

ANNUAL EXAM SESSION 2020-21
SYLLABUS FOR CLASS XI

S.NO.	SUBJECT	CHAPTERS/ UNIT	REMARK
1	HINDI	<p>गद्य खंड भाग 1</p> <p>नमक का दरोगा-मुंशी प्रेमचंद, मियां नसीरुद्दीन-कृष्णा सोबती, गलता लोहा-शेखर जोशी, स्पीति में बारिश-कृष्ण नाथ, जामुन का पेड़ -कृष्ण चंदर, भारत माता-जवाहरलाल नेहरू, काव्य खंड.....</p> <p>पद -कबीर, पद- मीरा, वे आंखें- सुमित्रानंदन पंत, गजल- साए में धूप- दुष्यंत कुमार, आओ मिलकर बचाएं -निर्मला पुतुल,</p> <p>वितान भाग 1 पूरक पुस्तक भारतीय गायिकाओं में बेजोड़-लता मंगेशकर-कुमार गंधर्व, राजस्थान की रजत बूंदें-अनुपम मिश्र, आलो आनधरी -बेबी हालदार,</p> <p>अभिव्यक्ति और माध्यम-जनसंचार माध्यम, पत्रकारिता के विविध आयाम, शब्दकोश उपयोगी विधि और परिचय, पत्र लेखन (औपचारिक /अनौपचारिक), दृश्य ,स्थिति ,घटना लेखन कार्यालय लेखन और प्रक्रिया, स्ववृत्त लेखन, आवेदन पत्र, प्रतिवेदन प्रेस विज्ञप्ति परिपत्र, कार्यसूची /कार्य वृत्त लेखन, अपठित बोध (गद्यांश /काव्यांश)</p>	
2	ENGLISH	<p>Subject-English, Annual Exam Syllabus</p> <p>*COMPREHENSIONS* (factual/discursive, case based)</p> <p>Note making and summarization</p> <p>*GRAMMAR*</p> <p>gap filling based on tenses/ determiners</p> <p>Sentence reordering/ transformation of sentences</p> <p>*ADVANCED WRITING SKILLS*</p> <p>notice, poster, business/official letters, debate, speech</p> <p>*LITERATURE*</p> <p>*HORNBILL- Prose*</p> <p>L- 1 The portrait of Lady</p> <p>L-2 We're not afraid to die</p> <p>L -3 Discovering Tut</p> <p>L-4 Landscape of the soul</p> <p>L-5 Ailing Planet</p> <p>L-6 The Browning Version</p> <p>L-8 Silk road</p> <p>*POETRY*</p> <p>1. A Photograph</p>	

		2. The Laburnum Top 3. The Voice of the Rain 4. Childhood *SNAPSHOTS (prose)* L.1 The Summer of the Beautiful White Horse L.2 The Address L.3 Ranga's Marriage L.4 Albert Einstein at School L.5 Mother's Day L.7 Birth	
3	MATHS	Chapter Chapter name Unit 1 Sets I 2 Relations and functions I 3 Trigonometric Functions I 5 Complex numbers and Quadratic equations II 6 Linear Inequalities II 7 Permutations and Combinations II 9 Sequence and Series II 10 Straight lines III 11 Conic Section III 12 Introduction of 3-D Geometry III 13 Limits and Derivatives IV 15 Statistics V 16 Probability V	
4	PHYSICS	1. Physical world and units and measurements 2. Kinematics 3. Laws of motion 4. Work energy and power 5. System of particle and rotational motion 6. Gravitation 7. Properties of bulk matter 8. Thermodynamics 9. Kinetic theory of gases 10. Oscillation and wave	
5	CHEMISTRY	Unit I: Some Basic Concepts of Chemistry General Introduction: Importance and scope of Chemistry. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and	

calculations based on stoichiometry.

Unit II: Structure of Atom

Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals.

Unit III: Classification of Elements and Periodicity in Properties

Modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.

Unit IV: Chemical Bonding and Molecular Structure

Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules(qualitative idea only), Hydrogen bond.

Unit V: States of Matter: Gases and Liquids

Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation and deviation from ideal behavior.

Unit VI: Chemical Thermodynamics

Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions.

First law of thermodynamics -internal energy and enthalpy, measurement of U and ΔH , Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction)

Introduction of entropy as a state function, Gibb's energy change for spontaneous and non- spontaneous processes.

Third law of thermodynamics (brief introduction).

Unit VII: Equilibrium

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak

		<p>electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, buffer solution, solubility product, common ion effect (with illustrative examples).</p> <p>Unit VIII: Redox Reactions Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number.</p> <p>Unit IX: Hydrogen Position of hydrogen in periodic table, occurrence, isotopes, hydrides-ionic covalent and interstitial; physical and chemical properties of water, heavy water, hydrogen as a fuel.</p> <p>Unit X: s-Block Elements (Alkali and Alkaline Earth Metals) Group 1 and Group 2 Elements General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses.</p> <p>Unit XI: Some p-Block Elements General Introduction to p -Block Elements Group 13 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group, Boron - physical and chemical properties. Group 14 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first elements. Carbon-catenation, allotropic forms, physical and chemical properties.</p> <p>Unit XII: Organic Chemistry -Some Basic Principles and Techniques 10 Periods General introduction, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.</p> <p>Unit XIII: Hydrocarbons Classification of Hydrocarbons Aliphatic Hydrocarbons: Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions. Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of</p>	
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		<p>hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.</p> <p>Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.</p> <p>Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.</p> <p>PRACTICAL SYLLABUS</p> <p>Micro-chemical methods are available for several of the practical experiments, wherever possible such techniques should be used.</p> <p>A. Basic Laboratory Techniques</p> <ol style="list-style-type: none"> 1. Cutting glass tube and glass rod 2. Bending a glass tube 3. Drawing out a glass jet 4. Boring a cork <p>B. Characterization and Purification of Chemical Substances</p> <ol style="list-style-type: none"> 1. Determination of melting point of an organic compound. 2. Determination of boiling point of an organic compound. 3. Crystallization of impure sample of any one of the following: Alum, Copper Sulphate, Benzoic Acid. <p>C. Quantitative Estimation</p> <ol style="list-style-type: none"> i. Using a mechanical balance/electronic balance. ii. Preparation of standard solution of Oxalic acid. iii. Determination of strength of a given solution of Sodium hydroxide by titrating it against standard solution of Oxalic acid. iv. Preparation of standard solution of Sodium carbonate. v. Determination of strength of a given solution of hydrochloric acid by titrating it against standard Sodium Carbonate solution. <p>D. Qualitative Analysis</p>	
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6	BIOLOGY	UNIT 1 DIVERSITY OF LIVING ORGANISMS UNIT 2 STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS UNIT 3 CELL : STRUCTURE AND FUNCTION UNIT 4 PLANT PHYSIOLOGY UNIT 5 HUMAN PHYSIOLOGY	
8	ECO	Part A: Statistics for Economics In this course, the learners are expected to acquire skills in collection, organisation and presentation of quantitative and qualitative information pertaining to various simple economic aspects systematically. It also intends to provide some basic statistical tools	

to analyse, and interpret any economic information and draw appropriate inferences.

In

this process, the learners are also expected to understand the behaviour of various economic data.

Unit 1: Introduction 07 Periods

What is Economics?

Meaning, scope, functions and importance of statistics in Economics

Unit 2: Collection, Organisation and Presentation of data 27 Periods

Collection of data - sources of data - primary and secondary; how basic data is collected with concepts of Sampling; methods of collecting data; some important sources of secondary data: Census of India and National Sample Survey

Organisation.

Organisation of Data: Meaning and types of variables; Frequency Distribution.

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Presentation of Data: Tabular Presentation and Diagrammatic Presentation of Data:

(i) Geometric forms (bar diagrams and pie diagrams), (ii) Frequency diagrams (histogram, polygon and Ogive) and (iii) Arithmetic line graphs (time series graph).

Unit 3: Statistical Tools and Interpretation 41 Periods

For all the numerical problems and solutions, the appropriate economic interpretation may be

attempted. This means, the students need to solve the problems and provide interpretation for the results derived.

Measures of Central Tendency- Arithmetic mean, median and mode

Measures of Dispersion - absolute dispersion standard deviation); relative dispersion

co-efficient of variation)

Correlation – meaning and properties, scatter diagram; Measures of correlation - Karl

Pearson's method (two variables ungrouped data)

Introduction to Index Numbers - meaning, types - wholesale price index, consumer price

index, uses of index numbers; Inflation and index numbers.

Part B: Introductory Microeconomics

Unit 4: Introduction 4 Periods

Meaning of microeconomics and macroeconomics; positive and normative economics

What is an economy? Central problems of an economy: what, how and for whom to

		<p>produce; opportunity cost.</p> <p>Unit 5: Consumer's Equilibrium and Demand 32 Periods 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.</p> <p>4 Demand, market demand, determinants of demand, demand schedule, demand curve and its slope, movement along and shifts in the demand curve; price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand – percentage-change method.</p> <p>Unit 6: Producer Behaviour and Supply 26 Periods Meaning of Production Function – Short-Run and Long-Run Total Product, Average Product and Marginal Product. Returns to a Factor Cost: Short run costs - total cost, total fixed cost, total variable cost; Average cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationships. Revenue - total, average and marginal revenue - meaning and their relationship. Supply, market supply, determinants of supply, supply schedule, supply curve and its slope, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply - percentage-change method.</p> <p>Unit 7: Forms of Market and Price Determination under Perfect Competition with simple applications. 13 Periods Perfect competition - Features; Determination of market equilibrium and effects of shifts in demand and supply. Simple Applications of Demand and Supply: Price ceiling, price floor.</p> <p>Part C: Project in Economics 20 Periods Guidelines as given in class XII curriculum</p>	
9	COMP SC	<u>Unit 1 -- Computer Systems Organisation</u>	<u>Topics Deleted from Chapters:</u>

		<p>Chapters : 1- Computer System Overview Chapter:2- Data Representation Chapter:3- Boolean Logic Chapter:4—Insight into Program Execution <u>Unit 2 – Computational Thinking and Programming -1</u></p> <p>Chapter :1 - Introduction to Problem Solving Chapter:2 - Getting Started with Python Chapter:3 – Python Fundamentals Chapter : 4 - Data Handling Chapter:5- Flow of Control Chapter : 6 – String Manipulation Chapter :7- List Manipulation Chapter:8- Tuples Chapter :9- Dictionaries <u>Unit 3 -- Society , Law and Ethics</u></p> <p>Chapter : 1- Cyber Safety Chapter : 2 – Online Access and Computer Security Chapter:3 – Society , Law and Ethics</p>	<p>Encoding Schemes : UTF-8 , UTF-32 deleted from Chapter -2(Data Representation)</p> <p><u>From Chapter-4(Insight into Program Execution) deleted Topics:</u> Concept of cloud computing and cloud services (SaaS, IaaS, PaaS), cloud (public/private), Blockchain technology</p> <p><u>From Chapter “Introduction to Problem Solving” deleted Topics:</u> Decomposition – concept, need for decomposing a problem, examples of problem solving using decomposition.</p>
10	PHY EDU	<p>Unit I Changing Trends & Career in Physical Education. Unit II Olympic Value Education. Unit III Physical Fitness, Wellness & Lifestyle. Unit IV Physical Education & Sports for CWSN. Unit V Yoga. Unit VI Physical Activity & Leadership Training. Unit VII Test, Measurement & Evaluation. Unit VIII Fundamentals of Anatomy, Physiology & Kinesiology in Sports. Unit IX Psychology & Sports. Unit X Training and Doping in Sports</p>	
11	BST	<p>Unit 1 – Evolution and Fundamentals of Business Unit 2- Forms of Business Organisations Unit 3 - Public, Private and Global Enterprises Unit 4 - Business Services Unit 5- Emerging Modes of Business Unit 6- Social Responsibility of Business and Business Ethics Unit 7 - Sources of Business Finance Unit 8- Small Business and Entrepreneurship Development Unit 9- Internal Trade Unit 10 - International Business</p>	<p>16</p> <p>14</p> <p>10</p> <p>20</p> <p>20</p>

		Project	20
12	ACCOUNTS	Unit-1: Theoretical Framework Unit-2: Accounting Process Unit-3: Financial Statements of Sole Proprietorship from Complete and Incomplete Records Unit-4: Computers in Accounting Project Work	12 40 20 8 20
13	HISTORY	1-WRITING AND CITY LIFE 2-AN EMPIRE ACROSS THREE CONTINENTS 3-THE CENTRAL ISLAMIC LANDS 4-THE THREE ORDERS 5-CHANGING CULTURAL TRADITIONS 6-THE INDUSTRIAL REVOLUTION 7-DISPLACING INDIGENOUS PEOPLES 8-PATHS TO MODERNISATION	
14	GEOGRAPHY	PartA-geography as a discipline.The Earth.Landforms.climate.water.Life on the earth.PartB-inroduction.Physiography.climate, vegetation and soil.map.	Syllabus allready completed and revision will be going on.
15	PSYCHOLOGY	Chapter 1 to Chapter 7 of XI Psychology NCERT, as per the CBSE syllabus for class XI 2020-2021	
16	IP	Unit 1: Introduction to Computer System Introduction to computer and computing: evolution of computing devices, components of a computer system and their interconnections, Input/output devices. Computer Memory: Units of memory, types of memory – primary and secondary, data deletion, its recovery and related security concerns. Software: purpose and types – system and application software, generic and specific purpose software. Unit 2: Introduction to Python Basics of Python programming, Python interpreter - interactive and script mode, the structure of a program, indentation, identifiers, keywords, constants, variables, types of operators, precedence of	

	<p>operators, data types, mutable and immutable data types, statements, expressions, evaluation and comments, input and output statements, data type conversion, debugging.</p> <p>Control Statements: if-else, for loop</p> <p>Lists: list operations - creating, initializing, traversing and manipulating lists, list methods and built-in functions.</p> <p>Dictionary: concept of key-value pair, creating, initializing, traversing, updating and deleting elements, dictionary methods and built-in functions.</p> <p>Unit 3: Database concepts and the Structured Query Language</p> <p>Database Concepts: Introduction to database concepts and its need, Database Management System.</p> <p>Relational data model: Concept of domain, tuple, relation, candidate key, primary key, alternate key</p> <p>Advantages of using Structured Query Language, Data Definition Language, Data Query Language and Data Manipulation Language, Introduction to MySQL, creating a database using MySQL, Data Types</p> <p>Data Definition: CREATE TABLE</p> <p>Data Query: SELECT, FROM, WHERE.</p> <p>Data Manipulation: INSERT</p> <p>Unit 4: Introduction to the Emerging Trends</p> <p>Artificial Intelligence, Machine Learning, Natural Language Processing, Immersive experience (AR, VR), Robotics, Big data and its characteristics, Internet of Things (IoT), Sensors, Smart cities, Cloud Computing and Cloud Services (SaaS, IaaS, PaaS); Grid Computing, Block chain technology.</p> <p>5.1 Programming in Python</p> <ol style="list-style-type: none"> 1. To find average and grade for given marks. 2. To find sale price of an item with given cost and discount (%). 3. To calculate perimeter/circumference and area of shapes such as triangle, rectangle, square and circle. 4. To calculate Simple and Compound interest. 5. To calculate profit-loss for given Cost and Sell Price. 6. To calculate EMI for Amount, Period and Interest. 7. To calculate tax - GST / Income Tax. 8. To find the largest and smallest numbers in a list. 9. To find the third largest/smallest number in a list. 	
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	<p>10. To find the sum of squares of the first 100 natural numbers.</p> <p>11. To print the first 'n' multiples of given number.</p> <p>12. Create a dictionary to store names of states and their capitals.</p> <p>13. Create a dictionary of students to store names and marks obtained in 5 subjects.</p> <p>14. To print the highest and lowest values in the dictionary.</p> <p>5.3 Data Management: SQL Commands</p> <p>15. To create a database</p> <p>16. To create student table with the student id, class, section, gender, name, dob, and marks as attributes where the student id is the primary key.</p> <p>17. To insert the details of at least 10 students in the above table.</p> <p>18. To display the entire content of table.</p> <p>19. To display Rno, Name and Marks of those students who are scoring marks more than 50.</p> <p>20. To find the average of marks from the student table.</p> <p>21. To find the number of students, who are from section 'A'.</p> <p>22. To display the information all the students, whose name starts with 'AN' (Examples: ANAND, ANGAD,..)</p> <p>23. To display Rno, Name, DOB of those students who are born between '2005- 01- 01' and '2005-12-31'.</p> <p>24. To display Rno, Name, DOB, Marks, Email of those male students in ascending order of their names.</p> <p>25. To display Rno, Gender, Name, DOB, Marks, Email in descending order of their marks.</p> <p>26. To display the unique section available in the table.</p>	
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ANNUAL EXAM SESSION 2020-21
SYLLABUS FOR CLASS XII

S.NO.	SUBJECT	CHAPTERS/ UNIT	REMARK
1	HINDI	<p>1-आरोह-- 1-दिन जल्दी-जल्दी ढलताहै 2-कविता के बहाने 3-कैमरे में बन्द अपाहिज 4सहर्ष स्वी कारा है 5-उषा 6-कवितावली,लक्ष्मण मूर्च्छा और राम का विलाप 7-रूबाइयाँ,गज़ल 8- भक्तिन 9-बाज़ार दर्शन 10- काले मेघा पानी दे 11- पहलवान की ढोलक 12- नमक 13-श्रमविभाजन और जाति</p> <p>2-वितान-1-सिल्वर वैडिंग2-जूझ 3- अतीत में दबे पाँव 4- एन फ्रेंक की डायरी</p> <p>3-अभिव्यक्तिऔरमाध्यम-1-विभिन्न माध्यमों के लिये लेखन 2-पत्रकारीय लेखन के विभिन्न रूप 3-नएऔर अप्रत्याशित लेखन 4-कविता लेखन ,कहानी लेखन, नाटक लेखन 5-फीचर ,आलेख ,स्तम्भ ,संपादकीय ,समाचार आदि लेखन के सिद्धांत ।</p> <p>4-रचनात्मक लेखन- 1-पत्र -लेखन (औपचारिक) 2-अप्रत्याशित विषयों पर लेखन ।</p> <p>5- अपठित बोध -गद्यांश और काव्यांश पर आधारित बहु विकल्पीय प्रश्न ।</p>	
2	ENGLISH	<p>1. READING- COMPREHENSION</p> <p>2. WRITING- (I) ADVERTISEMENT (II) NOTICE (III) INVITATIONS AND REPLIES (IV) JOB APPLICATION AND BIO-DATA (V) LETTER TO THE EDITOR (VI) ARTICLE WRITING (VII) REPORT WRITING</p> <p>3. LITERATURE- (I) FLAMINGO- PROSE THE LAST LESSON LOST SPRING</p>	

		<p>DEEP WATER THE RATRAP INDIGO</p> <p>(II) FLAMINGO- POETRY MY MOTHER AT SIXTY- SIX AN ELEMENTARY SCHOOL CLASSROOM</p> <p>IN A SLUM</p> <p>KEEPING QUIET A THING OF BEAUTY AUNT JENNIFER'S TIGER</p> <p>(III) VISTAS- PROSE THE THIRD LEVEL THE ENEMY SHOULD WIZARD HIT MOMMY? ON THE FACE OF IT EVANS TRIES AN O- LEVEL</p>	
3	MATHS	<p>UNIT 1 RELATIONS AND FUNCTIONS CH 1 RELATIONS AND FUNCTIONS CH 2 INVERSE TRIGONOMETRIC FUNCTIONS UNIT 2 ALGEBRA CH 3 MATRICES CH 4 DETERMINANTS UNIT 3 CALCULUS CH 5 CONTINUITY AND DIFFERENTIABILITY CH 6 APPLICATIONS OF DERIVATIVES CH 7 INTEGRALS CH 8 APPLICATIONS OF INTEGRALS CH 9 DIFFERENTIAL EQUATIONS UNIT 4 VECTORS AND THREE DIMENSIONAL GEOMETRY CH 10 VECTORS CH 11 THREE DIMENSIONAL GEOMETRY UNIT 5 LINEAR PROGRAMMING CH 12 LINEAR PROGRAMMING UNIT 6 PROBABILITY CH 13 PROBABILITY</p>	<p>8 MARKS</p> <p>10 MARKS</p> <p>35 MARKS</p> <p>14 MARKS</p> <p>5 MARKS</p> <p>8 MARKS</p>
4	PHYSICS	<p>1. Electrostatic 2. Current electricity</p>	

		<p>3. Magnetic effect of electric current and magnetism</p> <p>4. Electromagnetic induction and AC</p> <p>5. Electromagnetic wave</p> <p>6. Optics</p> <p>7. Dual nature of matter</p> <p>8. Atom and nuclei</p> <p>9. Semiconductor and semiconductor devices</p>	
5	CHEMISTRY	<p>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, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects.</p> <p>Unit II: Solutions Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, Raoult's law, colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties.</p> <p>Unit III: Electrochemistry Redox reactions, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis.</p> <p>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).</p> <p>Unit V: Surface Chemistry Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, colloidal state: distinction between true solutions, colloids and suspension; lyophilic, lyophobic, multi-molecular and macromolecular colloids; properties of colloids;</p>	

Tyndall effect, Brownian movement, electrophoresis, coagulation.

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.

Group 16 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: preparation, properties and uses, classification of Oxides, Ozone, Sulphur -allotropic forms; compounds of Sulphur: preparation properties and uses of Sulphur-dioxide, Sulphuric Acid: 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.

Lanthanoids - Electronic configuration, oxidation states and lanthanoid contraction and its consequences.

Unit IX: Coordination Compounds

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT.

Unit X: Haloalkanes and Haloarenes.

Haloalkanes: Nomenclature, nature of C–X bond, physical and chemical properties, optical rotation mechanism of substitution reactions.

Haloarenes: Nature of C–X bond, substitution reactions (Directive

influence of halogen in monosubstituted compounds only).

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.
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
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: Amines
Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

Unit XIV: Biomolecules
Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration
Proteins -Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins.
Nucleic Acids: DNA and RNA.

PRACTICAL SYLLABUS
Micro-chemical methods are available for several of the practical experiments. Wherever possible, such techniques should be used.

A.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

Rf values to be provided).

A. Preparation of Inorganic Compounds

Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum. Preparation of Potassium Ferric Oxalate.

B. Tests for the functional groups present in organic compounds:

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

C. Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given foodstuffs.

D. 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).

E. Qualitative analysis

Determination of one cation and one anion in a given salt.

Cation : Pb^{2+} , Cu^{2+} , As^{3+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Cu^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , NH_4^+

4 3

Anions: $(\text{CO}_3)^{2-}$, S^{2-} , $(\text{SO}_3)^{2-}$, $(\text{NO}_2)^-$, $(\text{SO}_4)^{2-}$, Cl^- , Br^- , I^- , PO_3^- , $(\text{C}_2\text{O}_4)^{2-}$, CH_3COO^- , NO^-

(Note: Insoluble salts excluded) PROJECT

Scientific investigations involving laboratory testing and collecting information from other sources

A few suggested Projects.

- Study of the 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

		<p>and temperature on it.</p> <ul style="list-style-type: none"> □ 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 power, chilli powder and pepper. Note: Any other investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher. 	
6	BIOLOGY	<p>UNIT 6 REPRODUCTION UNIT 7 GENETICS AND EVOLUTION UNIT 8 BIOLOGY AND HUMAN WELFARE UNIT 9 BIOTECHNOLOGY AND ITS APPLICATIONS UNIT 10 ECOLOGY AND ENVIRONMENT</p>	
7	BIOTECHNOLOGY	<p><u>Unit-V Protein and Gene Manipulation</u> Chapter-1: Recombinant DNA Technology Introduction, Tool of DNA technology, Making of rDNA molecule, Introduction of recombinant DNA into host cells, Identification of recombinants, Polymerase Chain Reaction (PCR), DNA Sequencing. Chapter-2: Protein Structure and Engineering Introduction to the world of proteins, Structure-function Relationship in proteins, Characterization of proteins, Protein based products, Designing proteins (Protein Engineering) Chapter-3: Genomics, Proteomics and Bioinformatics Gene prediction and counting, Genome similarity, SNPs and Comparative genomics, Functional genomics, Proteomics, Information sources, Analysis using bioinformatics tools. <u>Unit-VI Cell Culture and Genetic Manipulation</u> Chapter-1: Microbial Cell Culture and its Applications Introduction, Microbial nutrition and culture techniques, Measurement and kinetics of microbial growth, Isolation of microbial products, Strain isolation and improvement, Applications of microbial culture technology. Chapter -2: Plant Cell Culture and Applications Introduction, Cell and tissue culture techniques, Applications of cell and tissue culture, 5 Transgenic plants with beneficial traits, Biosafety of transgenic plants Chapter-3: Animal Cell Culture and Applications Introduction,</p>	

		Animal cell culture techniques, Applications of animal cell culture, Stem cell technology.	
8	ECO	<p>Part A: Introductory Macroeconomics</p> <p>Unit 1: National Income and Related Aggregates</p> <p>What is Macroeconomics?</p> <p>Basic concepts in macroeconomics: consumption goods, capital goods, final goods, intermediate goods; stocks and flows; gross investment and depreciation.</p> <p>Circular flow of income (two sector model); Methods of calculating National Income - Value Added or Product method, Expenditure method, Income method.</p> <p>Aggregates related to National Income: Gross National Product (GNP), Net National Product (NNP), Gross Domestic Product (GDP) and Net Domestic Product (NDP) - at market price, at factor cost; Real and Nominal GDP. GDP and Welfare</p> <p>Unit 2: Money and Banking</p> <p>Money - meaning and supply of money - Currency held by the public and net demand deposits held by commercial banks.</p> <p>7</p> <p>Money creation by the commercial banking system.</p> <p>Central bank and its functions (example of the Reserve Bank of India): Bank of issue, Govt. Bank, Banker's Bank, Control of Credit</p> <p>Unit 3: Determination of Income and Employment</p> <p>Aggregate demand and its components.</p> <p>Propensity to consume and propensity to save (average and marginal).</p> <p>Short-run equilibrium output; investment multiplier and its mechanism.</p> <p>Meaning of full employment and involuntary unemployment.</p> <p>Problems of excess demand and deficient demand; measures to correct them -</p>	

changes in government spending, taxes and money supply through Bank Rate, CRR, SLR, Repo Rate and Reverse Repo Rate, Open Market Operations, Margin requirement.

Unit 4: Government Budget and the Economy

Government budget - meaning, objectives and components. Classification of receipts - revenue receipts and capital receipts; classification of expenditure – revenue expenditure and capital expenditure. Measures of government deficit - revenue deficit, fiscal deficit, primary deficit their meaning.

Unit 5: Balance of Payments

Balance of payments account - meaning and components; Foreign exchange rate - meaning of fixed and flexible rates and managed floating.

Part B: Indian Economic Development

Unit 6: Development Experience (1947-90) and Economic Reforms since 1991:

A brief introduction of the state of Indian economy on the eve of independence.

Indian economic system and common goals of Five Year Plans.

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Main features, problems and policies of agriculture (institutional aspects and new agricultural strategy), industry (IPR 1956; SSI – role & importance) and foreign trade.

Economic Reforms since 1991:

Features and appraisals of liberalisation, globalisation and privatisation (LPG policy);

Concepts of demonetization and GST

Unit 7: Current challenges facing Indian Economy

Poverty- absolute and relative; Main programmes for poverty alleviation: A critical assessment;

Human Capital Formation: How people become resource; Role of human capital in economic development;

		<p>Rural development: Key issues - credit and marketing - role of cooperatives; agricultural diversification; Employment: Growth and changes in work force participation rate in formal and informal sectors; problems and policies Infrastructure: Meaning and Types: Case Studies: Health: Problems and Policies- A critical assessment; Sustainable Economic Development: Meaning, Effects of Economic Development on Resources and Environment, including global warming Unit 8: Development Experience of India: A comparison with neighbours India and Pakistan India and China Issues: economic growth, population, sectoral development and other Human Development Indicators Part C: Project in Economics Prescribed Books: 1. Statistics for Economics, NCERT 2. Indian Economic Development, NCERT 3. Introductory Microeconomics, NCERT 4. Macroeconomics, NCERT 5. Supplementary Reading Material in Economics, CBSE</p>	
9	COMP SC	<p>Review of Python Liner List Manipulation Stacks & Queues in list Data File Handling Databases Concepts and SQL Structure Query Language Networking Concepts Part I Networking Concepts Part II Networking Protocols Mobile Telecommunication Technologies, Network Security and Internet Services</p>	

10	PHY EDU	Unit I Planning in Sports. Unit II Sports & Nutrition. Unit III Yoga & Lifestyle. Unit IV Physical Education & Sports for CWSN (Children With Special Needs - Divyang). Unit V Children & Women in Sports. Unit VI Test & Measurement in Sports. Unit VII Physiology & Injuries in Sports. Unit VIII Biomechanics & Sports. Unit IX Psychology & Sports. Unit X Training in Sports	
11	BST	Unit1 - Nature and Significance of Management Unit2 - Principles of Management Unit3 - Business Environment Unit4 - Planning Unit5 -Organising Unit 6 - Staffing Unit7 - Directing Unit 8-Controlling Unit 9 - Financial Management Unit 10 -Financial Markets Unit 11 - Marketing Management Unit 12 - Consumer Protection Project Work	16 14 20 15 15 20
12	ACCOUNTS	Unit 1. Financial Statements of Not-for-Profit Organizations Unit 2. Accounting for Partnership Firms Unit 3. Accounting for Companies Unit 4. Analysis of Financial Statements Unit 5. Cash Flow Statement Project Work	10 30 20 12 8 20
13	HISTORY	1-BRICKS, BEADS AND BONES. 2-KINGS, FARMERS AND TOWNS 3-KINSHIP, CASTE AND CLASS 4-THINKERS, BELIEFS AND BUILDINGS 5-BHAKTI, SUFI TRADITIONS 6-AN IMPERIAL CAPITAL VIJAYANAGRA 7-KINGS AND CHRONICLES. 8-COLONIALISM AND THE COUNTRYSIDE 9-REBELS AND THE RAJ 10-MAHATAMA GANDHI AND THE NATIONALIST MOVEMENT. 11-FRAMING THE CONSTITUTION	
14	GEOGRAPHY	PartA-Human geography.people.Human activities.human	Syllabus allready completed and revision will be

		settlement. PartB-People,Human settlement.geographical perspective on selected issues and problems.map,and practical.	going on.
15	PSYCHOLOGY	Chapter 1 to Chapter 7 of XII Psychology NCERT, as per the CBSE syllabus for class XII 2020-2021	
16	IP	<u>Unit 1 -- Data Handling using Pandas and Data Visualization</u> Chapters : 1- Python Pandas-1 Chapter:2- Python Pandas-II Chapter:3- Plotting with Pyplot Chapter:4—Importing/Exporting data between CSV files and Pandas(DataFrame) <u>Unit 2 – DataBase Query using SQL</u> Chapter :1 - MySQL SQL Revision Tour Chapter:2 – MySQL function Chapter:3 – Querying using SQL <u>Unit 3 -- Introduction to Computer Networks</u> Chapter : 1- Introduction to Computer Network <u>Unit 4 -- Societal Impacts</u> Chapter : 1 – Introduction to Internet and Web Chapter : 2- Societal Impacts Chapter : 3 – Data Protection	<u>Topics Deleted from UNIT-1:</u> Descriptive Statistics: max, min, count, sum, mean, median, mode, quartile, Standard deviation, variance. Data Frame operations: Aggregation, group by, Sorting, Deleting and Renaming Index, Pivoting. Handling missing values – dropping and filling. Importing/Exporting Data between MySQL database and Pandas. Data Visualization , pie chart, frequency polygon, box plot and scatter plot.

			<p>: color, style (dashed, dotted), width; <u>Topics Deleted from UNIT-2</u> Joining, Merging and Concatenation; <u>Topics Deleted from UNIT-3:</u> Download, install and configure browser.</p>
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