Subject Wise Syllabus (Session: 2022-23) Class – XI (Science)

First Unit Test		
English	**Hornbill**	1. The Portrait of a Lady 2. We're Not Afraid to Die …
	Poetry	1. A Photograph 2. The Laburnum Top
	Snapshots	1. The Summer of the Beautiful White Horse 2. The Address
	C.W. Skill	1. Classified Advertisements
	Grammar	1. Tenses
	Reading Section	1. Unseen Passage – factual, descriptive or literary, case-based 2. Note Making 3. Summarising
Maths	**1. Sets :** Sets and their representations. Empty set. Finite & Infinite sets. Equal sets.Subsets. Subsets of the set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement Sets. **2. Relations & Functions:** Ordered pairs, Cartesian product of sets. Number of elements in the cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto R x R x R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain & range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions. Concept of exponential and logarithmic function. **3. Trigonometric Functions:** Positive and negative angles. Measuring angles in radians & in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x. Signs of trigonometric functions. Domain and range of trignometric functions and their graphs. Expressing sin ($x \pm y$) and cos ($x \pm y$) in terms of sin$x$, sin$y$, cos$x$ & cos$y$ *and their simple applications.* Deducing the identities like the following: $\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}, \cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$ $\sin\alpha \pm \sin\beta = 2\sin\frac{1}{2}(\alpha \pm \beta)\cos\frac{1}{2}(\alpha \mp \beta) \quad \cos\alpha + \cos\beta = 2\cos\frac{1}{2}(\alpha + \beta)\cos\frac{1}{2}(\alpha - \beta)$ $\cos\alpha - \cos\beta = -2\sin\frac{1}{2}(\alpha + \beta)\sin\frac{1}{2}(\alpha - \beta)$ Identities related to sin 2x, cos2x, tan 2x, sin3x, cos3x and tan3x.
Biology	**Unit-I Diversity in the Living World: Ch-1. The Living World:** Biodiversity; Need for classification; Three domain of life; Taxonomy & Systematic; Concept of species and taxonomical hierarchy; Binomial nomenclature. **Ch-2. Biological Classification :** Five kingdom classification; Salient features and classification of Monera; Protista and Fungi into major groups; Lichens; Viruses and Viroids. **Ch-3. Plant Kingdom :** Salient features and a few examples of Algae, Bryophytes, Pteridophytes, Gymnosperms. **Ch-4. Animal Kingdom:** Salient features and classification of animals-non chordate up to phyla level and chordate up to classes level (three to five salient features and atleast two examples of each category). **Unit-II Structural Organisation in Animals and Plants: Chapter-5: Morphology of Flowering Plants** Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of family Solanaceae. **Chapter-6: Anatomy of Flowering Plants -**Anatomy and functions of different tissues and tissue systems in dicots and monocots. **Practical – Two Experiments / Activities**
Physics	**Unit I: Physical World and Measurement: Chapter–2: Units and Measurements** Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Significant figures. Dimensions of physical quantities, dimensional analysis and its applications.

Physics	**Unit II: Kinematics : Chapter–3: Motion in a Straight Line** Frame of reference, Motion in a straight line: Elementary concepts of differentiation and integration for describing motion, uniform and non-uniform motion and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment). **Practical – One Experiments / Activities**
Chemistry	**Unit I: Some Basic Concepts of Chemistry:** General Introduction: Importance and scope of Chemistry. Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry. **Unit II: Structure of Atom:** Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals. **Practical : Minimum 2**
Computer Science	**Unit I: Computer Systems and Organisation:** ● Basic Computer Organisation: Introduction to computer system, hardware, software, input device, output device, CPU, memory (primary, cache and secondary), units of memory (Bit, Byte, KB, MB, GB, TB, PB) ● Types of software: system software (operating systems, system utilities, device drivers), programming tools and language translators (assembler, compiler & interpreter), application software ● Operating system (OS): functions of operating system, OS user interface ● Boolean logic: NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws and logic circuits ● Number system: Binary, Octal, Decimal and Hexadecimal number system; ● Encoding schemes: ASCII, ISCII and UNICODE (UTF8, UTF32)
I.P.	**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 operators, data types, mutable and immutable data types, statements, expressions, evaluation of expressions, comments, input and output statements, data type conversion, debugging, Control Statements: if-else, for loop.
Physical Education	**Unit I Changing Trends & Career in Physical Education** □ Concept, Aims & Objectives of Physical Education □ Changing Trends in Sports- playing surface, wearable gears and sports equipment, technological advancements □ Career Options in Physical Education □ Khelo-India and Fit-India Program **Unit II Olympism** □ Ancient and Modern Olympics □ Olympism– Concept and Olympics Values (Excellence, Friendship & Respect) □ Olympics- Symbols, Motto, Flag, Oath, and Anthem □ Olympic Movement Structure- IOC, NOC, IFS, Other members

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Physical Education	**Unit V Physical Fitness, Health and Wellness** □ Meaning and Importance of Wellness, Health and Physical Fitness □ Components/Dimensions of Wellness, Health and Physical Fitness □ Traditional Sports & Regional Games for promoting wellness	
Max. Marks : 20	**Min. Marks : 07**	**Time : 1.30 Hours**
Note for Exam. : ***Students will bring their next day's examination books and notebooks***		
First Term Exam (+ First Unit Test)		
English	**Hornbill**	3. Discovering Tut: The Saga Continues
	Poetry	3. The Voice of the Rain
	Snapshots	3. Mother's Day
	C.W. Skill	2. Poster
	Grammar	2. Clauses 3. Re-ordering of sentences
	Reading Section	1. Unseen Passage – factual, descriptive or literary, case-based 2. Note Making 3. Summarising
Maths	**10. Straight Lines:** Brief recall of two dimensional geometry from earlier classes. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point - slope form, slope-intercept form, two-point form, intercept form, Distance of a point from a line. **11. Conic Sections:** Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle. **12. Introduction to Three -dimensional Geometry:** Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points. **9. Sequence and Series:** Sequence and Series. Arithmetic progression (A. P.). arithmetic mean (A.M.) Geometric progression (G.P.), general term of a G.P., sum of *n* terms of a G.P.,infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M.	
Biology	**Chapter-7: Structural Organisation in Animals** Animal tissues: Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of frog. (a brief account only) **Practical : 2** **Unit-III Cell: Structure and Function: Chapter-8: Cell-The Unit of Life** Cell theory and cell as the basic unit of life: Structure of prokaryotic and eukaryotic cells: Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus. **Chapter-9: Biomolecules** Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids - Enzymes, types, properties, enzyme action. **Chapter-10: Cell Cycle and Cell Division** Cell cycle, mitosis, meiosis and their significance. **Practical - 2**	
Physics	**Unit II: Kinematics : Chapter–4: Motion in a Plane** Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. Motion in a plane, cases of uniform velocity and uniform acceleration-projectile motion, uniform circular motion. **Unit III: Laws of Motion: Chapter–5: Laws of Motion** Intuitive concept of force, Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications.	

Physics	Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road). **Unit IV: Work, Energy and Power: Chapter–6: Work, Energy and Power** Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces: non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions. **Unit V: Motion of System of Particles and Rigid Body: Chapter–7: System of Particles and Rotational Motion** Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications. Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation). **Practical – Two Experiments / Activities**
Chemistry	**Unit III: Classification of Elements and Periodicity in Properties:** Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, 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's 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 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, heat capacity and specific heat, measurement of ΔU and ΔH, Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction) Introduction of entropy as a state function, Gibb's energy change for spontaneous and non- spontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction). **Practical : Minimum 2**
Computer Science	**Unit II: Computational Thinking and Programming – 1** ● Introduction to problem solving: Steps for problem solving (analysing the problem, developing an algorithm, coding, testing and debugging). representation of algorithms using flow chart and pseudo code, decomposition ● Familiarization with the basics of Python programming: Introduction to Python, features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode, Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments. ● Knowledge of data types: number (integer, floating point, complex), boolean, sequence (string, list, tuple), none, mapping (dictionary), mutable and immutable data types. ● Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators (is, is not), membership operators (in, not in) ● Expressions, statement, type conversion & input/output: precedence of operators, expression, evaluation of expression, python statement, type conversion (explicit & implicit conversion), accepting data as input from the console and displaying output ● Errors: syntax errors, logical errors, runtime errors ● Flow of control: introduction, use of indentation, sequential flow,

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Computer Science	conditional and iterative flow control ● Conditional statements: if, if-else, if-elif-else, flowcharts, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number
I.P.	Lists: list operations - creating, initializing, traversing and manipulating lists, list methods and built-in functions. Dictionary: concept of key-value pair, creating, initializing, traversing, updating and deleting elements, dictionary methods and built-in functions.
Physical Education	**Unit III Yoga** □ Meaning & Importance of Yoga □ Introduction to Ashtanga Yoga □ Introduction to Yogic Kriyas (Shat Karma) **Unit IV Physical Education & Sports for CWSN** (Children with Special Needs - Divyang) □ Concept of Disability and Disorder □ Types of Disability, its causes & nature(Intellectual disability, Physical disability) □ Aim & Objective of Adaptive Physical Education □ Role of various professionals for children with special needs (Counsellor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist & Special Educator) **Unit VII Fundamentals of Anatomy, Physiology in Sports** □ Definition and Importance of Anatomy and Physiology in exercise and sports □ Functions of Skeletal system, classification of bone and types of joints. □ Function and Structure of Circulatory system and heart. □ Function and Structure of Respiratory system.
Max. Marks : Th: 50 + Pr. 30 =80	**Min. Marks : 27** **Time : 3.00 Hours**
Note for Exam. : ***Students will bring their next day's examination books and notebooks***	

Second Unit Test		
English	**Hornbill**	4. The Adventure
	Poetry	4. Childhood
	Snapshots	4. Birth
	C.W. Skill	3. Speech
	Grammar	1. Gap filling (Tenses, Clauses) 2. Re-ordering/transformation of sentences
	Reading Section	1. Unseen Passage – factual, descriptive or literary, case-based 2. Note Making 3. Summarising
Maths	**5. Complex Numbers and Quadratic Equations:** Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane. **8. Binomial Theorem:** Historical perspective, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications. **7. Permutations & Combinations:** Fundamental principle of counting. Factorial *n.* (*n!*) Permutations and combinations, derivation of formulae for ${}^{n}p_{r}$ and ${}^{n}c_{r}$ and their connections, simple applications. **6. Linear Inequalities:** Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. **13. Limits and Derivatives:** Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative, relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric function.	
Maths		

Biology	**Chapter-13: Photosynthesis in Higher Plants** Photosynthesis as a mean of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis. **Chapter-14: Respiration in Plants** Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient. **Chapter-15: Plant - Growth and Development** Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA; **Unit-V Human Physiology: Chapter-17: Breathing and Exchange of Gases** Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders. **Chapter-18: Body Fluids and Circulation** Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure. **Chapter-19: Excretory Products and Their Elimination:** Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system - structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uraemia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant. **Practical - 3**
Physics	**Unit VI: Gravitation: Chapter–8: Gravitation** Kepler's laws of planetary motion, universal law of gravitation**.** Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential, escape velocity, orbital velocity of a satellite. **Unit VII: Properties of Bulk Matter: Chapter–9: Mechanical Properties of Solids Elasticity** Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity (qualitative idea only), Poisson's ratio; elastic energy. **Chapter–10: Mechanical Properties of Fluids** Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its applications. Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise. **Chapter–11: Thermal Properties of Matter** Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law. **Unit VIII: Thermodynamics: Chapter–12: Thermodynamics** Thermal equilibrium and definition of temperature zeroth law of thermodynamics, heat, work and internal energy. First law of thermodynamics, . Second law of thermodynamics: gaseous state of matter, change of condition of gaseous state – isothermal, adiabatic, reversible, irreversible and cyclic processes. **Practical : Two Experiments / Activities**
	Unit VII: Equilibrium: Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le

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Chemistry	Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, hydrolysis of salts (elementary idea), buffer solution, Henderson Equation, solubility product, common ion effect (with illustrative examples). **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, applications of redox reactions. **Unit XII: Organic Chemistry -Some Basic Principles and Techniques:** General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions. **Practical : Minimum 3**
Computer Science	**Unit II: Computational Thinking and Programming – 1** ● Iterative statements: for loop, range function, while loop, flow charts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number etc ● Strings: introduction, indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, built-in functions: len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(), rstrip(), strip(), replace(), join(), partition(), split() ● Lists: introduction, indexing, list operations (concatenation, repetition, membership & slicing), traversing a list using loops, built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, suggested programs: finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list ● Tuples: introduction, indexing, tuple operations (concatenation, repetition, membership & slicing), built-in functions: len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple, suggested programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple ● Dictionary: introduction, accessing items in a dictionary using keys, mutability of dictionary (adding a new item, modifying an existing item), traversing a dictionary, built-in functions: len(), dict(), keys(), values(), items(), get(), update(), del(), clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted(), copy(); suggested programs : count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them ● Sorting techniques: Bubble and Insertion sort ● Introduction to Python modules: Importing module using 'import ' and using from statement, Importing math module (pi, e, sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median,mode)
I.P.	**Unit 4: Database concepts and the Structured Query Language:** Database Concepts: Introduction to database concepts and its need, Database Management System. Relational data model: Concept of domain, tuple, relation, candidate key, primary key, alternate key 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: Data Definition: CREATE TABLE, Data Query: SELECT, FROM, WHERE. Data Manipulation: INSERT.
	Unit VI Test, Measurement & Evaluation □ Concept of Test, Measurement & Evaluation in Physical Education & sports.

Physical Education	□ Classification of Test in Physical Education and Sports. □ Test administration guidelines in physical education and sports **Unit VIII Fundamentals of Kinesiology and Biomechanics in Sports** □ Definition and Importance of Kinesiology and Biomechanics in sports □ Principles of Biomechanics □ Types of Body Movements- Flexion, Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation □ Axis and Planes– Concept and its application in body movements
Max. Marks : 20	**Min. Marks : 07** **Time : 1.30 Hours**
Note for Exam. : ***Students will bring their next day's examination books and notebooks***	

Second Term Exam (+ 1st Unit+ 1st Term + 2nd Unit)

English	**Hornbill**	5. Silk Road
	Poetry	5. Father to Son
	Snapshots	5. The Tale of Melon City
	C.W. Skill	4. Debate
	Grammar	1. Tenses 2. Clauses 3. Reordering of sentences 4. Transformation of sentences
	Reading Section	1. Unseen Passage – factual, descriptive or literary, case-based 2. Note Making 3. Summarising
Maths	**15. Statistics:** Measures of dispersion; range, mean deviation, variance and standard deviation of ungrouped/grouped data. **16. Probability:** Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events.	
Biology	**Ch-20. Locomotion and Movement:** Types of movement - ciliary, flagellar, muscular; Skeletal muscle-contractile proteins and muscle contraction; Skeletal system and its functions. Joints; Disorders of muscular and skeletal system - Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, Osteoporosis, Gout. **Ch-21. Neural control and coordination:** Neuron and nerves; Nervous system in humans-central nervous system, peripheral nervous system, visceral nervas system and Generation and conduction of nerve impulse; **Ch-22. Chemical Co-ordination (Endocrinology):** Endocrine glands and hormones; Human endocrine system-Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action (Elementary Idea); Role of hormones as messengers and regulators, Hypo-and hyperactivity and related disorders. Dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, addison's disease. **Note:** Diseases related to all the human physiological systems to be taught in brief. **Practical -2**	
Physics	**Unit IX: Behaviour of Perfect Gases and Kinetic Theory of Gases: Chapter–13: Kinetic Theory** Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.	
Physics	**Unit X: Oscillations and Waves: Chapter–14: Oscillations:** Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their applications. Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a loaded spring-restoring force and force constant; energy in S.H.M. Kinetic and potential energies. Simple	

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	pendulum derivation of expression for its time period. **Ch – 15: Waves:** Wave Motion: Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats. **Practical: Two Experiments / Activities**
Chemistry	**Unit XIII: Hydrocarbons : Classification of Hydrocarbons : Aliphatic Hydrocarbons:** Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes - Nomenclature, the structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, the structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water. **Aromatic Hydrocarbons:** Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of the functional group in monosubstituted benzene. Carcinogenicity and toxicity. **Practical : Minimum 2**
Computer Science	**Unit III: Society, Law and Ethics:** ● Digital Footprints ● Digital society and Netizen: net etiquettes, communication etiquettes, social media etiquettes ● Data protection: Intellectual Property Right (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open source softwares and licensing (Creative Commons, GPL and Apache) ● Cyber-crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, preventing cyber crime ● Cyber safety: safely browsing the web, identity protection, confidentiality, cyber trolls and bullying. ● Safely accessing web sites: malware, viruses, trojans, adware ● E-waste management: proper disposal of used electronic gadgets ● Indian Information Technology Act (IT Act) ● Technology & Society: Gender and disability issues while teaching and using computers
I.P.	**Unit 5: Introduction to the Emerging Trends:** 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.
Physical Education	**Unit IX Psychology & Sports** □ Definition & Importance of Psychology in Physical Education & Sports □ Adolescent Problems & Their Management □ Team Cohesion and Sports **Unit X Training and Doping in Sports** □ Concept and Principles of Sports Training □ Training Load: Over Load, Adaptation, and Recovery □ Concept of Doping and its disadvantages
Max. Marks : Th: 50 + Pr. 30 =80	**Min. Marks : 27** **Time : 3.00 Hours**
Note for Exam. : ***Students will bring their next day's examination books and notebooks***	

SR.	SUBJECT	NAME OF THE BOOK(S)	PUBLISHER
1	ENG	GUIDE - ENGLISH CORE	LAXMI Pub.
2	ENG	HORNBILL (ENGLISH)	NCERT
3	ENG	SNAPSHOTS (ENGLISH)	NCERT
4	MATHS	MATHEMATICS EXEMPLAR	NCERT
5	MATHS	MATHEMATICS	NCERT
6	MATHS	MATHEMATICS LAB ACTIVITIES WITH RECORD BOOK	GOYAL BROTHERS
7	BIO.	BIOLOGY	NCERT
8	BIO.	BIOLOGY	MODERN ABC
9	BIO.	LAB MANUAL	UNIVERSAL PUBLICATION
10	CHEM.	CHEMISTRY (PART - I)	NCERT
11	CHEM.	CHEMISTRY (PART - II)	NCERT
12	CHEM.	CHEMISTRY	MODERN ABC
13	CHEM.	LAB MANUAL	UNIVERSAL PUBLICATION
14	PHY.	PHYSICS (PART - I)	NCERT
15	PHY.	PHYSICS (PART - II)	NCERT
16	PHY.	PHYSICS	DHANPAT RAI & COMP. (S.L.Arora)
17	PHY.	LAB MANUAL	UNIVERSAL PUBLICATION
18	COMP.	COMPUTER SCIENCE - C++ (SUMITA A.)	DHANPAT RAI & COMP.
19	COMP.	PRACTICAL FILE - COMPUTER SCIENCE	J.B. PUBLISHING HOUSE
20	I.P.	INFORMATICS PRACTICES	DHANPAT RAI & COMP.
21	I.P.	PRACTICAL FILE - INFORMATICS PRACTICES	J.B. PUBLISHING HOUSE
22	P.ED.	PHYSICAL EDUCATION	SARASWATI PUBLICATION

***Instructions*:-**

1. *Value Education consists of Moral Values, Manners & Etiquettes.*
2. *Value Education will be taught by the class teacher for 10 minutes in zero period*

Third Term Exam (Whole Syllabus)		
Max. Marks : Th: 50 + Pr. 30 =80	**Min. Marks : 27**	**Time : 3.00 Hours**
Note for Exam. : ***Students will bring their next day's examination books and notebooks***		