

Pre University Exam Syllabus

Note:

The Board reserves the right to amend Syllabi and Courses as and when it deems necessary. The Schools are required to strictly follow the Syllabi and text books prescribed by the Board for the academic sessions and examinations concerned. No deviation is permissible.

CONTENTS

A. Open Schooling the Distance Learning Programme

B. Eligibility and Scheme of studies

1. Eligibility of candidate
2. Academic Qualification for undertaking Examination
 - (a) For Class 10th (Pre-University Certificate Examination I)
 - (b) For Class 12th (Pre-University Certificate Examination II)
3. Admission Procedure
4. Admission to Examination
5. Detaining of Eligible Candidate

C. Scheme of Examination and Pass Criteria

1. General Conditions
2. Pass Criteria
3. Grading
4. Eligibility of Compartment
5. Compartment Examination
6. Improvement of Performance
7. Merit Certificate
8. Exemption of Spastic, Blind, Dyslexic and Physically Handicapped Candidate
9. Medium of Instruction

D. Study Planning

- (i) Subject Scheme for Pre University Certificate Examination I
- (ii) Subject Scheme for Pre University Certificate Examination II

B

SCHEME OF STUDIES

(1) Eligibility of Candidate

Student seeking admission to any class in a 'School/Academic center' will be eligible for admission to that class only if he: -

- a. Has been studying in a school recognized by or affiliated to this Board or any other recognized Board of Secondary Education in India;
- b. Has passed qualifying or equivalent qualifying examination making him eligible for admission to that class; or
- c. Satisfies the requirements of age limits (minimum) as determined by the State/ U.T. Government and applicable to the place where the School is located; (Applicable for the admission of Class 10th only)
- d. Produces: -
 - (i) the School Leaving Certificate/Transfer Certificate signed by the Head of the Institution last attended and countersigned;
 - (ii) document(s) in support of his having passed the qualifying or equivalent qualifying examination, or
 - (iii) The Date of Birth Certificate issued by the Registrar of Births and Deaths wherever existing as proof of date of birth. (for Class 10th only)
- e. No student migrating from a school in a foreign country other than the school affiliated to this Board shall be eligible for admission unless an eligibility certificate in respect of such a student has been obtained from this Board. For obtaining eligibility certificate from the Board, the Principal of the School to which admission is being sought will submit to the Board full details of the case and relevant documents with his own remarks/ recommendations. The eligibility certificate will be issued by the Board only after the Board is satisfied that the course of study undergone and examination passed is equivalent to the corresponding class of this Board.
- f. 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 in a School affiliated to this Board.
- g. No student shall be admitted or promoted to any subsequent higher class in any school unless he has completed the 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.

Explanation

- (i) A person who has been studying in an institution, which is not listed in COBSE Shall not be admitted to any class on the basis of Certificate(s) of such institution(s) attended by him earlier.
- (ii) 'Qualifying Examination' means an examination -the passing of which makes a student eligible for admission to a particular class and 'equivalent examination' means-an examination conducted by any Board of Secondary Education/Indian University or an institution listed in COBSE.

2. ACADEMIC QUALIFICATIONS FOR UNDERTAKING EXAMINATIONS For class X Pre-University Certificate Examination-I(Optional)

A candidate for High school certificates Examination of Board should have: -

- (i) passed the Middle School Examination (Class VIII) of a Board or of an affiliated/ recognized school at least two years earlier than the year in which he would take high school certificate (Class X) Examination,

(b) For class XII Pre-University Certificate Examination-II

A candidate for Board intermediate certificate examination should have:-

- (i) Passed the secondary school examination (Class X) of this board or an equivalent examination from any other recognized board/University at least two years earlier than the year in which he/she would take Intermediate certificate examination (Class XII) of the board; and
- (ii) Secured a grade higher than grade 'E' in each of the subjects of internal assessment at secondary school examination (Class X) referred to at (a) above.

3. Admission Procedure

- (a) Successive numbers must be allotted to students on their admission and each Student should retain this number throughout a whole of his career in the school. A student returning to the school after absence of any duration shall resume admission on his original number.
- (b) If a student applying for admission to a school has attended any other school, an authenticated copy of transfer certificate in the format given in the examination bye-laws from his last school must be produce before his name can be entered in the admission register.
- (c) In no case shall a student be admitted into a class higher than that for which he is entitled according to the transfer certificate.
- (d) A student shall not be allowed to migrate from one "School" to another during the session after his name has been sent up for the examination of the board. This condition may be waived only in special circumstances by the chairman.
- (e) A student leaving his school at the end of a session or who is permitted by the school during the session shall on a payment of all dues, receive an authenticated copy of the transfer certificate up-to-date. A duplicate copy may be issued if the head of the institution is satisfied that the original is lost but it shall always be so marked.

- (f) In case a student from an institution not affiliated to the board seeks admission in a school affiliated to the board, such a student shall produce a transfer certificate duly countersigned by an authority as indicated in the format given in examination bye-laws.

4. Admission to examination

No candidate who has been expelled or is under the punishment or rustication or his debarred for appearing in or taking an examination for any reason whatsoever, shall be admitted to any examination of the board.

5. Detaining of Eligible Candidates

In no case the Heads of affiliated schools/AC shall detain eligible candidates from appearing at the examination.

Syllabus

C

SCHEME OF EXAMINATIONS AND PASS CRITERIA

1. GENERAL CONDITIONS

- a) The Scheme of Examinations and Pass Criteria for HSEC & IMEC conducted by the Board, shall be as laid down from time to time.
- b) The Board will conduct the examinations at the end of class X & XII.
- c) These examinations shall be based on the Syllabi as prescribed by the Board for class X & XII from time to time.
- d) Number of papers, duration of examination and marks for each subject/paper will be as specified in the curriculum for the year.
- e) The examination would be conducted in theory as well as in practical's, depending upon the nature of the subject(s) and the marks/grades allotted shall be as prescribed in the curriculum.
- f) Marks/grades shall be awarded for individual subjects and the aggregate marks shall not be given.

2. PASS CRITERIA

- a) In order to be declared as having passed the examination, a candidate shall obtain a grade higher than E (i.e.at least 33% marks) in all of the subjects of Board examination in the main or at the compartmental examinations. The pass marks in each subject of board examination shall be 33%. In case of subjects involving practical work a candidate must obtain 33% marks in theory and 33% marks in practical separately in addition to 33% marks in aggregate in order to qualify in that subject.
- b) No overall division/distinction/aggregate shall be awarded.

3. GRADING

- a) Assessment of theory/practical papers in board Exams shall be in numerical scores. In addition to numerical scores, the Board shall indicate grades in the mark sheets issued to the candidates.
- b) Letter grades on a nine-point scale shall be used.
- c) The qualifying marks in each subject of board examination shall be 33% at Secondary School Examination. However, in a subject involving practical work a candidate must obtain 33% marks in theory and 33% marks in practical separately in addition to 33% marks in aggregate in order to qualify in that subject.

For % Between 91 to 100	=	A+
For % Between 81 to 90	=	A
For % Between 76 to 80	=	B+
For % Between 71 to 75	=	B
For % Between 61 to 70	=	C+
For % Between 51 to 60	=	C
For % Between 41 to 50	=	D+
For % Between 33 to 40	=	D
Failed Candidates	=	E

4. ELIGIBILITY OF COMPARTMENT

A Candidate failing in two of the taken subjects of board examination shall be placed in compartment

5. COMPARTMENT EXAMINATION

- a) A candidate placed in Compartment may reappear at Compartment Examination to be held in Next by the board. The candidate will be declared 'PASS' provided he/ she qualifies the compartmental subjects in which he/she had failed.
- b) A candidate who does not appear or fails at one or all the eight chances of compartment shall be treated to have failed in the examination and shall be required to reappear in all the subjects at the subsequent annual examination of the Board as per syllabi and courses laid down for the examination concerned in order to pass the examination. The candidate's practical marks/internal assessment marks obtained in the 'Main examination will be carried over till the eight chance compartmental examination. The candidate shall have the option to appear at the practical examination in the subjects involving practical or retain their previous marks in one more annual examination after the eight Chance Compartment.
- c) Syllabi and Courses for the Compartmental Candidates in Examination shall be the same as applicable to the candidates of full subjects appearing at the examination.
- d) For subjects involving practical work, in case the candidate has passed in practical at the main examination he/she shall appear only in theory part and previous practical marks will be carried forward and accounted for. In case a candidate has failed in practical he / she shall have to appear in theory and practical both irrespective of the fact that he / she has already cleared the theory examination.

6. IMPROVEMENT OF PERFORMANCE

- a. A candidate who has passed an Examination of the Board may reappear at the examination for improvement of performance in the main examination in succeeding year only. The candidate(s) appearing for improvement of performance in the examination can appear in the subject(s) only in which they have been declared pass but not in the subject in which they have been declared fail.
- b. A candidate appearing for improvement in subject(s) involving practical shall appear only in theory and previous practical marks shall be carried forward and accounted for.
- c. Candidates who appear for improvement of performance will be issued only statement of Marks reflecting the marks of the improvement examination.
- d. A candidate appearing for improvement of performance in one or more subjects cannot appear for additional subject simultaneously.

7. MERIT CERTIFICATES

- a) The Board will award Merit Certificates in each subject to the top 0.1% of candidates passing the subject, provided that they have passed examination as per the pass criteria of the Board.
- b) The number of Merit Certificates in a subject will be determined by rounding of the number of candidates passing the subject to the nearest multiple of thousand. If the number of candidates passing a subject is less than 500, no merit certificate will be issued.
- c) In the matter of tie, if one student gets a Merit certificate, all candidates getting that score will get the Merit Certificate.

8. EXEMPTION TO SPASTIC, BLIND, DYSLEXIC AND PHYSICALLY HANDICAPPED CANDIDATES

Dyslexic, Spastic candidates and candidates with visual and hearing impairment have the option of studying one compulsory language as against two. This language should be in consonance with the overall spirit of the Three Language Formula prescribed by the Board. Besides one language any four of following subjects be offered: -

Mathematics, Science, Social Science, another language, Agriculture, Business Administration, Computer Science & Information Technology, Drawing and Painting, Home Science.

9. Medium of instruction: -

The Medium of instruction in general in all the schools affiliated with the board shall either be English or Hindi

D

Study Planning

1. In all subjects examined by the board, a student will be given one paper each carrying 100 marks. However, in subjects requiring practical examination, there will be a theory paper and practical examinations as require in the syllabi and courses.
2. A candidate may offer an additional subject which can be either a language at elective level or an order elective subject as prescribed in the scheme of studies, subject to the conditions laid down in the pass criteria.
3. Subject Scheme for High School Certificate Examination (Secondary Level)

Language	Main Subjects	Optional Subjects		Internal Assessment
Two Languages are compulsory out of which one shall be Hindi or English	Compulsory	Any one	Any One	Compulsory
Hindi, English and all of regional language	Science Social Science	Mathematics Home Science	Business-Administration Computer Science & Information Technology Home Science Drawing	Physical Education

4. Subject Scheme for Intermediate Certificate Examination (Senior Secondary Level)

Science Group

Language	Main Subjects	Optional Subjects	Internal Assessment
Minimum one or maximum two language, out of which one shall be Hindi or English.	Compulsory	Minimum one or maximum three subjects	Compulsory
Hindi, English and all of regional language	Physics Chemistry	Mathematics Biology, Computer Science, Information Technology	Physical Education

Commerce Group

Language	Main Subjects	Optional Subjects	Internal Assessment
Minimum one or maximum two language, out of which one shall be Hindi or English.	Compulsory	Minimum one or maximum three subjects	Compulsory
Hindi, English and all of regional language	Business organization Accountancy	Mathematics Statistics Entrepreneurship	Physical Education

Humanities/Arts Group

Language	Main Subjects	Optional Subjects	Internal Assessment
Minimum one or maximum two language, out of which one shall be Hindi or English.	Compulsory	Minimum one or maximum three subjects	Compulsory
Hindi, English and all of regional language	Sociology History	Geography Economics Political Science Home Science	Physical Education

Note:

- * Five subjects are required for the complete Board Examination in Senior Secondary Level. The candidate may select maximum two subjects extra.
- * Physical Education will be examined internally both of level (Secondary & Senior Secondary)

ENGLISH

BRIEF

Traditionally, language-learning materials beyond the initial stages have been sourced from literature: prose, fiction and poetry. While there is a trend for inclusion of a wider range of contemporary and authentic texts, accessible and culturally appropriate pieces of literature should play a pivotal role at the secondary stage of education. The English class should not be seen as a place merely to read poems and stories in, but an area of activities develops the learner's imagination as a major aim of language study, and to equip the learner with communicative skills to perform various language functions through speech and writing.

OBJECTIVES

The general objectives at this stage are:

To build greater confidence and proficiency in oral and written communication to develop the ability and knowledge required in order to engage in independent reflection and inquiry to use appropriate English to communicate in various social settings equip learners with essential language skills to question and to articulate their point of view. to build competence in the different registers of English to develop sensitivity to, and appreciation of, other varieties of English, Indian Englishes, and the culture they reflect to enable the learner to access knowledge and information through reference skills (consulting a dictionary / thesaurus, library, internet etc.), to develop curiosity and creativity through extensive reading to facilitate self-learning to enable them to become independent learners to review, organise and edit their own work and work done by the peers At the end of this stage learners will be able to do the following:

Give a brief oral description of events / incidents of topical interest retell the contents of authentic audio texts (weather reports, public announcements, simple advertisements, short interviews, etc.) participate in con-versations, discussions, etc, on topics of mutual interest in non-classroom situations narrate the story de-picted pictorially or in any other non-verbal mode respond in writing to business letters, official communi-cations read and identify the main points / significant details of texts like scripts of audio-video interviews, discussions, debates etc. .

Write without prior preparation on a given topic and be able to defend or explain the position taken/ views expressed write a summary of short lectures on familiar topics by making/taking notes write an assessment of different points of view expressed in a discussion / debate read poems effectively (with proper rhythm and intonation) to transcode information from a graph / chart to a description/ report.

LANGUAGE ITEMS

In addition to consolidating the grammatical items practiced earlier, the courses at secondary level will seek to reinforce the following explicitly:

sequence of tenses

reported speech in extended texts

modal auxiliaries (those not covered at upper primary) non-finites (infinitives, gerunds, participles) conditional clauses

complex and compound sentences

phrasal verbs and prepositional phrases

cohesive devices

punctuation (semicolon, colon, dash, hyphen, parenthesis or use of brackets and exclamation mark)

METHODS AND TECHNIQUES

The methodology will be based on a multi-skill, activity based, learner centred approach, (are would be taken to fulfil the functional (communicative), literary (aesthetic) and cultural (sociological) needs of the learner. In this situation the teacher is the facilitator of learning, s(he) presents language items } contrives situations which motivates the child to use English for the purposes of communication and expression. Aural-oral teaching and testing is an integral feature of the teaching-learning process. The electronic and print media could be used extensively. The evaluation procedure should be continuous and comprehensive. A few suggested activities are:

Role playing

Simulating real-to-life situations

Dramatising and miming

Problem solving and decision making

Interpreting information given in tabular form and schedule

Using newspaper clippings

Borrowing situations from the world around the learners, from books and from other disciplines Using language games, riddles, puzzles and jokes

Interpreting pictures / sketches / cartoons

Debating and discussing

Narrating and discussing stories, anecdotes, etc. Reciting poems Working in pairs and groups

Using media inputs- computer, television, videocassettes, tapes, software packages.

BENGALI

CLASS X

TOPICS

A) **Reading Section:** Comprehension 20 Marks

B) **Writing Section:** 20 Marks

Composition:

1. Notice Writing
2. Story Writing
3. Report Writing

C) **Grammar Section:** 20 Marks

1. Sindhi (Bisraga-Sanskrit & Bengali)
2. Sadhu O Chalit Bhasha
3. Correction of Words
4. Transformation of sentences
5. Polysemous words (Eki shabder bibhinna arthe prayog nouns and adjectives)

Prescribed Grammar Book: Prabeshika Bangla Byakaran O Rachna by Nirmal Kr. Das

Published by : Oriental Book Co., 56, Suryasen Street, Kolkata-9.

D) **Literature Section:** 40 Marks

Prescribed text Book: Path Sankalan (Latest Edition)

Published by: Board of Secondary Education, West Bengal, Kolkata

Prose:

1. Bhagirathir Utso Sandhane - by J.C. Bose
2. Vidyasagar - by Rabindranath Tagore
3. Pili Sahitya - by Mohd. Shahidullaha
4. Padam Nadir Majhi - by Manik Bandyopadhaya.

Poetry:

1. Vibhishaner Prati Indrajit - by Madhusudan Dutta
2. Dui Bhigha Jami - by Rabindra Nath Tagore
3. Chhatra Dharam - by Kalidas Roy
4. Chheler Dal - by Satyendra Nath Dutta.

Supplementary Reader:-

Prescribed Text Book: Raj Kahini (1986) by Abanindranath Tagore.

Published by: Anand Publishers, Kolkata

1. Padmini
2. Hambirer Rajya Labh

Total = 100 Marks

Syllabus

MATHEMATICS

CLASS X

Examination Specification

The Syllabus in the subject of Mathematics has undergone changes from time to time in accordance with growth of the subject and emerging needs of the society. The present revised syllabus has been designed in accordance with National Curriculum Framework 2005 and as per guidelines given in Focus Group on Teaching of Mathematics which is to meet the emerging needs of all categories of students. Motivating the topics from real life problems and other subject areas, greater emphasis has been laid on applications of various concepts.

The curriculum at Secondary stage primarily aims at enhancing the capacity of students to employ Mathematics in solving day-to-day life problems and studying the subject as a separate discipline. It is expected that students should acquire the ability to solve problems using algebraic methods and apply the knowledge of simple trigonometry to solve problems of heights and distances. Carrying out experiments with numbers and forms of geometry, framing hypothesis and verifying these with further observations form inherent part of Mathematics learning at this stage.

The proposed curriculum includes the study of number system, algebra, geometry, trigonometry, mensuration, statistics, graphs and coordinate geometry etc. The teaching of Mathematics should be imparted through activities which may involve the use of concrete materials, models, patterns, charts, pictures posters, games, puzzles and experiments.

OBJECTIVES

The broad objectives of teaching of Mathematics at secondary stage are to help the learners to: consolidate the Mathematical knowledge and skills acquired at the upper primary stage; acquire knowledge and understanding, particularly by way of motivation and visualization, of basic concepts, terms, principles and symbols and underlying processes and skills. develop mastery of basic algebraic skills; develop drawing 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 to develop positive ability to think, analyze and articulate logically; to develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of sex biases; to develop necessary skills to work with modern technological devices such as calculators, computers etc;

to develop interest in Mathematics as a problem-solving tool in various fields for its beautiful structures and patterns, etc;

to develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.

to developed interest in the subject by participating in related competitions.

to acquaint students with different aspects of mathematics used in daily life. to develop an interest in students to study mathematics as a discipline.

One Paper

Time: 1 Hour

Marks: 100

UNITS	MARKS
I. NUMBER SYSTEMS	10
II. ALGEBRA	20
III. TRIGONOMETRY	20
IV. COORDINATE GEOMETRY	10
V. GEOMETRY	20
VI. MENSURATION	10
VII. STATISTICS AND PROBABILITY	10
	TOTAL 100

UNIT I : NUMBER SYSTEMS

1. REAL NUMBERS

Euclid's division lemma, Fundamental Theorem of Arithmetic- statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of results - irrationality of $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, decimal expansions of rational numbers in terms of terminating/non-terminating recurring decimals.

UNIT II : ALGEBRA

1. POLYNOMIALS

Zeros of a polynomial. Relationship between zeros and coefficients of a polynomial with particular reference to quadratic polynomials. Statement and simple problems on division algorithm for polynomials with real coefficients.

2. PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

Pair of linear equations in two variables. Geometric representation of different possibilities of solutions/ inconsistency.

Algebraic conditions for number of solutions. Solution of pair of linear equations in two variables algebraically - by substitution, by elimination and by cross multiplication. Simple situational problems must be included. Simple problems on equations reducible to linear equations may be included.

3. QUADRATIC EQUATIONS

Standard form of a quadratic equation $ax^2 + bx + c = 0$ ($a \neq 0$). Solution of the quadratic equations (only real roots) by factorization and by completing the square, i.e. by using quadratic formula. Relationship between discriminant and nature of roots.

Problems related to day to day activities to be incorporated.

4. ARITHMETIC PROGRESSIONS

Motivation for studying AP. Derivation of standard results of finding the n th term and sum of first n terms.

UNIT III : TRIGONOMETRY

1. INTRODUCTION TO TRIGONOMETRY

Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined); motivate the ratios, whichever are defined at 0° & 90° . Values (with proofs) of the trigonometric ratios of $30^\circ/45^\circ$ & 60° . Relationships between the ratios.

2. TRIGONOMETRIC IDENTITIES

Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given. Trigonometric ratios of complementary angles.

3. HEIGHTS AND DISTANCES (8) Periods

Simple and believable problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation / depression should be only 30° , 45° , 60° .

UNIT IV : COORDINATE GEOMETRY

1. LINES (In two-dimensions) (

Review the concepts of coordinate geometry done earlier including graphs of linear equations. Awareness of geometrical representation of quadratic polynomials. Distance between two points and section formula (internal). Area of a triangle.

UNIT V : GEOMETRY

1. TRIANGLES

Definitions, examples, counterexamples of similar triangles.

1. (Prove) If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.
2. (Motivate) If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side.
3. (Motivate) If in two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar.
4. (Motivate) If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar.
5. (Motivate) If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, the two triangles are similar.
6. (Motivate) If a perpendicular is drawn from the vertex of the right angle of a right triangle to the hypotenuse, the triangles on each side of the perpendicular are similar to the whole triangle and to each other.
7. (Prove) The ratio of the areas of two similar triangles is equal to the ratio of the squares on their corresponding sides.
8. (Prove) In a right triangle, the square on the hypotenuse is equal to the sum of the squares on the other two sides.
9. (Prove) In a triangle, if the square on one side is equal to sum of the squares on the other two sides,

the angles opposite to the first side is a right triangle.

2. CIRCLES

Tangents to a circle motivated by chords drawn from points coming closer and closer to the point.

1. (Prove) The tangent at any point of a circle is perpendicular to the radius through the point of contact.
2. (Prove) The lengths of tangents drawn from an external point to circle are equal.

3. CONSTRUCTIONS

1. Division of a line segment in a given ratio (internally)
2. Tangent to a circle from a point outside it.
3. Construction of a triangle similar to a given triangle.

UNIT VI : MENSURATION

1. AREAS RELATED TO CIRCLES

Motivate the area of a circle; area of sectors and segments of a circle. Problems based on areas and perimeter / circumference of the above said plane figures. (In calculating area of segment of a circle, problems should be restricted to central angle of 60°/ 90° & 120° only. Plane figures involving triangles, simple quadrilaterals and circle should be taken.)

2. SURFACE AREAS AND VOLUMES

- (i) Problems on finding surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders/cones. Frustum of a cone.
- (ii) Problems involving converting one type of metallic solid into another and other mixed problems. (Problems with combination of not more than two different solids be taken.)

UNIT VII : STATISTICS AND PROBABILITY

1. STATISTICS

Mean, median and mode of grouped data (bimodal situation to be avoided). Cumulative frequency graph.

RECOMMENDED BOOKS

1. Mathematics - Textbook for class IX - **NCERT Publication**
2. Mathematics - Textbook for class X - **NCERT Publication**

HOME SCIENCE

Class X

Examination Specification

One Theory Paper **1 Hour** **80 Marks**

One Practical Paper **3 Hours** **20 Marks**

Theory

Unit I : Principles of growth and development of child; growth and development of children between birth to 3 years. Important milestones in physical, motor, social, emotional and language development of children; physical, social and emotional needs of children 10

Unit II : Role of books, music rhymes, games, radio, TV & Video, in the life of a child upto 3 years of age. 5

Unit III : Play : Meaning, need and types of play in children between birth & 3 yrs; Characteristics of play-active, passive, natural, serious and exploratory Play materials for children-Characteristics of play material 6

Unit IV : Nutrients : Functions, sources and deficiency of Carbohydrates, proteins, Fats Minerals-Iron, Calcium and Iodine and Vitamins- Vitamin A, B, B2, Vitamin C and Vitamin D. Loss of nutrients during cooking, conservation and enhancement of nutrients 8

Unit V : Meal Planning : Concept, need and factors affecting meal planning-age, sex, climate, occupation, physical needs, number of family members, economic status of family, availability of food, family traditions, likes and dislike and occasion; Food Groups (Basic: 5 suggested by ICMR); Use of food groups in planning balanced diet, food allowances suggested by ICMR. 7

Unit VI : Food hygiene & methods of storage of food : Rules of hygienic handling of food, Method of storage of perishable, semi-perishable and non-perishable foods. 7

unit VII : Resources available to family : Types of resources- Human (Energy, time, knowledge and skill) Non-Human (money, material goods and community resources); general characteristics of resources, wise use of resources; personal & shared: 6

Unit VIII : Money Management : Family income and expenditure and importance of saving & Investment 6

Unit IX : Consumer Education : Consumer rights and responsibilities, consumer problems, malpractices of traders-price variation, poor quality, adulteration, faulty weights and measures, non-availability of goods, misleading information, lack of standardised products, misleading advertisement, aids to help consumers-standardisation marks, labels, packages, advertisement, Pamphlets & Leaflets. 6

Unit X : Care of clothes : Cleaning and finishing agents used in everyday care of clothes in the homes: stain removal (precautions and methods); laundering and storage of cotton, silk, wool and synthetics. 14

Unit XI : Quality check of apparel : Workmanship of readymade, tailor made garment, reading of labels on clothes.

Practical's : 15+5 (Sessional work) = 20

1. Observe and record physical and motor characteristics of a child at any given stage between 0-3 yrs. of age.
2. Observe play activities of children between 1-3 yrs of age. Record their interests and characteristics of play materials.
3. Make a suitable play object for a child between 0-3 yrs.
4. Prepare dishes using methods of enhancement of nutrients.
5. Prepare useful household items recycling waste materials.
6. List any five malpractices you have observed in the market.
7. Practice basic stitches-tacking, running, hemming and back stitch.

8. Remove common stains-curry, paint, ball pen ink, lipstick, blood, rust, tea & coffee.
9. Launder and finish cotton, silk, wool and synthetic articles.
10. Examine quality of a stitched garment.
11. Read label on a ready made garment.

Note : Students are required to maintain record of practical work undertaken in the academic session.

References :

1. Home Science by Staff of Lady Irwin College Published by Longmans, New Delhi.
2. Despatches 1-6 (secondary Course) prepared, published & Marketed by National Open School.

SCIENCE

BRIEF

The subject of Science plays an important role in developing in children well defined abilities in cognitive, affective and psychomotor domains. It augments the spirit of enquiry, creativity, objectivity and aesthetic sensibility. Whereas the upper primary stage demands that plentiful opportunities should be provided to the students to engage them with the processes of science like observing, recording observations, drawing, tabulation, plotting graphs etc. the secondary stage expects abstraction and quantitative reasoning to occupy a more central place in the teaching and learning of Science. Thus, the idea of atoms and molecules being the building blocks of matter makes its appearance, as does Newton's law of Gravitation.

The present syllabus has been designed around six broad themes viz. Food, Materials, the world of the living, how things work, moving things, people and ideas, natural phenomenon and natural resources. Special care has been taken to avoid temptation of adding too many concepts than can be comfortably learnt in the given time frame. No attempt has been made to be comprehensive.

At this stage, while science is still a common subject, the disciplines of Physics, Chemistry and Biology begin to emerge. The students should be exposed to experiences as well as modes of reasoning that are typical of the subject.

CLASS X

(Theory)

One Paper	Marks: 80
Unit	Marks
I. Chemical Substances	22
II. World of living	20
III. Effects of Current	14
IV. Light	12
V. Natural Resources	12
	Total 80

Theme: Materials

Unit 1 : Chemical Substances - Nature and Behavior Acids, bases and salts: General properties, examples and uses, concept of pH scale, importance of pH in everyday life; preparation and uses of sodium hydroxide, Bleaching powder, Baking soda, washing soda and Plaster of Paris.

Chemical reactions : Chemical Equation, Types of chemical reactions : combination, decomposition, displacement, double displacement, precipitation, neutralization, oxidation and reduction in terms of gain and loss of oxygen and hydrogen. Metals and non metals: General properties of Metals and Non-metals,

reactivity series, Formation and properties of ionic compounds, Basic Metallurgical processes, corrosion

and its prevention.

Carbon Compounds : Covalent bonding in carbon compounds. Versatile nature of carbon, Nomenclature of carbon compounds, Functional groups, difference between saturated hydrocarbons and unsaturated hydrocarbons, Ethanol and Ethanoic acid (only properties and uses), soaps and detergents.

Periodic classification of elements : Modern Periodic table, Gradation in Properties.

Theme : **The world of the living**

Unit2 : World of Living

Life Processes : “living” things; Basic concept of nutrition, respiration, transport and excretion in plants and animals. Control and Co-ordination in animals and plants:

Tropic movements in plants; Introduction to plant hormones; control and co-ordination in animals: voluntary, involuntary and reflex action, nervous system; chemical co-ordination Animal hormones.

Reproduction:

Reproduction in animal and plants (asexual and sexual). Need for and methods of family planning. Safe sex vs HIV/AIDS. Child bearing and women’s health. Heredity and evolution: Heredity; Origin of life: brief introduction; Basic concepts of evolution.

Theme : **How things work.**

Unit 3 : Effects of Current

Potential difference and electric current. Ohm’s law; Resistance, Factors on which the resistance of a conductor depends. Series combination of resistors, parallel combination of resistors; Heating effect of Electric current; Electric Power, Inter relation between $p/ V/ I$ and R .

Magnets: Magnetic field, field lines, field due to a current carrying wire, field due to current carrying coil or solenoid; Force on current carrying conductor, Fleming’s left hand rule. Electro magnetic induction. Induced potential difference, Induced current. Fleming’s Right Hand Rule, Direct current. Alternating current; frequency of AC. Advantage of AC over DC. Domestic electric circuits.

Theme : **Natural Phenomena**

Unit 4 : Reflection of light at curved surfaces, Images formed by spherical mirrors, center of curvature, principal axis, principal focus, focal length. Mirror Formula (Derivation not required), Magnification. Refraction; laws of refraction, refractive index. Refraction of light by spherical lens, Image formed by spherical lenses, Lens formula (Derivation not required), Magnification. Power of a lens; Functioning of a lens in human eye, problems of vision and remedies, applications of spherical mirrors and lenses. Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life.

Theme : **Natural Resources**

Unit 5 : Conservation of natural resources: Management of natural resources. Conservation and judicious use of natural resources. Forest and wild life, coal and petroleum conservation. Examples of People’s participation for conservation of natural resources.

The Regional environment : Big dams: advantages and limitations; alternatives if any. Water harvesting. Sustainability of natural resources.

Sources of energy : Different forms of energy, conventional and non-conventional sources of energy: fossil fuels, solar energy; biogas; wind, water and tidal energy; nuclear. Renewable versus nonrenewable sources.

Our Environment : Eco-system, Environmental problems, their solutions. Biodegradable and non biodegradable, substances ozone depletion.

PRACTICAL

LIST OF EXPERIMENTS

Marks : 20 (10+10)

- 1. To find the pH of the following samples by using pH paper/universal indicator.**
 - i) Dilute Hydrochloric acid
 - ii) Dilute NaOH solution
 - iii) Dilute Ethanoic acid solution
 - iv) Lemon juice
 - v) Water
 - vi) Dilute Sodium Bicarbonate Solution.
- 2. To study the properties of acids and bases HCl & $NaOH$ by their reaction with**
 - i) Litmus solution (Blue/Red)
 - ii) Zinc metal
 - iii) Solid Sodium Carbonate
- 3. To determine the focal length of**
 - a) Concave mirror
 - b) Convex lens by obtaining the image of a distant object.
- 4. To trace the path of a ray of light passing through a rectangular glass slab for different angles of incidence Measure the angle of incidence, angle of refraction, angle of emergence and interpret the result.**
- 5. To study the dependence of current (I) on the potential difference (V) across a resistor and determine its resistance. Also plot a graph between V and I.**
- 6. To determine the equivalent resistance of two resistors when connected in series.**
- 7. To determine the equivalent resistance of two resistors when connected in parallel.**
- 8. To prepare a temporary mount of a leaf peel to show stomata.**
- 9. To show experimentally that light is necessary for photosynthesis.**
- 10. To show experimentally that carbon dioxide is given out during respiration.**
- 11. To study (a) binary fission in Amoeba and (b) budding in yeast with the help of prepared slides.**
- 12. To determine the percentage of water absorbed by raisins.**

- 13.** To perform and observe the following reactions and classify them into :
- i) Combination Reaction
 - ii) Decomposition Reaction
 - iii) Displacement Reaction
 - iv) Double Displacement Reaction
 1. Action of water on quick lime.
 2. Action of heat on Ferrous Sulphate crystals
 3. Iron Nails kept in copper Sulphate solution
 4. Reaction between Sodium Sulphate and Barium chloride solutions.
- 14.** a) To observe the action of Zn, Fe, Cu and Al metals on the following salt solutions.
- i) $ZnSO_4$ (aq.)
 - ii) $FeSO_4$ (aq.)
 - iii) $CuSO_4$ (aq.)
 - iv) $Al_2(SO_4)_3$ (aq.)
- b) Arrange Zn, Fe, Cu and Al metals in the decreasing order of reactivity based on the above result.
- 15.** To study the following properties of acetic acid (ethanoic acid) :
- i) odour
 - ii) solubility in water
 - iii) effect on litmus
 - iv) reaction with sodium bicarbonate

SCHEME OF EVALUATION :

School-based hands-on practical examination.

10 Marks

RECOMMENDED BOOKS :

Science-Text book for class IX - **NCERT Publication**

Science-Text book for class X - **NCERT Publication**

SOCIAL SCIENCE

BRIEF

Social Sciences is a compulsory subject upto secondary stage of school education. It is an integral component of general education because it helps the learners in understanding the environment in its totality and developing a broader perspective and an empirical, reasonable and humane outlook. This is of crucial importance because it helps them grow into well-informed and responsible citizens with necessary attributes and skills for being able to participate and contribute effectively in the process of development and nation-building.

The social sciences curriculum draws its content mainly from geography, history, civics and economics. Some elements of sociology and commerce are also included. Together they provide a comprehensive view of society-over space and time, and in relation to each other. Each subject's distinct methods of enquiry help the learners study society from different angles and form a holistic view.

OBJECTIVES

The main objectives of this syllabus are:

to develop an understanding of the processes of change and development-both in terms of time and space, through which human societies have evolved.

To make learners realize that the process of change is continuous and any event or phenomenon or issue cannot be viewed in isolation but in a wider context of time and space.

to develop an understanding of contemporary India with its historical perspective, of the basic framework of the goals and policies of national development in independent India, and of the process of change with appropriate connections to world development.

To deepen knowledge about and understanding of India's freedom struggle and of the values and ideals that it represented, and to develop an appreciation of the contributions made by people of all sections and regions of the country.

To help learners understand and cherish the values enshrined in the Indian Constitution and to prepare them for their roles and responsibilities as effective citizens of a democratic society.

to deepen the knowledge and understanding of India's environment in its totality, their interactive processes and effects on the future quality of people's lives

to facilitate the learners to understand and appreciate the diversity in the land and people of the country with its underlying unity.

To develop an appreciation of the richness and variety of India's heritage-both natural and cultural and the need for its preservation.

To promote an understanding of the issues and challenges of contemporary India environmental, economic and social, as part of the development process.

to help pupils acquire knowledge, skills and understanding to face the challenges of contemporary society as individuals and groups and learn the art of living a confident and stress-free life as well as participating effectively in the community

To develop scientific temper by promoting the spirit of enquiry and following a rational and objective approach in analyzing and evaluating data and information as well as views and interpretations

To develop academic and social skills such as critical thinking, communicating effectively both in visual and verbal forms- cooperating with others, taking initiatives and providing leadership in solving others', problems to develop qualities clustered around the personal, social, moral, national and spiritual values that make a person humane and socially effective.

CLASS X
Theory Paper I

1 Hour

Marks 100

	Marks
Unit 1 : India and the contemporary World II	24
Unit 2 : India - Resources and their Development	22
Unit 3 : Democratic Politics II	22
Unit 4 : Understanding Economics II	20
Unit 5 : Disaster Management	12

Syllabus

Unit 1 : India and the Contemporary World-II

Theme

Objectives

Students are required to choose any two themes each from the first two sub units and one from the third sub-unit. In sub-unit 1.1/ theme 3 is compulsory. For second theme in that subunit, students are required to choose anyone from the first two themes.

Thus all students are required to study five themes in all.

Sub-unit 1. 1 : Events and processes :

1. Nationalism in Europe:

- (a) The growth of nationalism in Europe after the 1830s. (b) The ideas of Giuseppe Mazzini etc.
- (c) General characteristics of the movements in Poland, Hungary, Italy, Germany and Greece.

2. Nationalist Movement in Indo China:

Factors leading to growth of nationalism in India

- (a) French colonialism in Indochina. (b) Phases of struggle against the French. (c) The ideas of Phan Dinh Phung, Phan Soi Chau, Nguyen Ac Quoc
- (d) The second world war and the liberation struggle.
- (e) America and the second Indochina war.

3. Nationalism in India : Civil Disobedience Movement (a) First world war, Khilafat and Non-Cooperation. (b) Salt Satyagraha. (c) Movements of peasants, workers, tribals. (d) Activities of different political groups.

The theme will discuss the forms in which nationalism developed along with the formation of nation states in Europe in the post-1830 period.

Discuss the relationship/difference between European nationalism and anti-colonial nationalisms.

Point to the way the idea of the nation states became generalized in Europe and elsewhere. Discuss the difference between French colonialism in Indochina and British colonialism in India.

Outline the different stages of the anti imperialist struggle in Indochina.

Familiarize the students with the differences between nationalist movements in Indo China and India.

Discuss the characteristics of Indian nationalism through a case study of Civil Disobedience Movement.

Analyze the nature of the diverse social movements of the time.

Familiarize students with the writings and ideals of different political groups and individuals, notably Mahatma Gandhi.

Theme

Objectives

Sub-unit 1.2 : Economies and livelihoods: 4.

Industrialization 1850s - 1950s : (a) Contrast between the form of industrialization in Britain and India. (b) Relationship between handicrafts and industrial production, formal and informal sectors.

(c) Livelihood of workers. Case studies : Britain and India.

5. Urbanization and urban lives: (a) Patterns of urbanization (b) Migration and the growth of towns.

(c) Social change and urban life. (d) Merchants, middle classes, workers and urban poor.

Case studies : London and Bombay in the nineteenth and twentieth century.

6. Trade and Globalization: (a) Expansion and integration of the world market in the nineteenth and early twentieth century. (b) Trade and economy between the two Wars. (c) Shifts after the 1950s.

(d) Implications of globalization for livelihood patterns. Case study : The post War International Economic order, 1945 to 1960s.

Sub-unit 1.3 : Culture, Identity and Society

7. Print culture and nationalism. (a) The history of print in Europe. (b) The growth of press in nineteenth century India. (c) Relationship between print culture, public debate and politics.

8. History of the novel: (a) Emergence of the novel as a genre in the west. (b) The relationship between the novel and changes in modern society.

(c) Early novels in nineteenth century India. (d) A study of two or three major writers. Sub-unit 1.4: Map Work (2 Marks)

discuss two different patterns of industrialization/one in the imperial country and another within a colony.

Show the relationship between different sectors of production.

Show the difference between urbanization in two different contexts. A focus on Bombay and London will allow the discussions on urbanization and industrialization to complement each other.

Show that globalization has a long history and point to the shifts within the process.

Analyze the implication of globalization for local economies.

Discuss how globalization is experienced differently by different social groups.

Discuss the link between print culture and the circulation of ideas.

Familiarize students with pictures, cartoons, extracts from propaganda literature and newspaper debates on important events and issues in the past.

Show that forms of writing have a specific history, and that they reflect historical changes within society and shape the forces of change. Familiarize students with some of the ideas of writers who have had a powerful impact on society.

Unit 2 : India - Resources and their Development

Theme

Objectives

1. Resources: Types - natural and human; Need for resource planning.

Understand the value of resources and the need for their judicious utilization and conservation; Identify various types of farming and discuss the various farming methods; To describe the spatial distribution of major crops as well as understand the relationship between rainfall regimes and cropping pattern;

2. Natural Resources: land as a resource, soil types and distribution; changing land-use pattern; land degradation and conservation measures.

3. Forest and Wild life resources: types and distribution ,depletion of flora and fauna; conservation and protection of forest and wild life.

Explain various government policies for institutional as well as technological reforms since independence; Understand the importance of forest and wild life in our environment as well as develop concept towards depletion of resources.

4. Agriculture: types of farming, major crops, cropping pattern, technological and institutional reforms; their impact; contribution of Agriculture to national economy - employment and output.

Understand the importance of agriculture in national economy;

5. Water resources : sources, distribution, utilisation, multi-purpose projects, water scarcity, need for conservation and anagement, rainwater harvesting. (One case study to be introduced)

Understand the importance of water as a resource as well as develop awareness towards its judicious use and conservation;

6. Mineral Resources : types of minerals, distribution, use and economic importance of minerals, conservation.

Discuss various types of minerals as well as their uneven nature of distribution and explain the need for their judicious utilization;

7. Power Resources : types of power resources : conventional and non-conventional, distribution and utilization, and conservation.

Discuss various types of conventional and nonconventional resources and their utilization
Discuss the importance of industries in the national economy as well as understand the regional disparities which resulted due to concentration of industries in some areas;

8. Manufacturing Industries : Types, spatial distribution, contribution of industries to the national economy, industrial pollution and degradation of environment, measures to control degradation. (One case study to be introduced)

Discuss the need for a planned industrial development and debate over the role of government towards sustainable development; To explain the importance of transport and communication in the ever shrinking world; To understand the role of trade in the economic development of a country,

9. Transport, communication and trade

10. Map Work (4 marks)

Unit 3 : Democratic Politics II

Theme

Objectives

1. Power sharing mechanisms in democracy Why and how is power shared in democracies? How has federal division of power in India helped national unity? To what extent has decentralization achieved this objective? How does democracy accommodate different social groups?

2. Working of Democracy

Are divisions inherent to the working of democracy? What has been the effect of caste on politics and of politics on caste? How has the gender division shaped politics? How do communal divisions affect democracy?

3. Competition and contestations in democracy

How do struggles shape democracy in favour of ordinary people? What role do political parties play in competition and contestation? Which are the major national and regional parties in India? Why have social movements come to occupy large role in politics?

4. Outcomes of democracy

Can or should democracy be judged by its outcomes? What outcomes can one reasonably expect of democracies? Does democracy in India meet these expectations? Has democracy led to development, security and dignity for the people? What sustains democracy in India?

5. Challenges to democracy

Is the idea of democracy shrinking? What are the major challenges to democracy in India? How can democracy be reformed and deepened? What role can an ordinary citizen play in deepening democracy?

Analyses the relationship between social cleavages and political competition with reference to Indian situation.

Understand and analyses the challenges posed by communalism to Indian democracy.

Understand the enabling and disabling effects of caste and ethnicity in politics.

Develop a gender perspective on politics. Introduce students to the centrality of power sharing in a democracy.

Understand the working of spatial and social power sharing mechanisms.

Analyses federal provisions and institutions. Understand the new Panchayati Raj institutions in rural and urban areas.

Understand the vital role of struggle in the expansion of democracy.

Analyses party systems in democracies. Introduction to major political parties in the country.

Analyses the role of social movements and nonparty political formations

Introduction to the difficult question of evaluating the functioning of democracies. Develop the skills of evaluating Indian democracy on some key dimensions: development, security and dignity for the people.

Understand the causes for continuation of democracy in India.

Distinguish between sources of strength and weaknesses of Indian democracy

Reflect on the different kinds of measures possible to deepen democracy Promote an active and participatory citizenship.

Unit 3 : Democratic Politics II

Theme

Objectives

1. The Story of Development :

The traditional notion of development; National Income and Per-capita Income. Growth of NI critical appraisal of existing development indicators (PCI, IMR, SR and other income and health indicators) The need for health and educational development; Human Development Indicators (in simple and brief as a holistic measure of development).

The approach to this theme: Use case study of three states (Kerala, Punjab and Bihar) or take a few countries (India, China, Sri Lanka and one developed country)

2. The Role of Service Sector in Indian Economy : What is service sector (through examples) : Importance of Service Sector in generating employment and income to the nation (with the help of a few case studies); Growth of Service Sector in India; India as a major service provider to the world; The need for public investment; The role of important infrastructure, education and health

3. Money and Financial System: Role of money in an economy: Historical origin; Formal and Informal financial institutions for Savings and Credit- General Introduction; Select one formal institution such as a nationalized commercial bank and a few informal institutions; Local money lenders, landlords, self help groups, chit funds and private finance companies.

4. Globalization : What is Globalization (through some simple examples); How India is being globalized and why ; Development Strategy prior to 1991. State Control of Industries : Textile goods as an example for elaboration; Economic Reforms 1991; Strategies adopted in Reform measures (easing of capital flows; migration, investment flows); Different perspectives on globalisation and its impact on different sectors; Political Impact of globalisation.

Familiarization of some macroeconomic concepts.

Sensitizing the child about the rationale for overall human development in our country, which include the rise of income, improvements in health and education rather than income.

It is necessary to raise question in minds of the children whether the increase in income alone is sufficient for a nation.

How and why people should be healthy and provided with education.

Familiarize the concept of money as an economic concept;

Create awareness of the role of financial institutions from the point of view of day-to-day life.

To make aware of a major employment generating sector.

Sensitise the learner of how and why governments invest in such an important sector.

Provide children with some idea about how a particular economic phenomenon is influencing their surroundings and day-to-day life.

Unit 5 : Disaster Management

Tsunami

Safer Construction Practices.

Survival Skills.

Alternate Communication systems during disaster.

Sharing Responsibility

Prescribed Textbooks :

1. India and the Contemporary World-II (History) - **Published by NCERT**
2. Contemporary India II (Geography) - **Published by NCERT**
3. Democratic Politics II (Political Science) - **Published by NCERT**
4. Understanding Economic Development II - **Published by NCERT**

HOME SCIENCE

CLASS X

There shall be one theory paper of 80 marks and 50 minutes duration and practical examination of 20 marks and 3 hour duration.

Part - I

		Marks : 40
Unit - I	: Home a clean comfortable and attractive place to live and work.	8 marks
Unit - II	: Care of Home and its equipment cleaning of floor, walls, furniture, equipment etc. including utensils and other accessories.	8 Marks
Unit - III	: Budgeting of family income to meet family needs and plants	8 Marks
Unit - IV	: Purchase of household item : quality, cost, utility	8 Marks
	(a) Safety in Home	
	(b) Safe storage of cleaning agents and drugs	
	(c)First and treatments of burns and cuts, etc.	8 Marks

Part - II

Textile and Clothing)

Marks : 40

Unit - I	: Section, care operations of sewing machine	10 Marks
Unit - II	: Fabrics : types of fabrics, their characteristics	10 Marks
Unit - III	: Selection of clothing - Factors affecting selection such as durability, beauty comfort, season, texture, etc.	10 Marks
Unit - IV	: Basic embroidery stitches	10 Marks

PRACTICALS

- (1) Floor decoration using alpha paints, flowers and leaves, etc.
- (2) Cleaning of metal(s) & household for one week and discuss the pattern.
- (3) Record your family expenditure for one week and discuss the pattern.
- (4) Market survey of cost and quality of household items.
- (5) First Aid burns and cuts, etc.
- (6) Cleaning and care of sewing machines.
- (7) Collection of fabric sample and discussions of their characteristics.
- (8) Embroidery on cushion cover/s of backs.

Syllabus

BUSINESS ADMINISTRATION

CLASS X

BRIEF

Note: Any one of the following three are a scan be offered :

- I. Elements of Business or
- II. Elements of Book Keeping and Accountancy or
- III. Typewriting-English or Hindi

ELEMENTS OF BUSINESS

Objective : The objective of this paper is to provide elementary knowledge of the different aspects of business.

One Paper

100 Marks

- I. **Office Routine :** Different departments of Business establishment, handling inward and outward mail, Filing and indexing methods, copying and duplicating methods. 20
- II. **Business Correspondence :** Essential forms of a good business letter, writing of simple business letters of enquiry, quotations, order reference, advice and complaints 20
- III. **Bank's :** Functions of a Bank, Kinds of account and their operation; bank drafts, travelier's cheques, Post Office Saving Bank 20
- IV. **Negotiable Instruments :** Nature, kinds of cheques, endorsement, crossing, dishonouring of acheque 20
- V. **Bills of Exchange :** Kinds, parties, negotiation, endorsing, dishonouring, Promissory notes and Hundies 20

COMPUTER SCIENCE & INFORMATION TECHNOLOGY

CLASS X

Examination Specification

Computer has permeated in every walk of life. This subject offers scope for computer-aided learning. It also facilitates developing a generation of knowledge workers.

Learning Objectives

General :

1. To familiarize with basics of information technology
2. To develop basic skills of using tools for word processing, presentation and database management
3. To appreciate use of IT in various domains.

Specific :

1. Cognitive domain: Knowledge and understanding
To develop basic understanding of IT system operations and information accessing tools
2. Psychomotor domain : Skills
To develop skills in using tools of word processor, to manage database, to make graphs, to analyse reports using spreadsheets and to develop web pages.
3. Affective domain: Personality traits
To develop habit of team work and structured presentation.

CLASS X

Unit wise Periods/Weightage - Theory and Practical's

UNIT I : IT BASICS**20**

Internet : World Wide Web, Web Servers, Web sites, Web Pages, Web Browsers, HTML, Web address, Email address, URL, HTTP.

Services available on Internet: Information Retrieval, Electronic Mails, Locating sites using search engines and finding people on the net, Chat, Video Conferencing, FTP/ Downloading and Uploading files from or to remote site, Newsgroup.

UNIT 2 : IT TOOLS**60**

MS-Office

MS Access :

Basic Concepts and need for a database, Creating a database, Setting the Primary Key, Entering data into a database, Inserting and deleting fields, Inserting and deleting Records, Data Validation: Field Size, Default Value Validation Rule, Validation Text, Required, Allow Zero Length.

HYPertext MARK UP LANGUAGE

Basic Concept of Web Browsers with emphasis on popular browsers Internet Explorer and Netscape Navigator.

HTML Fundamentals:

Introduction to Web Page Designing using HTML, Creating and saving an HTML document, Elements in HTML Container and Empty elements, Designing web pages using the following elements:

HTML, HEAD, TITLE, BODY (Attributes: BACKGROUND, BGCOLOR, TEXT, LINK, ALINK, VLINK, LEFTMARGIN, TOPMARGIN), FONT (Attributes: COLOUR, SIZE, FACE), BASEFONT (Attributes :COLOUR, SIZE, FACE), CENTER, BR (Break), HR (Horizontal Rule, Attributes: SIZE, WIDTH, ALIGH, NOSHADE, COLOUR), COMMENTS, ! for comments, H1.. H6 (Heading), P (Paragraph), B(Bold), I (Italics), U (Underline), UL & OL (Unordered List & Ordered List Attributes: TYPE, START, LI (List Item), Insertion of images using the element IMG (Attributes: SRC, WIDTH, HEIGHT, ALT, ALIGN) Internal and External Linking between Web Pages: Significance of linking, A-Anchor Element (Attributes: NAME HREF, TITLE, ALT)

UNIT 3 : IT APPLICATIONS

Students are suggested to work on the following areas using Access and HTML on topics implementing the tools covered in the course.

Domains:

Database

* Personal Data Management System

- * Employee Payroll
- * Stock Inventory

Website Designing

- * Travel and Tourism
- * Rural India
- * Environment and Pollution

NOTE

- I. Teachers are requested to demonstrate some other popular software for word processing. Presentation, Spreadsheet, Database Management, system which support Hindi and/or some other Indian language (s)
(Leap Office is an example of Office suite with Indian Language support)
- II. Students are suggested to prepare some document/presentations of their IT Application report file in Indian Language(s).

CLASS X PRACTICAL

Practical Paper	Examination Duration	Marks
One	4 Hours	20
Practical Paper	Examination Duration	Marks Period in year

10 Marks

Design of a Practical Question Paper

There is no pre-set question paper provided by Board for conducting practical examination. This flexibility has been provided to give more freedom to the examiners for the improvement of practical examination, keeping in view the resources and other facilities available in the laboratory of the School. However, detailed instructions on the basis of syllabus, distribution of marks and conduction of practical examination have been provided. The internal examiner and the external examiner together set the question paper according to the prescribed curriculum and distribution of marks.

- I. MS ACCESS 3 MARKS
 - II. HTML 7 MARKS
- I. MS Access :**

A problem in MS Access related to some of the tools given below to be tested during the examination: Creating and entering data into a data base Setting the primary key Data Validation

II. HTML*

A Problem on Web Page designing (Minimum 2 pages) to be given which will cover some of the following HTML elements :

<HTML>,<HEAD>,<TITLE>,

<BODY> Font Styles : , <i>, <U>

-FACE, SIZE

<CENTER>

<P>-ALIGN

<A>

Comments:<!>

The students are supposed to know the tools and style for designing domain specific web pages from real life applications and the topic mentioned in the syllabus

Break up of marks (HTML)

Visual Effect : 8

Linking : 4

Coding : 10

*Print outs of the documents(s) should be attached with the answer sheet

(A) IT APPLICATION REPORT FILE

7 Marks

Students are supposed to make a IT Applications Report File Containing Real life assignment/ presentations using MS Access and HTML on topic from the domain :

Must have print outs of the following :

Documents of MS Access (At least 5)

HTML source code along with browser view(At least 10)

(B) VIVA VOCE

3 Marks

The questions can be asked from any portion of the syllabus covered during Class IX and Class X. NOTE- Teachers are suggested to give first-hand demonstration covering the aspects such as :

Connecting to internet, Using popular Search Engines, Web Browsing, Opening E-mail accounts, Sending and Receiving E-mails/Downloading files and pictures.

Infrastructure

Following minimum infrastructure requirement is suggested keeping in view of the existing.

Infrastructure

Following minimum infrastructure requirement is suggested keeping in view of the existing infrastructure

Software :

* WIN 96+

- * MS-Office 95+
- * Leap Office 2000
- * Netscape Navigator
- * Internet Explorer

Minimum hardware requirement :

- * 486 Multimedia Machine
- * 16 MB RAM
- * 4.3 GB HDD

Internet connection :

- * TCP/IP

- * Graduate (B.Sc. Comp)
- * Graduate with 'A' Level
- * Graduate with PGDCA (minimum land half years) from a recognized institute/university

Magazine/Journal/Video Film

- * PC Quest
- * Chip
- * PC World
- * Computer@home
- * Computer Today
- * Microsoft training software
- * C-DAC's ADIT course material

DRAWING & PAINTING

CLASS X

Examination Specification

One Paper

3 Hours

100 Marks

- | | | |
|-------|--|----|
| (i) | Still Life Study
Study of a group of two or three arranged objects from a fixed point of view in colour. Group may include, vegetables, foliage and objects of daily use. | 50 |
| (ii) | Sketches from Life and Nature in Pencil and Ink. | 20 |
| (iii) | Submission of portfolio consisting of five selected works done during the year. | 30 |

ENGLISH

CLASS XII

BRIEF

The course is intended to give students a high level of competence in English with an emphasis on the study of literary texts and will provide extensive exposure to a variety of rich texts of world literature as well as to Indian writings in English, including classics, and develop sensitivity to the creative and image- native uses of English and give them a taste for reading with delight and discernment. The course will be pitched at a level which the students may find challenging. The course is primarily designed to equip the students to pursue higher studies in English literature and English language at the college level and prepare students to become teachers of English.

Objectives

The general objectives at this stage are:

to provide extensive exposure to a variety of writings in English including some classics. to develop sensitivity to literary and creative uses of language.

to further expand the learners' vocabulary resources through the use of dictionary, thesaurus and encyclopaedia.

to develop a taste for reading with discernment and delight.

to initiate the study of formal English grammar and elementary linguistics and phonetics.

to enable learners to translate texts from mother tongue into English and vice versa.

to critically examine a text and comment on different aspects of it.

At the end of this stage the Elective Course would ensure that the learner grasps the global meaning of the text, its gist and understands how its theme and sub-theme relate. relates the details to the message in it; for example, how the details support a generalization or the conclusion either by classification or by contrast and comparison. comprehends details, locates and identifies facts, arguments, logical relationships, generalization, conclusions, etc. draws inferences, supplies missing details, predicts outcomes, grasps the significance of particular details and interprets what he/she reads. assesses the attitude and bias of the author. infers the meanings of words and phrases from the context; differentiates between apparent

synonyms and appreciates the nuances of words.

appreciates stylistic nuances, the lexical structure, its literal and figurative use and analyses a variety of texts.

identifies different styles of writing like humorous, satirical, contemplative, ironical and burlesque.

does text-based writing (writing in response to questions or tasks based on prescribed as well as 'unseen' texts).

develops the advanced skills of reasoning, making inferences, judgements, etc.

develops familiarity with the poetic uses of language including features of language through which artistic effect is achieved.

to develop sensitivity to the literary and creative uses of language.

to further expand the learners' vocabulary resources through the use of dictionary, thesaurus and encyclopedia.

to develop a taste for reading with discernment and delight.

to initiate the study of formal English grammar and elementary linguistics and phonetics.

to enable learners to translate texts from mother tongue into English and vice versa.

to critically examine a text and comment on different aspects of it.

At the end of this stage the Elective Course would ensure that the learner grasps the global meaning of the text, its gist and understands how its theme and subtheme relate. relates the details to the message in it; for example, how the details support a generalization or the conclusion either by classification or by contrast and comparison. comprehends details, locates and identifies facts, arguments, logical relationships, generalizations, conclusions, etc.

draws inferences, supplies missing details, predicts outcomes, grasps the significance of particular details and interprets what he/she reads.

assesses the attitude and bias of the author.

infers the meanings of words and phrases from the context; differentiates between apparent synonyms and appreciates the nuances of words.

appreciates stylistic nuances, the lexical structure, its literal and figurative use and analyses a variety of texts.

identifies different styles of writing like humorous, satirical, contemplative, ironical and burlesque.

does text-based writing (writing in response to questions or tasks based on prescribed as well as 'unseen' texts).

develops the advanced skills of reasoning, making inferences, judgements, etc.

develops familiarity with the poetic uses of language including features of language through which artistic effect is achieved.

Methods and Techniques

The techniques used for teaching should promote habits of self-learning and reduce dependence on the teacher. The multi-skill, learner-centered, activity based approach already recommended for the previous stages of education, is still in place, though it will be used in such a way that silent reading of prescribed/ selected texts for comprehension will receive greater focus as one of the activities. Learners will be trained to read independently and intelligently, interacting actively with texts and other reference materials (dictionary, thesaurus, encyclopedia, etc.) where necessary. Some pre- reading activity will generally be required, and course books should suggest those. The reading of texts should be followed by post reading activities. It is important to remember that every text can generate different readings.

Students should be encouraged to interpret texts in different ways, present their views of critics on a literary text and express their own reactions to them. Some projects may be assigned to students from time to time. For instance, students may be asked to put together a few literary pieces on a given theme from English as well as regional literatures.

One Paper Unit **1 Hour** **Marks: 100**
wise Weightage

Units	Marks
1. Reading an unseen passage and poem	20
2. Writing	20
3. Applied Grammar	10
4. Texts for detailed study	40
5. Fiction	10
	Marks
1. Reading an unseen passage and poem	20
(a) One literary or discursive passage of about 500-600 words followed by short questions	12
(b) A poem of about 15 lines followed by short questions to test interpretation and appreciation	8

2. Writing	20
(a) Essay on argumentative/discursive topic	10
(b) Composition such as an article, report, speech (150-200 words)	10
3. Applied Grammar	10
(a) Editing and error correction of words and sentences	05
(b) Changing the narration of a given input	05
4. Texts for detailed study	40
5. Fiction	10

Books prescribed

1. Kaleidoscope - Text book published by NCERT
2. Fiction - Novel : Tiger for Malgudi by R.K. Narayan or
The Financial Expert by R. K. Narayan

PHYSICS

CLASS XII

BRIEF

Senior Secondary stage of school education is a stage of transition from general education to discipline-based focus on curriculum. The present updated syllabus keeps in view the rigour and depth of disciplinary approach as well as the comprehension level of learners. Due care has also been taken that the syllabus is not heavy and is at the same time, comparable to the international standards. Salient features of the syllabus include:

Emphasis on 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. Besides, the syllabus also attempts to 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.

(Theory)

One Paper	Time: 45 Minutes	70 Marks
Unit I	Electrostatics	08
Unit II	Current Electricity	07
Unit III	Magnetic effect of current & Magnetism	08
Unit IV	Electromagnetic Induction and Alternating current	08
Unit V	Electromagnetic Waves	03
Unit VI	Optics	14
Unit VII	Dual Nature of Matter	04
Unit VIII	Atoms and Nuclei	06
Unit IX	Electronic Devices	07
Unit X	Communication Systems	05

Unit I : Electrostatics

Electric Charges; Conservation of charge, 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

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 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

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 fields. 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

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

Need for displacement current.

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.

Unit V : Electromagnetic waves

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

Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula. Magnification, power of a lens, combination of thin lenses in contact. 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, presbyopia and astigmatism) using lenses. 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 slit experiment and expression for fringe width, coherent sources and sustained interference of light. Diffraction due to a single slit, width of central maximum. Resolving power of microscopes and astronomical telescopes. Polarizations, plane polarized light; Brewster's law, uses of plane polarized light and Polaroids.

Unit VII : Dual Nature of Matter and Radiation

Dual nature of radiation. 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.

Unit VIII : Atoms & Nuclei

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, nuclear reactor, nuclear fusion.

Unit IX : Electronic Devices

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

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.

PRACTICALS

Every student will perform 10 experiments (5 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.

SECTION A

Experiments

1. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
2. To find resistance of a given wire using meter bridge and hence determine the specific resistance of its material.
3. To verify the laws of combination (series/parallel) of resistances using a meter bridge.
4. To compare the e.m.f. 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 son meter.

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 by plotting graphs between u and v or between I/u and I/v .
3. To find the focal length of a convex mirror, using a convex lens.
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 travelling 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 breakdown 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 study effect of intensity of light (by varying distance of the source) on an L.D.R.
2. To identify a diode, an LED, a transistor, and IC, a resistor and a capacitor from mixed collection of such items.
3. Use of multi meter 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.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe polarization of light using two Polaroids.
6. To observe diffraction of light due to a thin slit.
7. To study the nature and size of the image formed by (i) convex lens (ii) concave mirror, on screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
8. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

A. valuation Scheme for Practical Examination:

One experiment from any one section	8 Marks
Two activities (one from each section) (4+4)	8 Marks
Practical record (experiments & activities)	6 Marks
Record of demonstration experiments & Viva based on these experiments	3 Marks
Viva on experiments & activities	5 Marks

Recommended Textbooks.

1. Physics Part-I, Textbook for XII, Published by NCERT
2. Physics Part-II, Textbook for XII, Published by NCERT

Syllabus

CHEMISTRY

CLASS XII

BRIEF

Higher Secondary is the most crucial stage of school education because at this juncture specialized discipline based, content-oriented courses are introduced. Students reach this stage after 10 years of general education and opt for Chemistry with a purpose of pursuing their career in basic sciences or professional courses like medicine, engineering, technology and study courses in applied areas of science and technology at tertiary level. Therefore, there is a need to provide learners with sufficient conceptual background of Chemistry, which will make them competent to meet the challenges of academic and professional courses after the higher secondary stage.

The new and updated curriculum is based on disciplinary approach with rigour and depth taking care that the syllabus is not heavy and at the same time it is comparable to the international level. The knowledge related to the subject of Chemistry has undergone tremendous changes during the past one decade. Many new areas like synthetic materials, bio-molecules, natural resources, industrial chemistry are coming in a big way and deserve to be an integral part of chemistry syllabus at senior secondary stage. At international level, new formulations and nomenclature of elements and compounds, symbols and units of physical quantities floated by scientific bodies like IUPAC and CGPM are of immense importance and need to be incorporated in the updated syllabus. The revised syllabus takes care of all these aspects. Greater emphasis has been laid on use of new nomenclature, symbols and formulations, teaching of fundamental concepts, applications of concepts in chemistry to industry/ technology, logical sequencing of units, removal of obsolete content and repetition etc.

OBJECTIVES

The broad objectives of teaching Chemistry at Senior Secondary Stage are to help the learners: to promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.

To make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.

To expose the students to various emerging new areas of chemistry and apprise them with their relevance in their future studies and their application in various spheres of chemical sciences and technology.

To equip students to face various changes related to health, nutrition, environment, population, weather, industries and agriculture. to develop problem solving skills in students.

To expose the students to different processes used in industries and their technological applications.

To apprise students with interface of chemistry with other disciplines of science such as physics, biology, geology, engineering etc. to acquaint students with different aspects of chemistry used in daily life.

To develop an interest in students to study chemistry as a discipline.

Class XII (Theory)

One Paper **Time: 45 Minutes** **70 marks**

Unit No.	Title	Marks
Unit I	Solid State	4
Unit II	Solutions	5
Unit III	Electrochemistry	5
Unit IV	Chemical kinetics	5
Unit V	Surface chemistry	4
Unit VI	General principles and processes of Isolation of Elements	3
Unit VII	p-Block Elements	8
Unit VIII	d- and f- Block Elements	5
Unit IX	Coordination Compounds	3
Unit X	Haloalkanes and Haloarenes	4
Unit XI	Alcohols, Phenols and Ethers	4
Unit XII	Aldehydes, Ketones and Carboxylic acids	6
Unit XIII	Organic Compounds containing Nitrogen	4
Unit XIV	Biomolecules	4
Unit XV	Polymers	3
Unit XVI	Chemistry in Everyday life	3

Unit I : Solid State

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, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties.

Unit II : Solutions

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, elevation of Boiling Point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass.

Unit III : Electrochemistry

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, fuel cells; corrosion.

Unit IV : Chemical Kinetics

Rate of a reaction (average and instantaneous), factors affecting rate 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)

Unit V : Surface Chemistry

Adsorption – physisorption and chemisorption; factors affecting adsorption of gases on solids; catalysis : homogenous and heterogeneous, activity and selectivity: enzyme catalysis; colloidal state: distinction between true solutions, colloids and suspensions; lyophilic, lyophobic, multi molecular 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

Principles and methods of extraction - concentration, oxidation, reduction electrolytic method and refining; occurrence and principles of extraction of aluminum, copper, zinc and iron.

Unit VII : p-Block Elements

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; simple 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 (structures only).

Group 18 elements : General introduction, electronic configuration. Occurrence, trends in physical and chemical properties, uses.

Unit VIII : d and f Block Elements

General introduction ,electronic configuration, occurrence and characteristics 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.

Actinoids - Electronic configuration, oxidation states.

Unit IX : Coordination Compounds

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. bonding; isomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems).

Unit X : Haloalkanes and Haloarenes.

Haloalkanes:

Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions.

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

Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only); identification of primary, secondary and tertiary alcohols; mechanism of dehydration, uses of methanol and ethanol. **Phenols :** Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols. **Ethers:** Nomenclature, methods of preparation, physical and chemical properties, uses.

Unit XII : Aldehydes, Ketones and Carboxylic Acids

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

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. Diaz onium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

Unit XIV : Biomolecules

Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); importance.

Proteins - Elementary idea of α - amino acids, peptide bond, polypeptides, proteins, structure of amines-primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes.

Vitamins -Classification and functions.

Nucleic Acids: DNA and RNA .

Unit XV : Polymers

Classification - natural and synthetic, methods of polymerization (addition and condensation), copolymerization. Some important polymers: natural and synthetic like polythene, nylon, polyesters, bakelite, rubber.

Unit XVI : Chemistry in Everyday life:

1. Chemicals in medicines - analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.
2. Chemicals in food - preservatives, artificial sweetening agents.
3. Cleansing agents - soaps and detergents, cleansing action.

PRACTICAL

Evaluation Scheme for Examination	Marks
Volumetric Analysis	10
Salt Analysis	6
Content Based Experiment	4
Class record and viva	5
Investigatory Project	5

PRACTICAL SYLLABUS

A. Surface Chemistry.

- (a) Preparation of one lyophilic and one lyophobic sol. Lyophilic sol - starch, egg albumin and gum
Lyophobic sol - aluminum hydroxide, ferric hydroxide, arsenous sulphide.
- (b) 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 sodiumthiosulphate 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_3 and sodium sulphite: (Na_2SO_3) using starch solution as indicator (clock reaction).

C. Thermochemistry

Any one of the following experiments

- i) Enthalpy of dissolution of copper sulphate or potassium nitrate.
- ii) Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH)
- iii) Determination of enthalpy change during interaction (Hydrogen bondformation) between acetone and chloroform

D. Electrochemistry

Variation of 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

- i) Preparation of double salt of ferrous ammonium sulphate or potash alum.
- ii) 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.
- v) Iodoform

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+} , Zn^{2+} , Co^{2+} , Ni^{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 (cardamom). Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper. Note: Any investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher.

Recommended Textbooks.

1. Chemistry Part - I, Published by NCERT
2. Chemistry Part - II, Published by NCERT

MATHEMATICS

CLASS XII

BRIEF

The Syllabus in the subject of Mathematics has undergone changes from time to time in accordance with growth of the subject and emerging needs of the society. Senior Secondary stage is a launching stage from where the students go either for higher academic education in Mathematics or for professional courses like engineering, physical and Bioscience, commerce or computer applications. The present revised syllabus has been designed in accordance with National Curriculum Framework 2005 and as per guidelines given in Focus Group on Teaching of Mathematics 2005 which is to meet the emerging needs of all categories of students. Motivating the topics from real life situations and other subject areas, greater emphasis has been laid on application of various concepts.

OBJECTIVES

The broad objectives of teaching Mathematics at senior 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. to feel the flow of reasons while proving a result or solving a problem. to apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method.
- to develop positive attitude to think, analyze and articulate logically.
- to develop interest in the subject by participating in related competitions.
- to acquaint students with different aspects of mathematics used in daily life.
- to develop an interest in students to study mathematics as a discipline.
- to develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of sex biases.
- to develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.

One Paper	One Hour	Marks: 100
Units		Marks
I. RELATIONS AND FUNCTIONS		10
II. ALGEBRA		13
III. CALCULUS		44
IV. VECTORS AND THREE - DIMENSIONAL GEOMETRY		17
V. LINEAR PROGRAMMING		06
VI. PROBABILITY		10

UNIT I. RELATIONS AND FUNCTIONS

1. Relations and Functions :

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

1. Matrices:

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:

Determinant of a square matrix (up to 3×3 matrices), properties of determinants, minors, cofactors and applications of determinants in finding the area of a triangle. Adjoin 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

1. Continuity and Differentiability:

Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit function. Concept of exponential and logarithmic functions and their derivative. 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:

Applications of derivatives: rate of change, increasing/decreasing functions, tangents & normal, 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:

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 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:

Applications in finding the area under simple curves, especially lines, areas of circles/parabolas/ellipses (in standard form only), area between the two above said curves (the region should be clearly identifiable).

5. Differential Equations:

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:

$$\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x.$$

UNIT-IV: VECTORS AND THREE-DIMENSIONAL GEOMETRY

1. Vectors:

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.

2. Three - dimensional Geometry:

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

1. Linear Programming:

Introduction, definition of 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 (up to three non-trivial constraints).

UNIT-VI : PROBABILITY

1. Probability:

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.

Recommended Textbooks.

- 1) Mathematics Part I - Textbook for Class XII, NCERT Publication
- 2) Mathematics Part II - Textbook for Class XII, NCERT Publication

BIOLOGY

CLASS XII

BRIEF

The present syllabus reinforces the ideas introduced in the lower classes while the students learn new concepts besides getting an exposure to contemporary areas of the subject. The syllabus also aims at emphasizing the underlying principles that are common to both animals and plants as well as highlighting the relationships of biology with other areas of knowledge. The format of the syllabus allows a simple, clear, consequential flow of concepts without any jarring jumps. The syllabus also stresses the connection of the study of Biology to real life problems, use of biological discoveries/ innovations in everyday life - in environment, nature, medicine, health and agriculture. The updated syllabus also focuses on reducing the curriculum load while ensuring that ample opportunities and scope for learning and appreciating basic concepts of the subject continues to be available within its framework.

The prescribed syllabus is expected to promote understanding of basic principles of biology learning of emerging knowledge and its relevance to individual and society encourage rational/specific attitude to issues related to population, environment and development enhance awareness about environmental issues and problems and the appropriate solutions create awareness amongst the learners about variations amongst the living and developing respect for the diversities and to appreciate that the most complex biological phenomenon are also built on essentially simple processes.

It is expected that the students would get an exposure to various branches of Biology in the syllabus in a more contextual and friendly manner as they study its various units.

Biology

One Paper

Time : 45 Minutes

Marks : 70

Unit	Marks
1. Reproduction	14
2. Genetics and evolution	18
3. Biology and human Welfare	14
4. Biotechnology and its applications	10
5. Ecology and environment	14

UNIT-I

I REPRODUCTION

Reproduction in organisms : Asexual and sexual reproduction. Sexual reproduction in flowering plants : Structure of flower, pollination, fertilization, development of seeds and fruits, apomixes and polyembryony. Human reproduction : Reproductive system in male and female, menstrual cycle, production of gametes, fertilization, implantation, embryo development, pregnancy, parturition and lactation. Reproductive Health : Population and birth control, contraception and MTP; sexually transmitted diseases, infertility.

UNIT-II

II GENETICS AND EVOLUTION

Mendelian inheritance.

Chromosome theory of inheritance, deviations from Mendelian ratio (gene interaction-incomplete dominance, co-dominance, multiple alleles).

Sex determination in human beings: XX,

XY. Linkage and crossing over.

Inheritance pattern : Mendelian disorders and chromosomal disorders in humans.

DNA and RNA, search for genetic material, replication, transcription, genetic code, translation. Gene expression and regulation.

Genome and Human Genome Project.

DNA fingerprinting.

Evolution: Origin of life, theories and evidences, adaptive radiation, mechanism of Evolution, origin and evolution of man.

UNIT -III

III BIOLOGY AND HUMAN WELFARE

Basic concepts of immunology, vaccines.

Pathogens, Parasites

Cancer and AIDS

Adolescence and drug / alcohol abuse.

Plant breeding, tissue culture, single cell protein, food production, animal husbandry.

Microbes in household food processing, industrial production, sewage treatment, energy generation, biocontrol agents and bio fertilizers.

UNIT -IV

IV BIOTECHNOLOGY AND ITS APPLICATION

Principles and Processes; Recombinant DNA technology; Application in Health and Agriculture; genetically modified (GM) organisms; biosafety issues.

UNIT -V

V ECOLOGY & ENVIRONMENT

Ecosystems : components, types, energy flow, nutrient cycling and ecosystem services. Organism and Population : Organisms and its environment, population and ecological adaptations. Centre's of diversity and conservation for biodiversity, Biosphere reserves, National parks and sanctuaries. Environmental issues.

Practical's

Time: 3 Hours

Marks : 30

- | | |
|--|----------|
| 1. Experiments and spotting | 20 marks |
| 2. Record of one investigatory project and Viva based on the project | 5 marks |
| 3. Class record and Viva based on experiments | 5 marks |

List of Experiments

1. Disect the given flower and display different whorls. Disect anther and ovary to show number of chambers.
2. Study pollen germination on a slide.
3. 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.
4. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms.
5. Study the presence of suspended particulate matter in air at the two widely different sites.
6. Study of plant population density by quadrat method.
7. Study of plant population frequency by quadrat method.
8. Prepare a temporary mount of onion root tip to study mitosis
9. 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. Study of flowers adapted to pollination by different agencies (wind, insect)
2. Study of pollen germination on stigma through a permanent slide.
3. Study and identify stages of gamete development i.e. T.S. testis and T.S. ovary through permanent slides. (from any mammal)
4. Study meiosis in onion bud cell or grass hopper testis through permanent slide.
5. Study of T.S. of blastula through permanent slide.
6. Study Mendelian inheritance using seeds of different colour/size of any plant.
7. Study 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. To identify common disease causing organisms like Ascaris, Entamoeba, Plasmodium, Ringworm through permanent slide or specimen. Comment on symptoms of diseases that they cause.
10. Study two plants and two animals found in xerophytic condition. Comment upon their adaptations/ morphological.
11. Study plants and animals found in aquatic conditions. Comment upon their adaptations/ morphological.

Recommended Textbooks

A text book in Biology, Published by NCERT

ACCOUNTANCY

CLASS XII

BRIEF

The course in Accountancy is introduced at + 2 stage of Senior Secondary education, as formal commerce education is provided after first ten years of schooling. With the fast changing economic scenario and business environment in a state of continuous flux, elementary business education along with accountancy as the language of business and as a source of financial information has carved out a place for itself at the Senior Secondary stage. Its syllabus content should give students a firm foundation in basic accounting principles and methodology and also acquaint them with the changes taking place in the presentation and analysis of accounting information, keeping in view the development of accounting standards and use of computers.

Against this background, the course puts emphasis on developing basic understanding about the nature and purpose of the accounting information and its use in the conduct of business operations. This would help to develop among students logical reasoning, careful analysis and considered judgement.

Accounting as an information system aids in providing financial information. The emphasis at Class XI is placed on basic concepts and process of accounting leading to the preparation of accounts for a sole proprietorship firm. Computerised accounting is becoming more and more popular with increasing awareness about use of computers in business. Keeping this in view, the students are exposed compulsorily to the basic knowledge about computers and its use in accounting in the same year.

In class XII, Accounting for Not for Profit Organisations, Partnership Firms and companies are to be taught as a compulsory part. Students will also be given an opportunity to understand further about Computerized Accounting System, as an optional course to Analysis of Financial Statements.

OBJECTIVES

- To familiarise the students with accounting as an information system;
- To acquaint the students with basic concepts of accounting and accounting standards;
- To develop the skills of using accounting equation in processing business transactions;
- To develop an understanding about recording of business transactions and preparation of financial statements;
- To enable the students with accounting for reconstitution of partnership firms;
- To enable the students to understand and analyses the financial statements;
- and
- To familiarize students with the fundamentals of computerized system of accounting.

One Paper

1 Hour

Marks : 100

Unit

Marks

Part A : Accounting for not for Profit Organisations,
Partnership Firms and Companies

- | | | |
|----|--|----|
| 1. | Accounting for not for profit organizations. | 10 |
| 2. | Accounting for Partnership Firms | 5 |
| 3. | Reconstitution of Partnership | 20 |
| 4. | Accounting for Share Capital and Debenture | 25 |

Part B : Financial Statement Analysis

- | | | |
|----|----------------------------------|----|
| 5. | Analysis of Financial Statements | 12 |
| 6. | Cash Flow Statement | 8 |
| 7. | Project Work | 20 |

Unit 1 : Project File 4 marks

Unit 2 : Written Test 12 marks (one hour)

Unit 3 : Viva Voce' 4 marks

OR

Part C : Computerized Accounting

- | | | |
|----|--|----|
| 5. | Overview of Computerized Accounting System | 5 |
| 6. | Accounting using Database Management System (DBMS) | 8 |
| 7. | Accounting Applications of Electronic Spread sheet | 7 |
| 8. | Practical Work in Computerized Accounting | 20 |

Unit 1 : File 4 marks

Unit 2 : Practical Examination 12 marks (one hours)

Unit 3 : Viva Voce' 4 marks

Part A :

Accounting for Not-For-Profit Organisations, Partnership
Firms and Companies.

unit 1 : Accounting for Not-for-profit Organisations

Meaning and features of not for profit organisations.

Meaning and features of fund based accounting.

Receipts and payments Account

Preparation of Income and Expenditure Account and Balance Sheet from Receipt and Payment Account with additional information.

Unit 2 : Accounting for Partnership firms

Nature of Partnership firm, Partnership Deed-meaning, importance.

Partners' Capital Accounts : Fixed vs Fluctuating Capital, Division of Profit among partners,

Profit and Loss Appropriation Account including past adjustments.

Unit 3 : Reconstitution of Partnership

Changes in Profit Sharing Ratio among the existing partners-Sacrificing Ratio and Gaining Ratio. Accounting for Revaluation of Assets and Liabilities and distribution of reserves (Accumulated Profits).

Goodwill: Nature, Factors affecting and methods of valuation: Average profit, Super profit and Capitalizations methods.

Admission of a Partner: Effect of Admission of Partner, Change in Profit Sharing Ratio, Accounting Treatment for Goodwill (as per AS 10), Revaluation of Assets and Liabilities, Adjustment of Capitals.

Retirement/Death of a Partner: Change in Profit Sharing ratio, accounting treatment of Good will, Revaluation of Assets and Liabilities, Adjustment of Capitals. Dissolution of a partnership firm.

Unit 4 : Accounting for Share Capital and Debenture

Share Capital : Meaning and Types.

Accounting for share capital: Issue and Allotment of Equity and Preference Shares; public subscription of shares : over subscription and under subscription; issue at par, premium and at discount; calls in advance, calls in arrears, issue of shares for consideration other than cash. Meaning of Private placement of shares and employee stock option plan.

Forfeiture of shares : accounting treatment, re-issue of forfeited shares.

Presentation of Share Capital in company's Balance Sheet.

Issue of debentures at par; Premium and at discount; writing of discount and loss on issue of debentures; Issue of debentures as collateral security; issue of debentures for consideration other than cash.

Redemption of debentures; sources : out of profits - debenture redemption reserve / sinking fund; out of capital-methods : lump sum payment, draw by lots, purchase in the open market and conversion (excluding cum-interest and ex-interest).

Part B : Financial Statement Analysis

Unit 5 : Analysis of Financial Statements

Financial Statements of a Company: preparation of simple balance sheet of a company in the prescribed form with major headings only.

Financial Statement Analysis: meaning, significance, limitations,

Tools for Financial Statement Analysis: Comparative Statements, Common Size Statements,

Accounting Ratios: meaning and objectives, types of ratios:

Liquidity Ratios: Current Ratio, Liquid Ratio

Solvency Ratios: Debt to Equity, Total Assets to Debt, Proprietary Ratio

Activity Ratios: Inventory Turnover, Debtors Turnover, Payables Turnover, Working Capital Turnover, Fixed Assets Turnover,

Profitability Ratio: Gross Profit, Operating, Net Profit, Return on Investment, Earning Per Share, Dividend per Share, Price Earning Ratio

Unit 6 : Cash Flow Statement

Cash Flow Statement: Meaning and objectives, preparation, adjustments related to depreciation, dividend and tax, sale and purchase of non-current assets (as per revised standard issued by ICAI)

Unit 7 : Project Work in Accounting

OR

Part C : Computerised Accounting

Unit 5 : Overview of Computerized Accounting System

Concept and types of Computerised Accounting System (CAS)

Features of a Computerized Accounting System

Structure of a Computerised Accounting System

Unit 6 : Accounting using Database Management System (DBMS)

Concept of DBMS

Objects in DBMS: Tables, Queries, Forms, Reports

Creating data tables for accounting

Using queries, forms and reports for generating accounting information.

Applications of DBMS in generating accounting information such as shareholders' records, sales reports, customers' profile, suppliers' profile, payroll, employees' profile, petty cash register.

Unit 7 : Accounting Applications of Electronic Spreadsheet

Concept of an Electronic Spreadsheet (ES)

Features offered by Electronic Spreadsheet

Applications of Electronic Spreadsheet in generating accounting information, preparing depreciation schedule, loan repayment schedule, payroll accounting and other such applications.

Recommended text books

1. Accountancy - I, Publishing by NCERT
2. Accountancy - II, Publishing by NCERT

Syllabus

STATISTICS

CLASS XII

Max. Marks: 100

Time allowed: 45 Minutes

Theory : 70 marks

Practical : 30 marks

Internal : 10 Marks

External : 20 Marks

Unit Wise Weightage

Unit - I Probability-II		08 marks
Unit - II	Basic Designs of Experiments.	06 marks
Unit - III	Index Number.	06 marks
Unit - IV	Vital Statistics	08 marks
Unit - V	Regression Analysis	06 marks
Unit - VI	Basic Statistical Inference	06 marks
Unit - VII	Time Series	06 marks
Unit - VIII	Quality Control	06 marks
Unit - IX	Curve Fitting & Least Square	06 marks
Unit - X	Interpolation & Extrapolation	06 marks
Unit - XI	Computer Programming . ,”	06 marks

Unit-I : Probability-II **08 marks**

Random variable; Discrete random variable and continuous random variable, Distribution function, Probability mass function, probability density function. Definition of Bernoulli distribution, Binomial distribution and Poisson distribution and, their mean and variance; Examples of different random experiments giving rise to random variables with these distributions.

Unit-II : Basic Designs of Experiment **06 marks**

Definition of a designs, experimental unit, treatment Principles of design of experiments, randomization, replication and local Control. Determination of number of replications, size and shape experimental Unit, Layouts of completely Randomized Block Design, Randomized Block Design, and Latin square Design. Practical situations where these designs can be used. Merits and demerits of CDR, RDB & LSD.

Unit-III : Index Number**06 marks**

Introduction, Characteristics of Index numbers, uses of Index numbers, Problems in the construction of Index numbers, Notations, Price relatives, quantity relatives and value relatives. Methods of constructing Index numbers, Simple or unweighted Index numbers and its limitations. Simple average of Price relatives : method, its merits and demerits, Weighted Index numbers, Laspeyers index numbers, Paschey's Index numbers and Fishers ideal index numbers.

Unit-IV: Vital Statistics**08 marks**

Meaning and nature, uses of vital statistics, methods of obtaining vital statistics, vital events, Rates of vital events, Measurements of population, mean population, 'measures of fertility and mortality. Crude birth rate, Crude death rate, Specific birth rate, Specific death rate. Standardized birth and death rate. General fertility rate, Specific fertility rate, Age specific fertility rate; total fertility rate.

Unit- V : Regression Analysis**06 marks**

Regression analysis as the method of predicting the value of one, quantitative variable from those of other quantitative variables, viz. Regression Coefficients and their properties, two regression equations, Graphing of regression lines, Angle between two lines of Regression.

Unit- VI : Basic Statistical Inference**06 marks**

Introductory definitions, Statistic, Estimator, Estimates, Parameter, Parameter Space, Unbiasedness. Consistency, Efficient Estimator, Most efficient estimator, Efficiency, Sufficiency, Statistical hypothesis, Null hypothesis, Alternative hypothesis, Acceptance and Rejection regions, •. Types of en-or, Level of significance, Power of the test.

Unit- VII : Time Series**06 marks**

Introduction, importance of time series, Components of time series. secular trend. seasonal variation, Cyclic variation & irregular movements. Time series models, Additive model and multiplication model, limitations of the models of time series, measurements of trend; free hand graph method: merits and demerits, Semi-average method, Moving average method: merits and demerits, methods of Least Squares, Filling of straight line: Merits and demerits.

Unit- VIII: Quality Control**06 marks**

Introduction, Process control, control charts, control limits, tools for statistical quality control, Control chart for variables, \bar{X} and R-charts; Criterion for detecting lack of control in \bar{X} and R charts. Interpretation of \bar{X} and R charts. Control charts for attributes; P-chart or control chart for fraction defective, control chart for number of defects per unit (C-chart). Application of C-Chart.

Unit-IX: Curve Fitting and Method of Least Square**06 marks**

Curve fitting, straight line, Parabola, Freehand method of curve fitting. Method of least squares, normal equations, fitting of a straight line and fitting of second degree parabola. Fitting of Exponential and Geometric curves.

Unit-X : Interpolation and Extrapolation

06 marks

Finite differences, Difference formula, Difference table, The operators E and their properties. Interpolation and extrapolation with equal intervals. Graphical Method, Method of Curve fitting Drawbacks of the method. Newton's Gregory formula for forward interpolation and back ward interpolation. Divided difference; properties, Newton's formula for unequal intervals, Relation between divided difference and ordinarily differences, LaGrange's interpolation formula for unequal intervals.

Unit-XI: Computer Programming

06 marks

Introduction to Computers and its applications in statistics, various parts of a computer, Hard disk, Monitor, Keyboard, Printer, Floppy Disks, Flow charts for mean and variance. Overview of DOS and BASIC Commands (DIR, Copy, DELETE, RENAME, LIST, RUN, SAVE, LOAD, INPUT/ OUTPUT Commands), Arithmetic expressions, Control Statements (GO TO, IF-THEN) Programme for mean and variance.

PRACTICALS

Marks: 30

- (a) Internal Assessment : 10 marks
- (b) External Examination : 20 marks
 - 1. Construction of Index Numbers using un weighted index Numbers
 - 2. Construction of Index Numbers by Laspeyers method
 - 3. Construction of Index Numbers by Paschey's method
 - 4. Construction of Index Numbers by Fishers method
 - 5. Find measures of fertility and mortality
 - 6. Calculate Age Specific Fertility rate and total Fertility rate
 - 7. Estimation of trend values by Free hand and Moving average method
 - 8. Estimation of trend by Fitting of a straight line
 - 9. Construction of X and R -charts
 - 10. Draw P-Chart and C-Chart
 - 11. Fitting of a Straight line, parabola and Exponential Curve
 - 12. Interpolation by using Newtons and Lagranges method.

BOOKS SUGGESTED :

- 1. Fundamentals of Statistics S.P. Gupta
- 2. Statistical Methods S.P. Gupta
- 3. Fundamental of Applied Statistics S.C. Gupta & V.K. Kapoor
- 4. Numerical Methods Jain & Iyenger
- 5. Programming in Basic Balguruswamy

Business Mathematics

Class XII

Maximum Marks: 100

Time: 1 Hour

Unit I : Introduction to Computers

10 marks

Computing (I)

What are computers? What they can perform and what they can not perform. role and use of computers in modern society, etc. Meaning of a problem-algorithm, a: detailed and precise step by step method of solution of the problem illustrated by means of simple day to day problems (like buying an article. multiplication of numbers, etc) Simple flow charting (decision boxes included but not loops), Easy exercises.

Computing (II)

Flow charts involving loops-algorithms for mathematical problems already studied from topics such as profit and loss, ratio and proportion, simple and compound interests. discount; HCF and LCM, etc. Easy exercise

Unit II : Statistics

10 marks

1. Definition of statistics
2. Organising raw data in a form in which it is more easily comprehended; Recall of frequency distribution and its graphical representation through bar diagram, Pie-charts etc.
3. Relative frequency distribution as a tool for comparing two distributions.
4. Measure of location and dispersion as methods of summarizing the information contained in a frequency distribution. Mean and standard deviation: Median and Mean deviation about the median.
5. Methods of calculating mean. standard deviation and mean deviation.

Unit III : Partnership

10 marks

Investment of capital for unequal period. sharing of profit, partners salaries, interest on capital, profit sharing on the admission of a new partners/retirement of an existing partner.

Unit IV : Bill of Exchange

10 marks

Introduction of Bill of Exchange, Bankers discount; true discount and Bankers gain. Types of Bill of Exchange, Feature of a Bill of Exchange, Advantages of bill exchange.

Unit V : Matrices and Determinants

10 marks

Matrix as rectangular arrangements of numbers. Type of matrices, equality of matrices; Addition, Scalar multiplication and. multiplication of matrices, linear combinations of matrices, non-commutativity and associativity of matrix. multiplication, singular and non-singular matrices: Linear equation in matrix notation,

Determinants: minors cofactors of determinants,. expansion of a determinant, properties and elementary transformation of determinants, application of determinants in solution of equations and area of a triangle; Cramer's rule, adjoint and inverse of a matrix and its properties; Application of matrices in solving simultaneous equations in three variable.

Unit VI : Annuities

10 marks

Annuities and its types: present value and amount in case of (i) Ordinary annuity (ii) Annuity due, differed annuity, sinking fund.

Unit VII : Integrals

10 marks

Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fraction and by parts, only simple integrals of the type

Definite integrals as a limit of a sum. Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.

Unit VIII : Application of Integrals

10 marks

Application in finding the area under simple curves, especially lines, arcs of circles/ parabolas! ellipse (in standard form only), area between the two above said curves (the region should be clearly identifiable).

Unit IX : Differential Equations

10 marks

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:

$$\frac{dy}{dx} + P y = Q, \text{ where P and Q are functions of } x.$$

Unit X : Application of Calculus Commerce and Economics

10 marks

Average cost and marginal costs, total revenue, average revenue and marginal revenue, Break even analysis, maximization of total revenue and total profits, maximization of average cost.

ENTREPRENEURSHIP

Class XII

Maximum Marks: 100

Time: 45 Minutes

Theory : 70

Practicals : 30

Internal : 10 Marks

Marks External : 20 Marks

Unit 1 : Entrepreneurial Opportunities and Enterprise Creation **Marks 20**

- Sensing Entrepreneurial Opportunities
- Environment Scanning
- Market Assessment
- Identification of Entrepreneurial Opportunities
- Selection of an Enterprise
- Steps in setting up of an Enterprise

Unit II : Enterprise Planning and Resourcing **Marks 25**

- Business Planning - Preparation of a Project Report
- Resource Assessment -Financial and Non - Financial
- Fixed and Working Capital Requirement, Funds, Flows, Profit Ratios, Break Even Analysis etc.
- Mobilising Resources - Sources and Means of Fund, Facilities and Technologies for starting an Enterprise.
- Organising/Production of goods and services - quality, quantity, and flow of inputs.

Unit III : Enterprise Management **Marks 25**

- (a) General management: Basic Management functions.
- (b) Managing Market: Meaning, Functions of Marketing. Marketing Mix:
- ¥ Product
 - ¥ Price
 - ¥ Place
 - ¥ Promotion (advertising and sales promotion)

- (c) Managing Finance - Sources of Long Term and Short Term Finances
¥ Determination of Cost, Income, Calculation of Profit/Loss.
- (d) Managing Growth and Sustenance -Affecting Change, Modernization Expansion, Diversification and Substitution.
- (e) Entrepreneurial Discipline - Laws of Land, Ecology, Consumer's Concept, Adherence to Contract and Credits.

PRACTICAL

Marks 20

- 1. Project Report/Survey Report 10 Marks
- 2. Viva-Voce on PW /SR 05 Marks
- 3. Case Study 05 Marks

Guidelines for Project Report/Survey Report

1. Project Report/Market Survey Report

10 Marks

a) Project Report:

Preparation of a Project Report for an enterprise involving products/services

Students may be provided adequate guidance to choose a project based on their interests and (availability of information and authentic inputs in the locality. The specimen proforma of project report given in the textbook may be used for preparing the report. However, mechanical preparation of the report by filling in the information in the proforma should be discouraged.

Further, as the students will be required to appear for a Viva-voce on the basis of their projects. sufficient care should be taken by the students to prepare the report after studying the various aspects involved thoroughly. In a nutshell. the project report should lead to viable enterprise.

b) Market Survey Report

Market research is the process and technique of finding out who your potential customers are and what they want. The survey may be on products and services already available in the market or students may also conduct surveys for new products and services. The report of the survey should be organised under the following broad headings:

- 1. Objectives.
- 2. Methods and tools (interviews, questionnaires etc.) to be used to collect information.
- 3. Records of data and information.
- 4. Analysis of data and information.
- 5. Interpretation and conclusion. ‘

For example. a survey may be conducted to find out the choice of households in toiletry soap. tooth paste etc. The data may be analysed to establish a pattern that may be useful to an entrepreneur.

Guidelines for assessment of Project Report / Survey Report

1. Presentation : Format. Clarity. Use of graphs, tables and other visuals, organisation, methodical recording of data and information and general neatness of execution. **4 marks**
2. Originality and Creativity **3 marks**
3. Authenticity of information and Correctness of calculations and general feasibility of the project/ sustainability of conclusion drawn in the survey. **3 marks**
2. **Viva Voce on the Project/Market Survey Report** **5 Marks**

The questions should establish that the report is the original work of the student and that the student has a reasonably clear understanding of the work carried out by him/her. Entrepreneurial qualities such as leadership, self-belief, creativity, originality, initiative etc. may also be assessed by asking a variety of questions' related to the report.

3. Case Study **5 marks**

A case study is a focused research on an organization, enterprise, practice, behavior or person undertaken to highlight an aspect that the study attempts to examine. For instance, a case study may be conducted on the pollution control methods being employed by any industry. Or a successful industrialist may be chosen as a subject of a case study to analyze and understand the strategies that the industrialist adopted to achieve success. Ideally, a case study should be conducted on subjects with the objectives of bringing to the fore beliefs, practices, strategies, values etc. that have made them what they are. Such studies help us to understand the way in which great minds think and operate. We may also conduct case studies on failures; why a company collapsed, how a service lost its market etc. From both the types of case study, we learn lessons; how to do something or how not to do something. They also provide valuable insight into the processes involved in an enterprise. A few topics are suggested for carrying out case studies:

- i) Drawing a profile of a successful entrepreneur.
- ii) Studying a public sector undertaking and highlighting its success/failure, by analyzing the factors responsible.
- iii) Studying a small scale unit in the locality to bring out the procedures and processes adopted by the unit to become a feasible business venture.
- iv) A study of competition in business by choosing two or more rivals in the market and analyzing their strengths and weaknesses.
- v) Take the school itself for a case study and analyze any two aspects of the school plant for chalking out a plan of action infrastructure, academics, co-curricular activities etc.
- vi) A case study on a thriving fast food shop/restaurant in your locality. What makes it so popular?
- vii) A case study on the ways in which a business unit has mobilized its financial resources.
- viii) A case study on the enterprise management techniques adopted by a business house.
- ix) A case study on the marketing strategies of a successful consumer durable company.
- x) A case study- on the financial management of a Public Limited Company.

- xi) A case study on any Specialized Institution that supports and guides the establishment of a small scale unit.
- xii) Studying the balance sheets of two big private companies to assess their trade and credit worthiness.
- xiii) Studying the inventory management of a large manufacturing industry to ascertain the processes involved for optimizing cost.
- xiv) Carrying out a case study on an established industrial house/company to find out the value system of the company and how it fulfils its social commitment/obligations.
- xv) Carrying out a case study on an established industry to ascertain the processes followed to reduce/ prevent pollution.
- xvi) Study on environment friendly companies and their contribution to preservation.

Assessment of Case Studies

- i) Presentation: Format, accuracy, clarity, authenticity and general neatness,
- ii) Analysis and Conclusions

BUSINESS ORGANISATION

CLASS XII

BRIEF

The courses in Business Studies and Accountancy are introduced at + 2 stage of Senior econdary Education as formal commerce education is provided after first ten years of schooling. Therefore, it becomes necessary that instructions in these subjects are given in such a manner that students have a good understanding of the principles and practices bearing in business (trade and industry) as well as their relationship with the society.

Business is a dynamic process that brings together technology, natural resources and human initiative in a constantly changing global environment. To understand the framework in which a business operates, a detailed study of the organisation and management of business processes and its interaction with the environment is required. Globalisation has changed the way firms transact their business. Information Technology is becoming a part of business operations in more and more organisations. Computerised systems are fast replacing other systems. E-business and other related concepts are picking up fast which need to be emphasized in the curriculum.

The course in Business Studies will prepare students to analyse, manage, evaluate and respond to changes which affect business. It provides a way of looking at and interacting with the business environment. It recognizes the fact that business influences and is influenced by social, political, legal and economic forces. It allows students to appreciate that business is an integral component of society and develops an understanding of many social and ethical issues.

Therefore, to acquire basic knowledge of the business world, a course in Business Studies would be useful. It also informs students of a range of study and work options and bridges the gap between school and work.

OBJECTIVES

To develop in students an understanding of the processes of business and its environment;

To acquaint students with the dynamic nature and inter-dependent aspects of business;

To develop an interest in the theory and practice of business, trade and industry;

To familiarize students with theoretical foundations of organizing, managing and handling operations of a business firm;

To help students appreciate the economic and social significance of business activity and the social cost and benefits arising therefrom;

To acquaint students with the practice of managing the operations and resources of business;

To prepare students to function more effectively and responsibly as consumers, employers, employees and citizens;

To help students in making the transition from school to the world of work including self-employment;

To develop in students a business attitude and skills to be precise and articulate.

Business Studies Syllabus

One Paper

1 Hour

Max. Marks : 100

Unit wise Weightage

Units

Marks

Part A : Principles and Functions of Management

1.	Nature and Significance of Management	7
2.	Principles of Management	7
3.	Business Environment	5
4.	Planning	7
5.	Organizing	10
6.	Staffing	8
7.	Directing	10
8.	Controlling	6

Part B : Business Finance and Marketing

9.	Financial Management	12
10.	Financial Markets	8
11.	Marketing Management	14
12.	Consumer Protection	6

Part A : Principles and Functions of Management

Unit I : Nature and significance of Management

Management - concept, objectives, importance

Management as Science, Art, Profession.

Levels of management

Management functions - planning, organizing, staffing, directing and controlling

Coordination - nature and importance

Unit 2 : Principles of Management

Principles of Management - meaning, nature and significance

Fayol's principles of management

Taylor's Scientific Management - Principles and Techniques

Unit 3 : Business Environment

Business Environment - meaning and importance

Dimensions of Business Environment - Economic, Social, Technological, Political and

Legal Economic Environment in India; Impact of Government policy changes on business and industry, with special reference to adoption of the policies of liberalization, privatization and globalisation

Unit 4 : Planning

Meaning, features, importance, limitations

Planning process

Types of Plans - Objectives, Strategy, Policy, Procedure, Method, Rule, Budget, Programme.

Unit 5 : Organizing

Meaning and importance.

Steps in the process of organizing.

Structure of organization - functional and divisional.

Formal and informal organization.

Delegation: meaning, elements and importance.

Decentralization: meaning and importance.

Unit 6 : Staffing

Meaning and importance of staffing

Staffing as a part of Human Resource Management

Staffing process

Recruitment - meaning and sources

Selection - meaning and process

Training and Development - meaning and need. Methods of training

Unit 7 : Directing

Meaning, importance and principles

Elements of Directing

- Supervision - meaning and importance
- Motivation - meaning and importance, Maslow's hierarchy of needs; Financial and non-financial incentives.
- Leadership - meaning, importance; qualities of a good leader
- Communication - meaning and importance, formal and informal communication; barriers to effective communication.

Unit 8 : Controlling

Meaning and importance

Relationship between planning and controlling

Steps in the process of control

Techniques of controlling : budgetary control,

Part B : Business Finance and Marketing

Unit 9 : Financial Management

Meaning, role, objectives of financial management

Financial decisions : meaning and factors affecting

Financial planning - meaning and importance.

Capital Structure - meaning and factors

Fixed and Working Capital -Meaning and factors affecting its requirements.

Unit 10 : Financial Markets

Concept of Financial Market: Money Market and its instruments.

Capital market and types - primary and secondary market.

Distinction between capital market and money market.

Stock Exchange - meaning, functions, NSEI, OCTEI, Trading Procedure.

Securities and Exchange Board of India (SEBI)- Objectives, Functions.

Unit 11 : Marketing Management

Marketing - meaning, functions and role, marketing and selling

Marketing management philosophies.

Marketing mix - elements

- Product - nature, classification, branding, labeling and packaging

- Price - Factors determining fixation of price

- Physical distribution: Elements;

Channels of distribution : types, function, choice of channels

- Promotion -Elements of promotion mix; Advertising - role, limitations, objections against advertising. Personal selling - meaning, importance; Sales promotion - merits, limitations, methods ; Publicity - meaning and role.

Unit 12 : Consumer Protection

Importance of consumer protection

Consumer rights Consumer responsibilities

Ways and means of consumer protection - Consumer awareness and legal redressal with reference to Consumer Protection Act.

Role of consumer organizations and NGOs.

Recommended text books :

1. Business Studies - I, Published by NCERT
2. Business Studies - II

SOCIOLOGY

CLASS XII

BRIEF

Sociology is introduced as an elective subject at the senior secondary stage. The syllabus is designed to help learners to reflect on what they hear and see in the course of everyday life and develop a constructive attitude towards society in change; to equip a learner with concepts and theoretical skills for the purpose. The curriculum of Sociology at this stage should enable the learner to understand dynamics of human behaviour in all its complexities and manifestations. The learners of today need answers and explanations to satisfy the questions that arise in their minds while trying to understand social world. Therefore, there is a need to develop an analytical approach towards the social structure so that they can meaningfully participate in the process of social change. There is scope in the syllabus not only for interactive learning, based on exercises and project work but also for teachers and students to jointly innovate new ways of learning.

Sociology studies society. The child's familiarity with the society in which she /he lives in makes the study of sociology a double edged experience. At one level sociology studies institutions such as family and kinship, class, caste and tribe religion and region- contexts with which children are familiar of, even if differentially. For India is a society which is varied both horizontally and vertically. The effort in the books will be to grapple overtly with this both as a source of strength and as a site for interrogation.

Significantly the intellectual legacy of sociology equips the discipline with a plural perspective that overtly engages with the need for defamiliarization, to unlearn and question the given. This interrogative and critical character of sociology also makes it possible to understand both other cultures as well as relearn about one's own culture.

This plural perspective makes for an inbuilt richness and openness that not too many other disciplines in practice share. From its very inception sociology has had mutually enriching and contesting traditions of an interpretative method that openly takes into account 'subjectivity' and causal explanations that pay due importance to establishing causal correspondences with considerable sophistication. Not surprisingly its field work tradition also entails large scale survey methods as well as a rich ethnographic tradition. Indeed Indian sociology, in particular has bridged this distinction between what has often been seen as distinct approaches

of sociology and social anthropology. The syllabus provides ample opportunity to make the child familiar with the excitement of field work as well as its theoretical significance for the very discipline of sociology.

The plural legacy of sociology also enables a bird's eye view and a worm's eye view of the society the child lives in. This is particularly true today when the local is inextricably defined and shaped by macro global processes.

The syllabus proceeds with the assumption that gender as an organizing principle of society cannot be treated as an add on topic but is fundamental to the manner that all chapters shall be dealt with. The chapters shall seek for a child centric approach that makes it possible to connect the lived reality of children with social structures and social processes that sociology studies.

A conscious effort will be made to build into the chapters a scope for exploration of society that makes learning a process of discovery. A way towards this is to deal with sociological concepts not as givens but a product of societal actions humanly constructed and therefore open to questioning.

OBJECTIVES

1. To enable learners to relate classroom teaching to their outside environment.
2. To introduce them to the basic concepts of sociology that would enable them to observe and interpret social life.
3. To be aware of the complexity of social processes.
4. To appreciate diversity in society in India and the world at large.
5. To build the capacity of students to understand and analyze the changes in contemporary Indian society.

One Paper Theory

1 Hour

Marks 100

Unit wise Weightage

Units

1.	Introducing Indian Society	Non evaluative
2.	Demographic Structure & Indian Society	8
3.	Social Institutions-Continuity and change	8
4.	Market as a Social Institution	8
5.	Pattern of Social Inequality and Exclusion	8
6.	Challenges of Cultural Diversity	8
7.	Suggestions for Project Work	Non evaluative
	Change and Development in Indian Society	
8.	Structural Change	8
9.	Cultural Change	8
10.	The Story of Democracy	8
11.	Change and Development in Rural Society	8
12.	Change and Development in Industrial Society	8
13.	Globalization and Social Change	8
14.	Mass Media and Communications	8
15.	Social Movements	4

INDIAN SOCIETY

Unit 1 : Introducing Indian Society

Colonialism, Nationalism, Class and Community

Unit 2 : Demographic Structure And Indian Society

Rural-Urban Linkages and Divisions

Unit 3: Social Institutions: Continuity & Change

Family and Kinship

The Caste System

Unit 4 : Market As A Social Institution

Market as a Social Institution

Unit 5 : Pattern of Social Inequality & Exclusion

Caste Prejudice, Scheduled Castes and Other Backward

Classes Marginalization of Tribal Communities

The Struggle for Women's Equality

The Protection of Religious Minorities

Caring for the Differently Abled

Unit 6 : The Challenges Of Cultural Diversity

Problems of Communalism, Regionalism, Cartelism & Patriarchy Role of the State in a Plural and Unequal Society

What We Share

Unit 7 : Suggestions For Project Work

B. CHANGE AND DEVELOPMENT IN INDIA

Unit 8 : Structural Change

Colonialism, Industrialization, Urbanization.

Unit 9 : Cultural Change

Modernization, Westernization, Sanskritisation, Secularization. Social Reform Movements & Laws

Unit 10 : The Story Of Democracy

The Constitution as an instrument of Social Change Parties, Pressure Groups and Democratic Politics Panchayati Raj and the Challenges of Social Transformation

Unit 11 : Change And Development In Rural Society

Land Reforms, Green Revolution and Agrarian Society

Unit 12 : Change And Development In Industrial Society

From Planned Industrialization to Liberalization Changes in the Class

Structure Unit 13 : Globalisation And Social Change

Unit 14 : Mass Media And Communication Process

Unit 15 : Social Movements

Class-Based Movements : Workers, Peasants.

Caste-Based Movements: Dalit Movement, Backward Castes, Trends in Upper Caste Responses.

Women's Movements in Independent India. Tribal Movements.

Environmental Movements.

Recommended textbooks

1. Indian Society - Sociology, Published by NCERT

Syllabus

ECONOMICS

CLASS XII

BRIEF

Economics is one of the social sciences, which has great influence on every human being. As economic life and the economy go through changes, the need to ground education in children's own experience becomes essential. While doing so, it is imperative to provide them opportunities to acquire analytical skills to observe and understand the economic realities.

At senior 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 economics courses also contain many projects and activities. These will provide opportunities for the learners 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

1. Understanding of some basic economic concepts and development of economic reasoning which the learners can apply in their day-to-day life as citizens, workers and consumers.
2. Realization of learners' role in nation building and sensitivity to the economic issues that the nation is facing today.
3. Equipment with basic tools of economics and statistics to analyse economic issues. This is pertinent for even those who may not pursue this course beyond senior secondary stage.
4. Development of understanding that there can be more than one views on any economic issue and necessary skills to argue logically with reasoning.

Units	Marks
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Part A : Introductory Microeconomics

1. Introduction	4
2. Consumer Equilibrium and Demand	18
3. Producer Behaviour and Supply	18
4. Forms of Market and Price Determination	10
5. Simple applications of Tools of demand and supply	-

Part B : Introductory Macroeconomics

6. National Income and Related Aggregates	15
7. Money and Banking	88
8. Determination of Income and Employment	12
9. Government Budget and the Economy	78
10. Balance of Payments	7

Part A : Introductory Microeconomics**Unit 1 : Introduction**

What is an economy? Central problems of an economy : what, how and for whom to produce; concepts of production possibility frontier and opportunity cost.

Distinctions between (a) planned and market economies, (b) positive and normative perspectives in economics, and (c) microeconomics and macroeconomics .

(Non-evaluative topics: Some basic tools in the study of economics - equation of a line, slope of a line, slope of a curve.)

Unit 2 : Consumer Equilibrium and Demand

Consumer's equilibrium - meaning of utility, marginal utility, law of diminishing marginal utility, conditions of consumer's equilibrium using marginal utility analysis.

Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium.

Demand, market demand, determinants of demand, demand schedule, demand curve, movement along and shifts in the demand curve; price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand - (a) percentage-change method and (b) geometric method (linear demand curve); relationship between price elasticity of demand and total expenditure.

Unit 3 : Producer Behaviour and Supply

Production function: Total Product, Average Product and Marginal Product. Returns to a Factor. Cost and Revenue: Short run costs - total cost, total fixed cost, total variable cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationship.

Revenue - total, average and marginal revenue.

Producer's equilibrium-meaning and its conditions-under (a) total revenue-total cost approach and (b) marginal revenue-marginal cost approach.

Supply, market supply, determinants of supply, supply schedule, supply curve, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply - (a) percentage change method and (b) geometric methods.

Unit 4 : Forms of Market and Price Determination

Perfect competition - meaning and features.

Market Equilibrium under perfect competition - Determination of equilibrium price, Effects of shifts in demand and supply.

Non - Competitive Markets - monopoly, monopolistic competition, oligopoly - their meanings and features.

Unit 5 : Simple applications of Tools of demand and supply

(not to be examined)

Part B : Introductory Microeconomics

Unit 6 : National Income and related aggregates

Macroeconomics: Its meaning.

Some basic concepts of macroeconomics: consumption goods, capital goods, final goods, intermediate goods; stocks and flows; gross investment and depreciation. 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 Disposable Income (gross and net), Private Income, Personal Income and Personal Disposable Income; Real and Nominal GDP. GDP and Welfare

Unit 7 : Money and Banking

Money - its meaning and function. Supply of money - Currency held by the public and net demand deposits held by commercial banks. Money creation by the commercial banking system. Central banking and its functions (example of the Reserve Bank of India).

Unit 8 : Determination of Income and Employment

Aggregate demand and its components. Propensity to consume and propensity to save (average and marginal). Short-run fixed price in product market, equilibrium output; investment or output multiplier and the multiplier mechanism. Meaning of full employment and involuntary unemployment. Problems of excess demand and deficient demand; measures to correct them - change in government spending, availability of credit.

Unit 9 : Government Budget and the Economy

Government budget - meaning, objectives and components. 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. Fiscal policy and its role (non-evaluative topic).

Unit 10 : Balance of Payments

Balance of payments account - meaning and components; balance of payments deficit-meaning. Foreign exchange rate - meaning of fixed and flexible rates and managed floating. Determination of exchange rate in a free market.

HISTORY

CLASS XII

BRIEF

Through a focus on a series of critical historical issues and debates (class XI) or on a range of important historical sources (class XII), the students would be introduced to a set of important historical events and processes. A discussion of these themes, it is hoped, would allow students not only to know about these events and processes, but also to discover the excitement of doing history.

Objectives

Effort in these senior 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 help them understand the process through which historians write history, by choosing and assembling different types of evidence, and by reading their sources critically. They will appreciate how historians follow the trails that lead to the past, and how historical knowledge develops

The syllabus would also enable students to relate/compare developments in different situations, analyze connection between similar processes located in different time periods, and discover the relationship between different methods of social enquiry within different social sciences.

The syllabus in class XI is organized around some major themes in 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 marginalization. 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. The treatment of each theme in class XI would include (a) a road picture of the theme under discussion, (b) a more detailed focus on one region of study, (c) an introduction to a critical debate associated with the issue.

In class XII the focus will shift to a detailed study of some themes in Ancient, Medieval and Modern Indian history. 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.

Each theme in class XII will also introduce the student to one type of source for the study of history.

Through such a study students would begin to see what different types of sources can reveal and what they cannot tell. They would come to know how historians analyze these sources, the problems and difficulties of interpreting each type of source, ‘and the way a larger picture of an event, a historical process, or a historical figure, is built by looking at different types of sources.

Each theme for class XII will be organized around four subheads: (a) a detailed overview of the events, issues and processes under discussion, (b) a summary of the present state of research on the theme, (c) an account of how knowledge about the theme has been acquired, (d) an excerpt from a primary source related to the theme, explaining how it has been used by historians.

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 periodization do not always operate in a neat fashion.

In the textbooks each theme would be located in a specific time and place. But these discussions would be situated within a wider context by (a) plotting the specific event within time-lines, (b) discussing the particular event or process in relation to developments in other places and other times.

Time: 1 Hour

Paper One	100 Marks
Units	Marks
Section A: Archaeology & Ancient India	25
Units 1 - 4	
Section B: Medieval India	30
Units 5 - 9	
Section C: Modern India	35
Units 10 - 15	
Unit 16 : Map Work	10

Themes in Indian History

Themes

Objectives

SECTION A:

ARCHAEOLOGY & ANCIENT INDIA

1. The Story of the First Cities: Harappan Archaeology.

Broad overview: Early urban center's.

Story of discovery: Harappan civilization

Excerpt: Archaeological report on a major site.

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

Familiarize the learner with early urban centres as economic and social institutions.

Introduce the ways in which new data can lead to a revision of existing notions of history. Illustrate how archaeological reports are analyzed and interpreted by scholars.

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: Asokan inscription and Gupta period land grant.

Discussion: Interpretation of inscriptions by historians.

Familiarize the learner with major trends in the political and economic history of the subcontinent.

Introduce inscriptional analysis and the ways in which these have shaped the understanding of political and economic processes.

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.

Familiarize the learner with issues in social history. Introduce strategies of textual analysis and their use in 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.

Discuss the major religious developments in early India. Introduce strategies of visual analysis and their use in reconstructing histories of religion.

Themes in Indian History

Themes

Objectives

(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.

SECTION B:

MEDIEVAL INDIA

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.

Discuss developments in agrarian relations. Discuss how to supplement official documents with other sources.

Familiarize the learner with the major landmarks in political history Show how chronicles and other sources are used to reconstruct the histories of political institutions

Familiarize the learner with the new buildings that were built during the time.

Discuss the ways in which architecture can be analyzed to reconstruct history.

Themes in Indian History

Themes

Objectives

(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.

Familiarize the learner with religious developments. Discuss ways of analyzing devotional literature as sources of history.

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.

Familiarize the learner with the salient features of social histories described by the travelers. Discuss how travelers' accounts can be used as sources of social history.

SECTION C: MODERN INDIA

10. Colonialism and-Rural Society:

Evidence from Official Reports

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

Discuss how colonialism affected Zamindars, peasants and artisans.

Understand the problems and limits of using official sources for understanding the lives of people.

Themes in Indian History

Themes

Objectives

Story of official records: An account of why official investigations into rural societies were under taken 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.

Discuss how the events of 1857 are being reinterpreted.

Discuss how visual material can be used by historians

12. Colonialism and Indian Towns: Town Plans and Municipal Reports

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

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.

Familiarize the learner with the history of modern urban centres.

Discuss how urban histories can be written by drawing on different types of sources.

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.

Familiarize the learner with significant elements of the nationalist movement and the nature of Gandhian leadership.

Discuss how Gandhi was perceived by different groups.

Discuss how historians need to read and interpret newspapers, diaries and letters as historical source.

Themes in Indian History

Themes

Objectives

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.

Discuss the last decade of the national movement, the growth of communalism and the story of Partition. Understand the events through the experience of those who lived through these years of communal violence.

Show the possibilities and limits of oral sources.

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.

Familiarize students with the history of the early years after independence.

Discuss how the founding ideals of the new nation state were debated and formulated.

Understand how such debates and discussions can be read by historians.

16. Map Work on Units 1-15

Recommended text books :

1. Themes in Indian History, Published by NCERT
2. History Part-II, Published by NCERT
3. History Part-III, Published by NCERT

GEOGRAPHY

CLASS XII

BRIEF

Geography is introduced as an elective subject at the senior secondary stage. After ten years of general education, students branch out at the beginning of this stage and are exposed to the rigours of the discipline for the first time. Being an entry point for the higher education, students choose geography for pursuing their academic interest and, therefore, need a broader and deeper understanding of the subject. For others, geographical knowledge is useful in daily lives because it is a valuable medium for the education of young people. Its contribution lies in the content, cognitive processes, skills and values that geography promotes and thus helps the students explore, understand and evaluate the environmental and social dimensions of the world in a better manner.

Since geography explores the relationship between people and their environment, it includes studies of physical and human environments and their interactions at different scales-local, state/region, nation and the world. The fundamental principles responsible for the varieties in the distributional pattern of physical and human features and phenomena over the earth's surface need to be understood properly. Application of these principles would be taken up through selected case studies from the world and India. Thus, the physical and human environment of India and study of some issues from a geographical point of view will be covered in greater detail. Students will be exposed to different methods used in geographical investigations.

OBJECTIVES

The course in geography will help learners:

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 analyses 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 graphs and use of computers whereas 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.

One Theory Paper

45 Minutes

Marks : 70

A. Fundamentals of Human Geography

35 Marks

Unit 1 :	Human Geography	3
Unit 2 :	People	5
Unit 3 :	Human Activities	10
Unit 4 :	Transport, Communication & Trade	10
Unit 5 :	Human settlements	5
Unit 6 :	Map Work	2

B. India : People and Economy

35 Marks

Unit 7 :	People	5
Unit 8 :	Human Settlements	4
Unit 9 :	Resources and Development	12
Unit 10 :	Transport, Communication and International Trade	7
Unit 11 :	Geographical Perspective on selected issues and problems	4
Unit 12 :	Map Work	3

C. Practical Work

30 Marks

Unit 1 :	Processing of Data and Thematic Mapping	15
Unit 2 :	Field study or Spatial Information Technology	10
Unit 3 :	Practical Record Book and Viva Voce	5

A. Fundamentals of Human Geography

35 Marks

Unit 1 :	Human Geography: Nature and Scope
Unit 2 :	People

Population distribution, density and growth Population change-spatial patterns and structure; determinants of population change; Age-sex ratio; rural-urban composition; Human development - concept; selected indicators, international comparisons

Unit 3 : Human Activities

Primary activities - concept and changing trends; gathering, pastoral, mining, subsistence agriculture, modern agriculture; people engaged in agricultural and allied activities - some examples from selected countries.

Secondary activities-concept; manufacturing: types - household, small scale, large scale; agro based and mineral based industries; people engaged in secondary activities - some examples from selected countries.

Tertiary activities-concept; trade, transport and communication; services; people engaged in tertiary activities - some examples from selected countries **Quaternary activities**-concept; knowledge based industries; people engaged in quaternary activities - some examples from selected countries

Unit 4 : Transport, Communication and Trade

Land transport - roads, railways; trans-continental railways. Water transport- inland waterways; major ocean routes. Air transport- Intercontinental air routes.

Oil and gas pipelines.

Satellite communication and cyber space.

International trade-Bases and changing patterns; ports as gateways of international trade, role of WTO in International trade.

Unit 5 : Human Settlements

Settlement types - rural and urban; morphology of cities (case study); distribution of mega cities; problems of human settlements in developing countries.

Unit 6 : Map Work on identification of features based on above units on the outline Political map of World.

Part B. India: People and Economy

Unit 7 : People

Population : distribution, density and growth; composition of population - linguistic, religious; sex, rural-urban and occupational- population change through time and regional variations; Migration: international, national-causes and consequences; Human development: selected indicators and regional patterns; Population, environment and development.

Unit 8 : Human Settlements

Rural settlements - types and distribution;

Urban settlements - types, distribution and functional classification.

Unit 9 : Resources and Development

Land resources - general land use; agricultural land use, Distribution of major crops (Wheat, Rice, Tea, Coffee, Cotton, Jute, Sugar cane and Rubber), agricultural development and problems. Water resources-availability and utilization-irrigation, domestic, industrial and other uses; scarcity of water and conservation methods-rain water harvesting and watershed management (one case study related with participatory watershed management to be introduced).

Mineral and energy resources : distribution of metallic (Ironore, Copper, Bauxite, Manganese) non-metallic (Mica, Salt) minerals; conventional (Coal, Petroleum, Natural gas and Hydro electricity) and non-conventional energy sources (solar, wind, biogas). Industries - types, industrial location and clustering;

distribution and changing pattern of selected industries-iron and steel, cotton textiles, sugar, petrochemicals, and knowledge based industries; impact of liberalization, privatization and globalisation on industrial location; Planning in India- target area planning (case study); idea of sustainable development (case study)

Unit 10 : Transport, Communication and International Trade

Transport and communication-roads, railways, waterways and airways: oil and gas pipelines; national electric grids; communication networking's - radio, television, satellite and internet; International trade-changing pattern of India's foreign trade; sea ports and their hinterland and airports,

Unit 11 : Geographical Perspective on Selected Issues and Problems

(One case study to be introduced for each topic)

Environmental pollution; urban-waste disposal. Urbanization rural-urban migration; problem of slum. Land Degradation.

Unit 12 : Map work on locating and labelling of features based on above units on outline political map of India

C. Practical Work

Unit I : Processing of Data and Thematic Mapping

Sources of data.

Tabulating and processing of data; calculation of averages, measures of central tendency, deviation and rank correlation; Representation of data- construction of diagrams: bars, circles and flowchart; thematic maps; construction of dot; choropleth and isopleth maps. Use of computers in data processing and mapping.

Unit II : Field Study or Spatial Information Technology

Field visit and study: map orientation, observation and preparation of sketch; survey on any one of the local concerns; pollution, ground water changes, land use and land-use changes, poverty, energy issues, soil degradation, impact of floods and drought, catchment area of school, Market survey and Household survey (any one topic of local concern may be taken up for the study; observation and questionnaire survey may be adopted for the data collection; collected data may be tabulated and analyzed with diagrams and maps).

OR

Spatial Information Technology

Introduction to GIS; hardware requirements and software modules; data formats; raster and vector data, data input, editing & topology building; data analysis; overlay & buffer. Recommended text books:

1. Fundamentals of Human Geography, Published by NCERT
2. India - People and Economy, Published by NCERT
3. Practical Work in Geography, Published by NCERT

POLITICAL SCIENCE

CLASS XII

COURSE CONTENTS

Part A : Contemporary World Politics

1. Cold War Era

Emergence of two power blocs after the second world war. Arenas of the cold war. Challenges to Bipolarity: Non Aligned Movement, quest for new international economic order, India and the cold war.

2. The End of Bipolarity

New entities in world politics: Russia, Balkan states and Central Asian states, Introduction of democratic politics and capitalism in post-communist regimes. India's relations with Russia and other post-communist countries.

3. US Hegemony in World Politics

Growth of unilateralism : Afghanistan, first Gulf War, response to 9/11 and attack on Iraq. Dominance and challenge to the US in economy and ideology. India's renegotiation of its relationship with the USA.

4. Alternative Centre's of Power

Rise of China as an economic power in post-Mao era, creation and expansion of European Union, ASEAN. India's changing relations with China.

5. Contemporary South Asia in the Post-Cold War Era

Democratization and its reversals in Pakistan and Nepal. Ethnic conflict in Sri Lanka, Impact of economic globalization on the region. Conflicts and efforts for peace in South Asia. India's relations with its neighbours.

6. International Organizations

Restructuring and the future of the UN. India's position in the restructured UN. Rise of new international actors: new international economic organizations, NGOs. How democratic and accountable are the new institutions of global governance?

7. Security in Contemporary World

Traditional concerns of security and politics of disarmament. Non-traditional or human security: global poverty, health and education. Issues of human rights and migration.

8. Environment and Natural Resources

Environment movement and evolution of global environmental norms. Conflicts over traditional and common property resources. Rights of indigenous people. India's stand in global environmental debates.

9. Globalisation

Economic, cultural and political manifestations. Debates on the nature of consequences of globalization. Anti-globalisation movements. India as an arena of globalization and struggle against it.

Part B : Politics in India Since Independence

10. Challenges of Nation-Building

Nehru's approach to nation-building: Legacy of partition: challenge of 'refugee' resettlement, the Kashmir problem. Organization and reorganization of states; Political conflicts over language.

11. Era of One-Party Dominance

First three general elections, nature of Congress dominance at the national level, uneven dominance at the state level, coalitional nature of Congress. Major opposition parties.

12. Politics of Planned Development

Five year plans, expansion of state sector and the rise of new economic interests. Famine and suspension of five year plans. Green revolution and its political fallouts.

13. India's External Relations

Nehru's foreign policy. Sino-Indian war of 1962, Indo-Pak war of 1965 and 1971. India's nuclear programme and shifting alliances in world politics.

14. Challenges to the Congress System

Political succession after Nehru. Non-Congresses and electoral upset of 1967, Congress split and reconstitution, Congress' victory in 1971 elections, politics of 'garibi hatao'.

15. Crisis of the Democratic Order

Search for 'committed' bureaucracy and judiciary. Navnirman movement in Gujarat and the Bihar movement. Emergency: context, constitutional and extra-constitutional dimensions, resistance of emergency. 1977 elections and the formation of Janata Party. Rise of civil liberties organizations.

16. Rise of New Social Movements

Farmers' movements, Women's movement, Environment and Development-affected people's movements. Implementation of Mandal Commission report and its aftermath.

17. Regional Aspirations

Rise of regional parties. Punjab crisis and the anti-Sikh riots of 1984. The Kashmir situation. Challenges and responses in the Northeast.

18. Recent Developments in Indian politics :

Participatory upsurge in 1990s. Rise of the JD and the BJP. Increasing role of regional parties and coalition politics. UF and NDA governments. Elections 2004 and UPA government.

Recommended text Books :

1. Indian's Constitution at Work, Class XI, Published by NCERT
2. Political Theory, Class XI, Published by NCERT
3. Contemporary World Politics, Class XII, Published by NCERT
4. Politics in India Since Independence, Class XII, Published by NCERT

Note : The above textbooks are also available in Hindi and Urdu versions.

HOME SCIENCE

COURSE STRUCTURE

CLASS XII

(THEORY)

One Paper (Theory)

70 Marks

Time : 45 Minutes

Unit I : Human Development : Life Span Approach (Part II)

Adolescence (12-18 years)

- i) Growth & Development - Domains and principles.
- ii) Meaning, characteristics and needs.
- iii) Influences on identity formation
 - (a) Biological and Physical changes-early and late matures. (Role of heredity and environment)
 - (b) Social, culture and media.
 - (c) Emotional changes.
 - (d) Cognitive changes.
- iv) Specific issues and concerns
 - (a) Eating disorders-Causes, consequences and management-Anorexia Nervosa, Bulimia.
 - (b) Depression
 - (c) Substance Abuse
 - (d) Related to sex
 - (e) Handling stress and peer pressure

Adulthood : Understanding and management of new responsibilities; carrier, marriage and family.

Old Age :

- (i) Health and Wellness : physical, social, emotional financial, recreational needs
- (ii) Care for elderly (at home and outside-old age home)
- (iii) Anger management.

Unit II : Nutrition for Self, Family and Community

- (a) Use of basic food groups (ICMR) and serving size in meal planning.
- (b) Factors influencing selection of food : culture, family food practices, media, peer group, availability of foods, purchasing power, and individual preference.

Meal Planning :

Meaning and importance, principles and factors effecting meal planning; Nutritional needs, food preferences and modifications of diets in different age groups: infants, children, adolescence, adults, elderly and in special conditions: pregnancy and lactation (including traditional foods given in these conditions).

- (a) Therapeutic modification of norms diet with respect to consistency, frequency, foodstuffs, nutrients and methods of cooking.
- (b) Modification of diet according to common ailments: diarrhea, fever, jaundice, hypertension, diabetes and constipation. Physiological changes, clinical symptoms, requirements and dietary requirements in each condition.

Food safety and quality :

- (a) Safe food handling (personal, storage, kitchen, cooking and serving).
- (b) Safety against food adulteration, definition and meaning of food adulteration as given by FSSAI (Food Safety and Standard Authority of India).
- (c) Common adulterants present in cereals, pulses, milk and milk products, fats and oils, sugar, jaggery, honey spices and condiments.
- (d) Effects of some of the adulterants present in the foods : kesari dal, metanil yellow, argemone seeds.
- (e) Food standards (FPO, Agmark, ISI).

Unit III : Money Management and Consumer Education

Family Income :

Various sources of family income : (i) money income, (ii) real income, (direct and indirect) (iii) Psychic income, Supplementing family income-need and ways; need and procedure for keeping Post Office schemes, household accounts (daily, weekly and monthly).

Savings and Investment :

- (i) **Meaning and importance of savings.**
- (ii) **Basis for selection of methods of investment : risk, security, profit, tax saving.**
- (iii) **Ways/methods of investment :**
 - (a) Bank schemes (saving, fixed, recurring).
 - (b) Post Office schemes (savings, recurring deposit, monthly income scheme, National saving certificate, Senior citizen scheme);
 - (c) Insurance schemes (whole life, mediclaim);

(d) Public provident Fund (PPF), Provident Fund (PF).

(iv) Consumer Protection and Education :

Meaning, problems faced by consumer, Consumer Protection Amendment Act (2011); Consumer aids : labels, standardization marks, (ECO Mark, Hallmark, Wool Mark, Silk Mark), advertising, leaflets, and Consumer redressed forum.

Unit IV : Apparel : Designing, Selection and Care

- (i) **Principles of design** — Balance, rhythm, proportion, harmony, emphasis.
- (ii) **Application of elements of art and principles** of design in designing apparel.
- (iii) **Selection and purchase of fabrics** — purpose, cost, season, quality - durability, ease of maintenance and comfort.
- (iv) **Selection of apparel** — factors influencing selection of apparel - age, climate, occupation, figure, occasion, fashion, drape and workmanship.
- (v) **Care and maintenance of clothes** : Cleansing agents : soaps and detergents (basic differences and their utility); General principles of stain removal, stain removal of tea, coffee, lipstick, ball pen, Grease, Curry and Blood.
- (vi) **Storage of Clothes.**

Unit V : Community Development and Extension (Part II)

1. **Water safety** : Use of safe drinking water-importance of potable water for good health, and its qualities, simple and methods of making water safe for drinking; boiling, filtering, use of alum, chlorine and chlorine tablet.
2. **Salient features of income generating schemes**
 - **DWCRA** (Development of Women and Children in Rural Area)
 - **MGNREGA** (Mahatma Gandhi National Rural Employment Guarantee Act, 2005)

Unit VI : Career Options after Home Science Education

Career options of self and wage employment of various fields of Home Science.

HOME SCIENCE

PRACTICAL

Maximum Marks : 30

1) Human Development : Life Span Approach (Part

II) Activities :

- Identify the problems of adjustment of adolescents with the help of a tool (group activity) and make a report.
- Spend a day with an aged person and observe the needs and problems. Write a report.
- List and discuss 4/5 areas of agreement and disagreement of self with :-
 - (a) Mother
 - (b) Father
 - (c) Siblings
 - (d) Friends
 - (e) Teacher

2) Nutrition for Self, Family and Community Activities

- Record meal of a day for an individual and evaluate it against principles of balanced diet.
- Modify and prepare a dish for any one physiological condition Fever, Diarrhea, Constipation, Jaundice Hypertension, Diabetes, Pregnancy, Lactations, Old age, and Infants.
- Identify food adulteration : visual using methods : Turmeric, Chana Dal, Bura Sugar, Milk, Tealeaves or Coriander, Black Paper Seeds.
- Prepare ORS Solution

3) Money Management and Consumer Education

- Collect and fill savings account in Post Office and Bank.
- Fill up the forms : Withdrawal, Deposit slips, cheque and paste in the file.
- Collect labels of any three products and compare them with mandatory requirements.
- Prepare one label each of any household items bearing ISI, FPU, Agmark.

4) Apparel : Designing, Selection and Care

- Illustrate principles of design or elements of art on a paper or cloth and evaluate them.
- Removal of different types of stains : tea, coffee, curry, grease, blood, lipstick, ball pen.
- Examine and evaluate readymade garments for their workmanship.
- Make sample of Hemming, Backstitch, Interlocking and Press buttons hooks and eye.

5) Community Development and Extension

- Visit any two places (home/restaurant/school/business centre, etc.) and evaluate its water portability and hygiene.

COMPUTER SCIENCE

CLASS XII

Duration : 45 Minutes

Total Marks : 70

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/de-allocation 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 stock (LIFO List 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 : DATABASE MANAGEMENT SYSTEM IN SQL

Database Concepts : Introduction to data base 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 Products;

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 function :** 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, 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 (NOT, AND, OR) in SQL SELECT statements.

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, WAN, MAN

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 :

Threat 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, Web Scripting - Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking)

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, Development models-Private cloud, Public cloud, Community cloud and hybrid cloud, Issues - Privacy, Compliance, Security, Sustainability and abuse.

Class XII (Practical's)

Duration: 3 Hours

Total Marks : 30

1. Programming in C++ 10

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 05

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 05

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 05

- 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

15SQL commands along with the output based on any table/relation :

5. Viva Voce 05

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 and 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 to highlight the abilities of algorithmic formulation, modular programming, optimized code preparation, systematic documentation and other associated aspects of Software Development.

INFORMATION TECHNOLOGY

Class XII

THEORY

Marks : 70

UNIT I : WELCOME TO THE WORLD OF CCT

1.1 : Expanding World of CCT : Career Opportunities

- Commerce
- Industry
- Medicine
- Scientific Research
- Governance
- Entertainment
- Other Fields

1.2 : Social, Ethical and Legal Matters

- Effects on the way we : Work, Socialize and Operate in other areas
- Cyber Crime
- Prevention of Crime
- Intellectual Property
 - Software Pirary
 - Plagiarism
 - Copyright and Patent
- Software Licensing
 - Proprietary Software
 - Free and Open Source Software
- Indian Initiatives in Open Source Software

UNIT II : WORKPLACE PRODUCTIVITY TOOLS

2.1 : Electronic Databases

- Need for data in Daily Life
- Organising Data for Easy Retrieval and making meaning
- Drawing interpretation from tables, Graphs Maps and Pie-Charts
- Database as a back-end Data Container
- DBMS
- Creating, populating and managing Databases
- Querying a Database
- SQL and its Applications
- Need for very large Databases

- Constructing Relationships
- Creating, populating & Managing Relational Databases
- Querying Relational Databases.
- Database Applications
- Web Applications : Web Forms and their Interaction with Databases
- Desktop application : Applications Interfaces and their Interaction with Databases
- Security Concerns & Safeguarding Data.

2.2 : Working with Multimedia Tools

- Introduction to Multimedia
- Basics of Multimedia
- Applications of Multimedia (Presentations, Product Description, Instruction, Games)
- Installation of Multimedia Software
- Capturing and Manipulation of Image and Sound
- Animation Tools
- Graphics Techniques
- Sound Techniques
- Real Life Applications of Multimedia

UNIT III : COMMUNICATION CONCEPTS AND SKILLS

3.1 : Computer Networks

- Need for Networking
- Types of Networks (LAN, WAN)
- Network topology (Star, Ring, Bus)
- Establishing Networks
- Hardware
- Wired : Physical Media that build up Network
- Cables (Twisted, Pair, Coaxial Cable, Optical Fiber Cable)
- Network Cards
- Switches (Hub Switch, Packet Switching)
- Ports
- Wireless (Infrared, Microwaves, Radio Waves), Bluetooth, Wi-Fi (WLAN)
- Protocols (TCP/IP, HTTP, FTP)
- Software (Servers like Print, Mail, Firewall, Web Server, etc.)
- Applications (Computer Telephony, Teleconferencing, Instant Messaging)
- Testing, Troubleshooting and Administering Networks

3.2 : Network Security

- Risk Assessment and Security Measures
- Assets and Types (Data, Applications, System and Network)
- Security Threats and Attacks (Passive, Active), types and effects (e.g. Identity Theft, Denial of Services, Computer Virus etc.)

- Security Issues and Security Measures (Firewalls, Encryption/Decryption)
- Prevention

3.2 : Network Security

- Risk Assessment and Security Measures
- Assets and Types (Data, Applications, System and Network)
- Security Threats and Attacks (Passive, Active), types and effects (e.g. Identity Theft, Denial of Services, Computer Virus etc.)
- Security Issues and Security Measures (Firewalls, Encryption/Decryption)
- Prevention

UNIT IV : WEB PUBLISHING TECHNOLOGIES

4.1 : Dynamic Websites

- Database Connectivity and Dynamic Web Pages
- Functionalities of Dynamic Web Pages
- Querying the database; Request and Retrieval of Information, Structured Query Language (SQL)
- Technologies for dynamic pages - ASP/ASPX, PHP, JSP, etc.
- Case study of popular dynamic sites.
- Building Dynamic pages; Forms, queries and connections

4.2 : Applications of Dynamic Websites

Features, Technologies, Scope and Emerging Trends of :

- Feature rich web sites
- Online Dictionaries and Encyclopedias
- Banking and E-commerce applications
- ERP, CRM and other Business Management Applications
- Content and Learning Management Systems
- Social Networking, Blogs and Wikis

UNIT V : TEAMWORK AND WEB-BASED COLLABORATION TOOLS

5.1 : Cross Cultural Collaboration

- Globalisation
- Cross Cultural Collaboration
- Possibilities and Hurdles
- Bridging Digital Divide
- Scope for International Collaboration

5.2 : Web-Based Collaboration Tools

- Social Networking Tools
- Language Translation Tools
- E-Collaboration Utilities and Services

UNIT VI : EMERGING TECHNOLOGIES

6.1 : Computer-Controlled Devices

- Introduction to Robotics
- Historical Perspective
- Degree of Freedom
- Characteristics and Anatomy of a Robot
- Emotional Robots
- Robots in Use
- Challenges to Robotics
- Intelligent Devices
- Machine Intelligence and Machine Learning

6.2 : Emerging Trends and Advances

- Mobile Computing
- Bioinformatics
- Biometrics
- Speech Recognition
- Computer Vision
- Nanotechnology
- Green Computing

Class XII

PRACTICALS

Practical Examination :

30 Marks

1. HANDS ON EXPERIENCE :

(15 Marks)

(a) Using SQL Commands Design, Develop and use a RDBMS.

- Creating Table using Constraints (NULL, PRIMARY).
- Deleting & Modifying Table
- Inserting Values in Table
- Deleting & Updating Records in Table.
- Generating Queries on Single/Multiple Tables using clause like - ORDER BY, WHERE, GROUP BY, HAVING, DISTINCT etc.
- Generating Query statements using functions like - SUM, COUNT, MIN, MAX, AVG, etc.

(b) Applications using Multimedia Tools

- Creating a Poster on any Topic
- Creating a movie on any topic, which should have background music and some animation.
- Creating a greeting card on any topic.
- Creating web pages
- Integrating Multimedia features in Web pages.

(c) Make blog on a theme e.g. Green Technology, Organize on audio/video chat using free blog service.

2. PROJECT WORK :

(5 Marks)

- A dynamic web site to be developed using database, web server, programming language e.g. Library Management System, E-Commerce, MIS, Social networking etc.
- Case study of a Dynamic Website

3. PRACTICAL FILE SHOULD CONTAIN :

(5 Marks)

- Print of 15 SQL Commands with Output
- Documentation of Design of the Dynamic Web Site.
- Process Documentation of Development of Blog

4. VIVA-VOCE

(5 Marks)

Viva will be taken from the syllabus covered in Class XII and Project Work.

PHYSICAL EDUCATION

Max.Marks.100

Time: 40 Minutes

Theory: 60 Marks

Practical: 40 Marks (External : 25, Internal : 15)

THEORY

Unit 1. PHYSICAL FITNESS

05 Marks

- Meaning and importance of Physical fitness.
- Components and types of Physical fitness.
- Factors effecting physical fitness.

Unit II. TRAINING METHODS

10 Marks

- Meaning and concept of training.
- Methods of training: Isometric and ISO- kinetic Exercise, Continuous Method, Interval Training and Fertlek, Circuit training, Acceleration Runs and Pace Races.

Unit III. SOCIOLOGICAL ASPECTS OF PHYSICAL EDUCATION

10 Marks

- Meaning of Sociology and its Importance in Physical Education and Sports.
- Games and Sports as man's cultural heritage.
- Development of leadership qualities and group dynamics through physical Education.
- Value Education through physical Education programmes.

Unit IV. MORAL EDUCATION

05 Marks

- Need and Importance of Moral Education.
- Moral Education through Physical Education.

Unit V. SPORTS AND ENVIRONMENT

10 Marks

- Concept of environment.
- Need of environment in physical education programme.
- Role of individual in improvement of environment for health promotion and prevention of sports related accidents.

Unit VI. YOGA

05 Marks

- Meaning and importance of yoga.
- Yoga and Indian heritage.
- Elements of yoga.

Unit VII. CONCEPT OF MAJOR GAMES/SPORTS**10 Marks**

- Cricket, Athletics, Basketball and Table Tennis.
- History of games (Above Games)
- Rules, measurement of the field/court. (Above Games)

Unit VIII. SPORTS MEDICINE FIRST AID REHABILITATION**05 Marks**

- Meaning and Importance of Sports Medicine.
- Doping (meaning, and drugs for doping)
- First Aid and Rehabilitation of the following sports injuries:
 - Acute injuries: such as dehydration, heat stroke, and exercise-induced asthma.
 - Chronic injuries: such as aches and pain of unknown origin, tendinitis (swelling in the tendons), and stress fractures (hairline fractures of the bone due to overuse).

PRACTICAL:**40 marks****Internal assessment:****15 Marks**

Internal assessment shall comprise Games/ sports (kho-kho, badminton, shot put) and Project work.

The break up of the marks is as under;

1. Games / sports (kho-kho, badminton, shot put). 10 Marks
2. Trekking. 05 Marks

External assessment:**25 Marks**

External assessment shall comprise skill test of Games/ sports (any game/ sport of student's choice) and Record file (the students shall maintain the practical file by drawing the field/ court with measurement and rules of the games/sports. The break up of the marks is as under;

1. Skill test of Games/sports. (students choice game) 15 Marks
2. Record file. 05 Marks
3. Vivo-voce. 05 Marks