	LA - II	150-200 words	20 minutes	20 minutes
7.	Revision	-	-	10 minutes
			Total time	180 minutes

Scheme of Options:

Internal choice shall be provided in:

- i. 3(three) questions of 6 marks each
- ii. 1(one) question of 8 marks.

**CLASS - XI
ENVIRONMENTAL EDUCATION**

Unit-Wise weightage

Part – A: External

Time: 3 Hrs

Marks: 70

Unit	Marks
I. Man and Environment	16
II. Environment and Development	15
III. Environmental Pollution and Global Issues	27

IV. Energy	12
Total	70
Part – B: Internal – Practical	30
Grand total	100

Part – A: External

Unit I: Man and Environment **16 marks/30 Periods**

- (i) Dimensions of environment-physical, biological and social.
- (ii) Human being as a rational and social partner in environmental actions.
- (iii) Society and environment in India; Indian traditions, customs and culture – past and present.
- (iv) Population and environment.
 - Environmental problems of urban and rural areas.
 - Natural resources and their depletion.
 - Stress on civic amenities; supply of water and electricity, waste disposal, transport, health services.
 - Vehicular emissions.
 - Urbanization – land use, housing, migrating and floating population.

Unit II: Environmental and Development **15 marks/28 Periods**

- (i) Economics and social needs – as basic considerations for development.
- (ii) Agriculture and industry as major sectors of development.
- (iii) Social factors affecting development – poverty, affluence, education, employment, child marriage and child labour; human health – HIV/AIDS, social cultural and ethical values.
- (iv) Impact of development on environment – changing pattern of land use; land reclamation, deforestation, resource depletion, pollution and environmental degradation.
- (v) Impact of liberalization and globalization on – agriculture and industries, dislocation of manpower and unemployment, implications for social harmony.
- (vi) Role of society in development and environment – public awareness through education, eco-clubs, population education programme, campaigns, public participation in decision making.

Unit III: Environmental Pollution and Global Issues **27 marks/50 Periods**

- (i) Air, water (fresh and marine), soil pollution – sources and consequences.
- (ii) Noise and radiation pollution – sources and consequences.
- (iii) Solid, liquid and gaseous pollutants.
- (iv) Handling of hazardous materials and processes; handling and management of hazardous wastes.
- (v) Ozone layer depletion and its effect.
- (vi) Greenhouse effect; global warming and climatic changes and their effects on human society, agriculture, plants and animals.
- (vii) Pollution related diseases.
- (viii) Disasters – natural (earthquakes, droughts, floods, cyclones, landslides) and man-made (technological and industrial); their impact on the environment; prevention, control and mitigation.
- (ix) Strategies for reducing pollution and improving the environment.

Unit IV: Energy **12 marks/22 periods**

- (i) Changing global patterns of energy consumption – from ancient to modern times.

- (ii) Energy consumption as measure of quality of life.
- (iii) Rising demand for energy, gap between demand and supply (Indian context).
- (iv) Conventional energy sources – fossil fuels and firewood, potential (Indian context) and limitations of each source, methods of harnessing and environmental consequences and their use.
- (v) Non-conventional energy sources – types of non-conventional sources (bio-mass, solar, wind, ocean, hydel, geothermal, nuclear), potential (Indian context) and limitations of each source, methods of harnessing and their environmental consequences, need to promote non conventional energy sources.
- (vi) Conservation of energy sources-efficiency in production, transportation and utilization of energy.
- (vii) Planning and management of energy; future sources of energy hydrogen, alcohol, fuel cells.
- (viii) Enhancing efficiency of the devices and optimizing energy utilization.

Part – B: Internal - Practical	Marks 30
I. Case study I	10
II. Case study II	10
III. Project	10
Total	30

Prescribed textbook:

Textbook of Environmental Education Class XI – Goyal Brothers Prakashan.

CLASS XII
ENVIRONMENTAL EDUCATION

Unit – I Biodiversity

- Concept and value of biodiversity.
- Types of biodiversity – species, eco and genetic.
- Balance in nature.
- Biodiversity for sustenance of mankind.
- Resource limitations.
- Ecological role of biodiversity.
- Interdependence between different species.
- India as a mega-diversity nation.
- Economic potential of biodiversity.
- Loss of biodiversity – threatened, endangered and extinct species.
- Strategies for conservation of biodiversity – in-situ and ex-situ.
- Mitigating people-wildlife conflict.

Unit –II Environmental Management

Need for environmental management vis-à-vis development.

Aspects of environmental management – ethical, economic, technology and social.

Legal provisions for environmental management.

Approaches for environmental management – economic policies, environmental indicators, setting of standards, information exchange and surveillance.

Unit –III Sustainable Development

Concept of sustainable development. - Concept of sustainable consumption.

Need for sustainable development for improving quality of life for the present and future.

Challenges for sustainable development - social, political and economic considerations.

Support base for sustainable development – political and administrative will, dynamic and flexible policies, appropriate technologies, comprehensive review and revision mechanism, humane approach. - Developing skilled manpower.

Role of individual and community.

Role of national and international agencies (both government and non-governmental).

Unit – IV Sustainable Agriculture

Need for sustainable agriculture.

Green Revolution – impact on environment.

Importance of soil for crops.

Irrigation systems, use of manure and fertilizers.

Crop production – major plant pests and diseases, measures for their control – agrochemicals.

Impact of agrochemicals on environment.

Elements of sustainable agriculture – mixed farming, mixed cropping, crop rotation, biological and economic considerations, use of bio-fertilizers and bio pesticides, biological pest control, integrated pest management.

Applications of biotechnology in crop improvement.

Management of agricultural produce – storage, preservation, transportation and processing.

Prescribed textbook:

Textbook of Environmental Education Class XII – Goyal Brothers Prakashan.

Work & Art Education and Physical & Health Education

Unit 1: Physical Education

Sl.no.	Chapter	Contents	Case study/ activity /Group discussion
1	Concept of Physical Education	1. Meaning and definition 2. Aims & objectives 3. Need and importance 4. Lifestyle management through sports	Case study /activity/Group discussion: (<i>To give example</i>)
2	Career in Physical Education	1. Physical education as a profession 2. Career options - teaching, coaching, health related careers, performance related careers etc	Case study /activity/Group discussion: (<i>To give example</i>)
3	Measurement in Sports	1. Meaning 2. Importance of measurement in Physical Education & sports 3. Body Mass Index (BMI) 4. Waist-hip ratio 5. Measurement of Heart Rate (resting and after exercise)	Case study /activity/Group discussion: (<i>To give example</i>)
4	Physical Fitness and Wellness	1. Meaning and importance 2. Methods for improving Physical Fitness & Wellness 3. Factors affecting Physical Fitness & Wellness	Case study /activity/Group discussion: (<i>To give example</i>)
5	Postures	1. Meaning and concept of Correct Postures 2. Advantages 3. Common Postural Deformities 4. Physical activities as corrective measures	Case study /activity/Group discussion: (<i>To give example</i>)
6	Training Methods	1. Meaning and concept 2. Principles of Sports Training 3. Flexibility Development 4. Strength Development 5. Endurance Development 6. Speed Development	Practical /Activities
7	Exercises of warming up and conditioning	1. Introduction 2. Types of warming up and conditioning 3. Suggested warm up and conditioning for: • Lawn tennis /football/basketball/cricket	
8	Common Sports injuries	1. Introduction 2. Various types of common sports injuries with prevention 3. Case study/activity/Group discussion: (<i>To give example</i>)	
9	Athletics	1. History 2. General Rules of athletics 3. Specifications of playfields and related sports equipments	

		<ul style="list-style-type: none"> • Shot-put, discus throw, javelin throw, long jump, triple jump, high jump, pole vault <p>4. Important tournaments</p>	
10	Common Games & Sports	<p>Lawn Tennis, Table Tennis, Basketball & Volleyball</p> <ol style="list-style-type: none"> 1. History 2. General Rules 3. Specifications of playfields and related sports equipments 4. Fundamental skills 5. Terminology 6. Important tournaments 7. Sports awards 	
11	Adventure	<p>Hiking Trails</p> <ol style="list-style-type: none"> 1. Introduction 2. Basics of Hiking 3. Socio-cultural activities 4. Explore the region/mountains by foot 5. Activity: <i>(To explain)</i> Walking paths, Half day hike, full day hike. 	Activity: Create a campaign to encourage cycling and walking.
		<p>Camping</p> <ul style="list-style-type: none"> • Meaning • Purpose • Different forms of camping • Various camping equipments • Activity: <i>(To explain)</i> Literacy camp - 'Each one teach one' 	• Activity: Organize a cultural, recreational or educational camping programme with some social and educational message.
12	NCC and NSS	<ol style="list-style-type: none"> 1. Introduction 2. Purpose 3. Principles 4. Various activities 5. Benefits 6. How to join 	

Unit 2: Health Education

13	Healthy Habits	<ol style="list-style-type: none"> 1. Concept of Health (physical, social, mental) 2. Healthy habits: Personal hygiene, tips for common cold/flu, home cleaning tips, etc 3. Periodic Health Check-Up 4. Case study/activity/Group discussion: <i>(To give example)</i> 	
14	Meal planning and preparation	<ol style="list-style-type: none"> 1. Introduction 2. Planning for different types of meal 3. Activities: Naga dish <ul style="list-style-type: none"> • Chicken with dried bamboo shoots • Pork with fresh bamboo shoots • Fish with fresh bamboo shoots • Naga Khouvie (Allium chinense) dried beef chutney 4. Activities: <i>(To explain with recipe)</i> Preparation of: <ul style="list-style-type: none"> • snack/dish rich in nutrient. • snack/dish low in calorie. • one meal (breakfast, lunch, tea time, dinner) for infants, adolescent, old person, pregnant or lactating mother. • biscuits (sweet/salty), cakes, doughnuts. 	Activity: <ul style="list-style-type: none"> • Scrap book - pasting of nutrition, health articles and recipes from magazines & newspapers. • Report writing on cooking local cuisine.
15	Life Skills for Adolescence Education	<ol style="list-style-type: none"> 1. Introduction 2. Essential life skills: Critical thinking, decision making, leadership, negotiation, organising, delegation, conflict resolution, etc. 3. Personal skills: Case study/activity/Group discussion <i>(To give example)</i> 4. Character building skills: Case study/activity/Group discussion <i>(To give example)</i> 	

16	Self Esteem and Peer Pressure	<ol style="list-style-type: none"> 1. Introduction 2. High self esteem, low self esteem, peer pressure 3. How to avoid negative peer pressure and say 'No': Case study/activity/Group discussion (<i>To give example</i>) 4. Stress management: Case study/activity/Group discussion (<i>To give example</i>) 	
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Unit 3: Work Education

17	Plantation and environmental activities: Permaculture	<ol style="list-style-type: none"> 1. Introduction of Permaculture 2. Principles: The link between sustainable living and environmental conservation. 3. Common practices: Agroforestry, Rainwater harvesting, Soil conservation, Enhancing tree cover, biomass generation, Sheet mulching, Composting bin, etc 4. How to establish a permaculture garden in school. 	Activity: (<i>To explain with required materials</i>) <ul style="list-style-type: none"> • Rainwater harvesting • Bee-keeping for gardeners • Organise a recycling fair in school.
18	Community Service	<ol style="list-style-type: none"> 1. Introduction 2. Community service learning and its benefits to volunteers 3. Community service ideas for schools: <ul style="list-style-type: none"> • Donate old clothes or household goods to the needy; • Donate old children's books, novels and other reading materials to the needy. • Visit old age homes and destitute children homes; • Offer to do household chores for an elderly neighbour; • Volunteer to clean neighbourhood or specific public area; • Volunteer to clean up trash at a public event; • Visit a rehabilitation centre with special needs children. Volunteer to help; etc. 	Activity: <ul style="list-style-type: none"> • 'Clean & Green' programme - Volunteer to clean neighbourhood drainages with plantation drives. • Exhibition-cum-sale of food products/crafts made by the students for a social cause.
19	Disaster Management including mock drills	<ol style="list-style-type: none"> 1. Meaning 2. Types of Disaster: Recall from previous classes (brief) 3. Prevention, preparedness, relief, recovery <ul style="list-style-type: none"> • flood and • landslides 	Activity: (<i>To explain with required steps</i>) <ul style="list-style-type: none"> • Mock drills/relief in case of flood • Mock drills/relief in case of landslide
20	Craft	<ol style="list-style-type: none"> 1. Introduction 2. Different types of craft work <ul style="list-style-type: none"> • Make soft toys/puppets • Prepare T.V. cover/refrigerator top cover using net, laces, clothes. Decorate it. • Weave basket using plastic • Paper & glue crafts • Beads & jewellery crafts • Bamboo craft: Make bamboo cart, bamboo tong, bamboo tray & bamboo planters. 	Activities: (<i>To explain with steps and required materials</i>)
21	Food processing and catering management	<ol style="list-style-type: none"> 1. Introduction 2. Common methods of processing and preserving food 3. Benefits & drawback 4. Sanitation and safety requirement of catering unit <ul style="list-style-type: none"> • Market survey and observations on packaging materials/containers used for packing fruits and vegetables. Analyze various packaging materials for processed food. • Preparation of pickles (lemon, mango, mixed vegetables, etc). Pack, label and store it. • Preparation of jelly and marmalade. Pack, label and store it. 	Activity: <ul style="list-style-type: none"> • Plan a single meal - Naga, Indian, Chinese, Italian, Continental. Cook and serve dishes. • Visit a bakery/confectionary unit and report.

Unit 4: Art Education

22	Music	<ol style="list-style-type: none"> 1. Introduction 2. Different types of music (in brief) 3. Different types of instruments (in brief) 4. Basic music skills: Ear training or aural skills, Absolute pitch, fingering, Modulation 	<p>Activity:</p> <ul style="list-style-type: none"> • Assemble a choir with a director and an accompanist and present a choral piece. • Form a musical band and present item(s) at the school assembly or at a school event. • Learn to folk songs and present item(s) at the school assembly or at a school event. <p>Group discussion: Music tastes discussion and presentation.</p>
23	Sketching	<ol style="list-style-type: none"> 1. Basic techniques 2. Materials required 	<p>Activity: (<i>To explain with required steps</i>)</p> <ul style="list-style-type: none"> • Pencil sketches
24	Sculpting	<ol style="list-style-type: none"> 1. Basic techniques 2. Materials required 	<p>Activity: (<i>To explain with required steps</i>)</p> <ul style="list-style-type: none"> • Sculpt an object using soap/plaster of Paris/play dough
25	Drama	<ol style="list-style-type: none"> 1. Different types 2. Scope and future prospects of drama 3. Creative drama Activity: (<i>To give example</i>) Produce an anti-crime, anti-drug, anti-violence play. 	<p>Activity: Write and produce a play about a current issue.</p> <ul style="list-style-type: none"> • Character creation through puppetry - Create a play for puppets (made by students in the Crafts class).

Unit 5: Civic Sense

26	Civic sense	<ol style="list-style-type: none"> 1. Introduction 2. Importance 3. Civic skills 4. Activity/Case study/ Group discussion (<i>To give example</i>) 	<p>Group Discussion: Participation in the governance of classroom/school as an integral part of civic education. How can students learn to interact, monitor and influence school and public policies; how their voice matters in school rules and disciplinary procedures; and how as a citizen has the rights and responsibilities that accrue to citizens in a constitutional democracy.</p>
27	Civic education	<ol style="list-style-type: none"> 1. Introduction 2. Key areas: Citizenship, Cultural heritage, Indian Constitution, Democracy, Voters Education (SVEEP), Gram Sabha, Transparency in Governance, Gender, Social Harmony, Thinking and Negotiation Skills 3. Dangers of civic disengagement in society (political disinterest) 	Activity/Case study/ Group discussion (<i>To give example</i>)

Unit 6: Peace Education

28	Peace Education	<ol style="list-style-type: none"> 1. Meaning 2. Objectives of Peace Education 3. Expected results 4. Gandhi's philosophy of peace 	Activity/Case study/ Group discussion (<i>To give example</i>)
29	National Integration	<ol style="list-style-type: none"> 1. Meaning 2. Unity in diversity in Indian context with special reference to North-eastern states 	Activity/Case study/ Group discussion (<i>To give example</i>)

Unit 7: Career Guidance

30	Different reer options	<p>Arts/Humanities:</p> <ol style="list-style-type: none"> 1. Subject of study and Career options (jobs) related to the following career interests: <ul style="list-style-type: none"> ● Mechanical ● Scientific ● Business ● Aesthetic ● Social ● Clerical ● Outdoors <p><i>Note for publisher/writer - For example: A career option for Mechanical under Arts/Humanities</i></p> <ul style="list-style-type: none"> ○ Career option: Air Force Officer Indian Air Force is one of the major air arms in the world and can boast of the best trained men and material force, which is engaged in defence services, guarding the country's skies against external aggression from air. ○ Stream: Science, Commerce, Humanities/Arts ○ Mandatory Subjects: Mathematics, Physics ○ Career Interest: Mechanical ○ Academic Difficulty: High 	
		<p>Science:</p> <ol style="list-style-type: none"> 1. Subject of study and Career options (jobs) related to the following career interests: <ul style="list-style-type: none"> ● Mechanical ● Scientific ● Business ● Aesthetic ● Social ● Clerical ● Outdoors 	

		Commerce: 1. Subject of study and Career options (jobs) related to the following career interests: <ul style="list-style-type: none"> • Mechanical • Scientific • Business • Aesthetic • Social • Clerical • Outdoors 	
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Chapter – wise distribution for Class XI & XII

Unit	Chapters for Class XI	Chapters for Class XII
1	1 - 6	7 - 12
2	13 & 15	14 & 16
3	17 & 19	18 , 20 & 21
4	22 & 23	24 & 25
5	26	27
6	28	29
7	30	

Prescribed textbook: To be notified later