AMARCHAND SINGHVI INTERNATIONAL SCHOOL

CLASS XI SCIENCE (2024-25)

SYLLABUS BREAK UP - TERM 2

POST MID TERM	ANNUAL
English Core (301)	
Literature: **Hornbill** - Prose- The Adventure Poem - Childhood **Snapshots -** Birth, The Tale of Melon City	**Literature** **Hornbill - P**rose- Silk Road Poem **-** Father to Son
R**eading**: Unseen Pasasge, Note Making	**Reading**: Unseen Passage , Note Making
Writing: Debate Writing	**Writing:** Classified Advertisement, Speech writing, Poster making, Debate Wriiting
Grammar: Reordering of sentences, Transformation of sentences	**Grammar:** Editing, Omission, Gap filling, Sentence transformation and Reordering
PHYSICS (042)	
Chapter–9: 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 simple 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–12: 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
Chapter–10: 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 .	**Chapter–13: 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 equations of motion; phase; oscillations of a loaded spring- restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period.
Chapter–11: 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.	**Chapter–14: 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.

CHEMISTRY (043)	
Unit V: 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 U and H, 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 nonspontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).	**Unit VI: 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 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 VII: 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 IX: 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, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water. Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.
Unit VIII: 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.	……
MATHEMATICS (041)	
Chapter 7 Binomial Theorem Historical perspective, statement and proof of the binomial theorem for positive integral indices, Pascal's triangle, simple applications.	**Chapter 11 Introduction to Three-dimensional Geometry** Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points

Chapter 9 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.	**Chapter 12 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 scope of tangent of the curve, derivative of sum difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.
Chapter 10 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.	**Chapter 13 Statistics** Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data.
Chapter 14 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 (044)

Chapter-9: Biomolecules Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, and nucleic acids; Enzyme - types, properties, enzyme action. (Topics excluded: Nature of Bond Linking Monomers in a Polymer, Dynamic State of Body Constituents Concept of Metabolism, Metabolic Basis of Living, The Living State)	**Chapter-14: 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, occupationalrespiratory disorders.
Chapter-10: Cell Cycle and Cell Division Cell cycle, mitosis, meiosis and their significance	**Chapter-15: Body Fluids and Circulati**on 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-11: Photosynthesis in Higher Plants Photosynthesis as a means 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-16: 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 - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.
Chapter-12: 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-17: Locomotion and Movement** Types of movement - ciliary, flagellar, muscular; skeletal muscle, contractile proteins and musclecontraction; skeletal system and its functions; joints; disorders of muscular and skeletal systems - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

Chapter-13: 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; plant growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA.	**Chapter-18: Neural Control and Coordination** Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse
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INFORMATICS PRACTICES (065)

Unit 3: 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 DATABASE, CREATE TABLE, DROP, ALTER Data Query: SELECT, FROM, WHERE with relational operators, BETWEEN, logical operators, IS NULL, IS NOT NULL Data Manipulation: INSERT, DELETE, UPDATE	**Unit 4: 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 (048)

Chapter 6- Test, Measurement & Evaluation 1. Define Test, Measurements and Evaluation. 2. Importance of Test, Measurements and Evaluation in Sports. 3. Calculation of BMI, Waist – Hip Ratio, Skin fold measurement (3-site) 4. Somato Types (Endomorphy, Mesomorphy & Ectomorphy) 5. Measurements of health-related fitness	**Chapter 9- Psychology and Sports** 1. Definition & Importance of Psychology in Physical Education & Sports; 2. Developmental Characteristics at Different Stages of Development; 3. Adolescent Problems & their Management; 4. Team Cohesion and Sports; 5. Introduction to Psychological Attributes: Attention,Resilience, Mental Toughness
Chapter 7- Fundamentals of Anatomy, Physiology in Sports 1. Definition and importance of Anatomy and Physiology in Exercise and Sports. 2. Functions of Skeletal System, Classificationof Bones, and Types of Joints. 3. Properties and Functions of Muscles. 4. Structure and Functions of Circulatory System and Heart. 5. Structure and Functions of Respiratory System	**Chapter 10- Training & Doping in Sports** 1 . Concept and Principles of Sports Training 2. Training Load: Over Load, Adaptation, and Recovery 3. Warming-up & Limbering Down – Types, Method & Importance 4. Concept of Skill, Technique, Tactics & Strategies 5. Concept of Doping and its disadvantages students.

Chapter 8- Fundamentals Of Kinesiology And Biomechanics in Sports 1. Definition and Importance of Kinesiology and Biomechanics in Sports. 2. Principles of Biomechanics 3. Kinetics and Kinematics in Sports 4. Types of Body Movements - Flexion,Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation 5. Axis and Planes – Concept and its application in body movements	……

FOOD NUTRITION & DIETETICS (834)

Chapter 10: Human Development Index (HDI), Sustainable Developmental Goals (SDG): Basic Concepts	Chapter 16: Non Communicable Diseases (Diabetes, CVD, cancer) concept, prevalence, causes (Behavioral) and consequences.
Chapter 11: Malnutrition	Chapter 17: National Programme For Welfare Of Women & Children
Chapter 12: Methods for assessment of nutritional status	Chapter 18: Programmes For Welfare Of Adolescent Girls And Women
Chapter 13: Major Deficiency Disorder: (PEM in the	Chapter 19 Nutrition Education, Communication and Behaviour
Chapter 14: Other Nutrition Problems: Vitamin B complex deficiencies, Vitamin-C deficiency, Vitamin D Deficiency.	……
Chapter 15: overweight/obesity: Definition/classification (WHO), causes and consequences.	……

ENTREPRENEURSHIP (055)

Unit 4: Entrepreneurship as Innovation and Problem Solving • Entrepreneurs as problem solvers • Innovations and Entrepreneurial Ventures – Global and Indian • Role of Technology – E-commerce and Social Media • Social Entrepreneurship - Concept	**Unit 7: Resource Mobilization** • Types of Resources – Physical, Human, Financial and Intangible. • Selection and utilization of human resources and professionals like Accountants, Lawyers, Auditors, Board Members, etc.
Unit 5: Understaning the Market • Market: Concept, Types • Micro and Macro Market Environment • Market Research - Concept, Importance and Process • Marketing Mix	……

HINDI CORE (302)

आरोहः <u>गद्य खंडः</u> रायपाठ– गलता लोहा–शेखर जोशी, रजनी–मन्नू भंडारी **<u>पद्य खंडः</u>** पद्य 5 गज.ल–दुष्यंत कुमार **वितानः** पाठ–3 आजलो–आंधारिःबेबी हलदार **अभिव्यक्ति और माध्यमः** अपठित गद्यांश, अपठित पद्यांश, पाठ – कार्यालयी लेखन और प्रक्रियाए, कथा पटकथा रिपोतार्ज	**आरोहः <u>गद्य खंडः</u>** पाठ–7 जामुन का पेड.–कृश्नचंदर, पाठ–8भारत माता–जवाहरलाल नेहरू **<u>पद्य खंडः</u>** 6 हे भूख, मत मचल–अक्क महादेवी, से मेरे जूही के फूल–अक्क महादेवी, 7 सबसे खतरनाक–अवतार सिंह पाश, 8– आओ मिलकर बचाऍं–निर्मला पुतुल **वितानः** पाठ– आजलो–आंधारिःबेबी हलदार, पाठ–भारतीय कलाऍं **अभिव्यक्ति और माध्यमः** अपठित गद्यांश, अपठित पद्यांश, पाठ – कार्यालयी लेखन और प्रक्रिया