SHRI VISHWAKARMA SKILL UNIVERSITY

(A State Skill University, setup by an Act of Legislature in 2016)

Ref. No. SVSU/2026/AA/126 **Date: Nov.05, 2026**

NOTIFICATION

It is hereby informed to all concerned that **Online Applications are invited for B.Sc. Nursing Program for the academic session 2026-27 schedule as mentioned below:**

ADMISSION SCHEDULE

Activity	Date
Online Application Submission	05.11.2026 – 11.11.2026 (upto 11:59 P.M.)
Release of Admit card	12.11.2026
Date of Entrance Test	13.11.2026
Declaration of Result of Entrance Test	13.11.2026 (by 11:59 P.M.)
1st Counselling (with reservation)	14.11.2026 **(Reporting Time :08:00 A.M.)**
2nd Counselling (without reservation)	15.11.2026 **(Reporting Time :08:00 A.M.)**

PARTICULARS	DETAIL
Registration - cum – counselling fee	Rs.1000/- for Unreserved Category
	Rs.500/- for OSC/DSC/BC-A/BC-B/PWBD/ FF/ ESM/EWS Category candidates of Haryana

Important Information

1. The Syllabus for Entrance Test-2026 is available on the University website i.e. www.svsu.ac.in
2. Admission Web-portal Helpdesk Phone No: 9354222650
3. Admission Toll-free No: 18001800147
4. Admission Helpline No: 9306095464
5. Admission Web-portal Helpdesk e-mail ID: admissions@svsu.ac.in
6. Candidates are advised to visit regularly the University website www.svsu.ac.in and Admission Portal for any updates.

--Sd--
Director (Admission)

SUBJECT: ADMISSION TERMS AND CONDITIONS FOR B.SC NURSING PROGRAMME

1. Candidate is a citizen of India.
2. AGE: The age for admission shall be 17 years on 31st December 2026.

3.MINIMUM EDUCATION QUALIFICATION

- The student must have passed the 10+2 examination from the Board of School Education, Haryana, or any other Board recognized by the Central Government or any State Government, with Physics, Chemistry and Biology (PCB), securing 45% aggregate marks (40% for SC, BC and PwBD categories) and must have passed English individually.
- The candidate should have obtain passed marks in each subject separately
- English is compulsory subject in 10+2 for being eligible for admission to B.Sc Nursing.

4. Colour blind candidates are eligible provided that colour corrective contact lens and spectacles are worn by such candidate.
5. Candidate shall be medically fit.
6. Admission will be based upon the marks obtain in University Entrance test.
7. Reservation as per Haryana State government norms.

DISTRIBUTION AND RESERVATION OF SEATS

Category	Percentage
a) Rest of Haryana (RoHC)	15% of the sanctioned intake
Economically Weaker Section (EWS) as per Central Govt. Policy	10% of All India Open Category seats
b) State Quota	85% of the sanctioned intake
(b-1) Haryana Open General Category (HOGC)	50% of the State Quota, i.e., 42.5% of total intake
Economically Weaker Section (EWS)	10% of Haryana Open General Category (HOGC), i.e., 4.25% of total intake
(b-2) Reserved Categories of Haryana	50% of the State Quota, i.e., 42.5% of total intake
Scheduled Caste (SC)	20% of State Quota (17% of total intake): i. 10% of State Quota to Scheduled Castes (8.4% of total intake). ii. 10% of State Quota to Deprived Scheduled Castes (8.4% of total intake).
Backward Classes of Haryana	27% of State Quota (22.95% of total intake)
i. Backward Classes of Haryana (BC-A)	16% of State Quota (13.6% of total intake)
ii. Backward Classes of Haryana (BC-B)	11% of State Quota (9.35% of total intake)
Physically Handicapped (PH)	3% of State Quota (2.55% of total intake)

Note: SVSU

1. It is mandatory to maintain a Roster Register at the Departmental level for distribution and reservation of seats.

2. In the event of quota reserved for Physically Handicapped candidates remaining unutilized due to non-availability of suitable candidates in the category, the seats may be offered to Ex-Servicemen and their wards (1%) and the dependents of Freedom Fighters (1%).

3. Further, 3% reservation is also provided to Ex-Servicemen/Freedom Fighters and their dependents by providing reservation within reservation of 1% of General Category, 1% out of Scheduled Caste and 1% from Backward Classes category for admission to the various educational institutions of the Government and Government-aided/Institutes located in Haryana.

4. As far as Block allocation in Block-A and Block-B of Backward Classes category is concerned, year-wise rotational system will be adopted. For example, if Block-A of Backward Classes are given seats in academic year 2018, the next Block, i.e., (B) Block Category of Backward Classes will be given seats in the next academic year 2019 and so on.

5. Further, a roster register for reservation of seats for Ex-Servicemen/Freedom Fighters shall be maintained and carried forward all fractions, till one seat is accumulated through different fractions over the years. As and when the total fractions come to one, a seat will be provided.

6. Fifty percent of the twenty percent seats reserved for Scheduled Castes for admission in any educational institution shall be set aside for candidates belonging to Deprived Scheduled Castes.

7. Where a seat reserved for candidate from the deprived Scheduled Castes for admission in Government Educational Institution is not filled up in any academic year due to non-availability of candidate of the deprived Scheduled Castes possessing the requisite qualification, the same shall be made available to the candidate of Schedule Caste.

The reservation of seats in various Programs is per the reservation policy of the Government of Haryana and is subject to change/amendments made by the Government from time to time.

SYLLABUS FOR B.Sc. NURSING FOR ENTRANCE EXAM FOR ACADEMIC SESSION 2026-2027

Marks wise distribution for B.Sc. Nursing

SR. NO.	SUBJECT	MARKS Distribution (Indicative)
1.	Physics	60
2.	Chemistry	60
3.	Biology	60

Number of questions will be 180, 60 marks each of physics, chemistry, biology. Total duration of written exam will be 3 hours.

SYLLABUS FOR B.Sc. NURSING FOR ENTRANCE EXAM FOR ACADEMIC SESSION 2026-2027

PHYSICS

Sr. No.	Class - XI		Class-XII
1.	Physical world and Measurement		Electrostatics
2.	Kinematics		Current Electricity
3.	Laws of Motion		Magnetic Effects of Current and Magnetism
4.	Work, Energy and Power		Electromagnetic Induction and Alternating Current
5.	Motion of System of Particles and Rigid Body		Electromagnetic Waves
6.	Gravitation		Optics
7.	Properties of Bulk Matter		Dual Nature of Matter and Radiation
8.	Thermodynamics		Atoms and Nuclei
9.	Behavior of Perfect Gases and Kinetic Theory of Gases.		Electronic Devices
10.	Oscillations and Waves		Communication System

CHEMISTRY

Sr. No.	Class - XI		Class-XII
1.	Some Basic Concepts of Chemistry		Solution
2.	Structure of Atom		Electrochemistry
3.	Classification of Elements and Periodicity In Properties		Chemical Kinetics
4.	Chemical Bonding and Molecular Structure		d and f Block Elements
5.	Chemical Thermodynamics		Coordination Compounds
6.	Equilibrium		Haloalkanes and Haloarenes
7.	Redox Reactions		Alcohols, Phenols and Ethers
8.	Organic Chemistry-Some Basic Principles and Techniques		Aldehydes, Ketones and Carboxylic Acids
9.	Hydrocarbons		Organic Compounds Containing Nitrogen (Amines)
			Biomolecules Amines

BIOLOGY

Sr. No.	Class - XI		Class-XII
1.	Diversity of living organisms		Reproduction
2.	Structural Organization in Animals and Plants		Genetics and Evolution
3.	Cell Structure and Function		Biology and Human welfare
4.	Plant Physiology		Biotechnology and its Applications
5.	Human physiology		Ecology and Environment

PHYSICS

CONTENTS CLASS XI SYLLABUS

UNIT I: PHYSICAL WORLD AND MEASUREMENT

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.

UNIT II: KINEMATICS

Motion in a Straight Line

Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion, uniform and nouniform motion, and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment).

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

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. 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

Work, Energy and Power

Work done by a constant force and a variable force; kinetic energy, workenergy 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

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).

UNIT VI: GRAVITATION

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 speed, orbital velocity of a satellite.

UNIT VII: PROPERTIES OF BULK MATTER

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.

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.

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

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.

UNIT IX: BEHAVIOR OF PERFECT GASES AND KINETIC THEORY OF GASES

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

UNIT X: OSCILLATIONS AND WAVES

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.

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.

PHYSICS
CONTENTS CLASS XII SYLLABUS

UNIT I: ELECTROSTATICS

Electric Charges and Fields

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).

Electrostatic Potential and Capacitance

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 (no derivation, formulae only).

UNIT II: CURRENT ELECTRICITY

Current Electricity

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, temperature dependence of resistance, Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's rules, Wheatstone bridge.

UNIT III: MAGNETIC EFFECTS OF CURRENT AND MAGNETISM

Moving Charges 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 solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields.

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; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Magnetism and Matter

Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines.

Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.

UNIT IV: ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENTS

Electromagnetic Induction

Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Self and mutual induction.

Alternating Current

Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit (phasors only), resonance, power in AC circuits, power factor, wattless current. AC generator, Transformer.

UNIT V: ELECTROMAGNETIC WAVES

Electromagnetic Waves

Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse nature (qualitative idea only).

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

UNIT VI: OPTICS

Ray Optics and Optical Instruments

Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism.

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

Wave Optics

Wave optics: Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width (No derivation final expression only), coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only).

UNIT VII: DUAL NATURE OF RADIATION AND MATTER

Dual Nature of Radiation and Matter

Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Experimental study of photoelectric effect Matter waves-wave nature of particles, de-Broglie relation.

UNIT VIII: ATOMS AND NUCLEI

Atoms

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in nth orbit, hydrogen line spectra (qualitative treatment only).

Nuclei

Composition and size of nucleus, nuclear force Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.

UNIT IX: ELECTRONIC DEVICES

Semiconductor Electronics: Materials, Devices and Simple Circuits

Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p-n junction

Semiconductor diode - I-V characteristics in forward and reverse bias, application of junction diode -diode as a rectifier.

UNIT X: COMMUNICATION SYSTEM

Elements of a Communication System (Bloc Diagram only) Bandwidth of Signals (Speech, TV and digital Data), Band width of transmission medium, Propagation of Electromagnetic waves in the atmosphere, Sky and Space wave propagation.

Satellite Communication, Need for modulation, amplitude modulation, Basic Ideas of internet, mobile telephony and global positioning system (GPS).

CHEMISTRY
CONTENTS CLASS XI SYLLABUS

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

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 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: 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 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.

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.

CHEMISTRY
CONTENTS CLASS XII SYLLABUS

UNIT I: 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, abnormal molecular mass, Van't Hoff factor.

UNIT V: 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 and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, fuel cells, corrosion.

UNIT VI: 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), activation energy, Arrhenius equation.

UNIT VII: 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 K2Cr2O7 and KMnO4.

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

Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids.

UNIT VIII: 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; structure and stereoisomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological system).

UNIT XV: 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).

Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

UNIT XVI: 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 with special reference to methanol and ethanol.

Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophillic 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: AMINES

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

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

UNIT XIV: BIOMOLECULES

Carbohydrates - Classification (aldoses and ketoses), monosaccahrides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates.

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; enzymes. Hormones - Elementary idea excluding structure.

Vitamins - Classification and functions.

Nucleic Acids: DNA and RNA.

BIOLOGY
CONTENTS CLASS XI SYLLABUS

UNIT I: Diversity of Living Organisms

The Living World Biodiversity; Need for classification; three domains of life; taxonomy and systematics; conceptof species and taxonomical hierarchy; binomial nomenclature.

Biological Classification Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups; Lichens, Viruses and Viroids.

Plant Kingdom Classification of plants into major groups; Salient and distinguishing features and a few examples of Algae, Bryophyta, Pteridophyta, Gymnospermae (Topics excluded – Angiosperms, Plant Life Cycle and Alternation of Generations).

Animal Kingdom Salient features and classification of animals, non-chordates up to phyla level and chordates upto class level (salient features and at a few examples of each category). (No live animals or specimen should be displayed.)

UNIT II: Structural Organization in Plants and Animals

Morphology of Flowering Plants Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of family Solanaceae.

Anatomy of Flowering Plants Anatomy and functions of tissue systems in dicots and monocots.

Structural Organisation in Animals Morphology, Anatomy and functions of different systems (digestive, circulatory,respiratory, nervous andreproductive) of frog.

UNIT III: Cell: Structure and Function

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

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)

Cell Cycle and Cell Division Cell cycle, mitosis, meiosis and their significance

UNIT IV: Plant Physiology

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

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.

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.

UNIT V: Human Physiology

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.

Body Fluids and Circulation Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.

Excretory Products and their Elimination Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system – structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.

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.

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

Chemical Coordination and Integration 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 goitre, diabetes, Addison's disease.

BIOLOGY
CONTENTS CLASS XII SYLLABUS

UNIT I: SEXUAL REPRODUCTION IN FLOWERING PLANTS

Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; out breeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.

Human Reproduction Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis -spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

Reproductive Health Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods, contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary idea for general awareness).

UNIT II: GENETICS AND EVOLUTION

Principles of Inheritance and Variation

Heredity and variation: Mendelian inheritance; deviations from Mendelism – incomplete dominance, co-dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - in humans, birds and honey bee; linkage and crossing over; sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.

Molecular Basis of Inheritance Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central Dogma; transcription, genetic code, translation; gene expression and regulation - lac operon; Genome, Human and rice genome projects; DNA fingerprinting

Evolution Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy-Weinberg's principle; adaptive radiation; human evolution.

UNIT IV: BIOLOGY AND HUMAN WELFARE

Human Health and Diseases Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basicconcepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcoholabuse.

Microbes in Human Welfare Microbes in food processing, industrial production, sewage treatment, energy generationand microbes as bio-control agents and bio-fertilizers. Antibiotics; production and judicioususe.

UNIT V: BIOTECHNOLOGY AND ITS APPLICATIONS

Biotechnology - Principles and Processes Genetic Engineering (Recombinant DNA Technology).

Biotechnology and its Applications Application of biotechnology in health and agriculture: Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, biopiracy and patents.

UNIT VI: ECOLOGY AND ENVIRONMENT

Organisms and Populations Population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate and death rate, age distribution. (Topics excluded: Organism and its Environment, Major Aboitic Factors, Responses to Abioitic Factors, Adaptations).

Ecosystem Ecosystems: Patterns, components; productivity and decomposition; energy flow;

pyramids of number, biomass, energy (Topics excluded: Ecological Succession and Nutrient Cycles).

Biodiversity and its Conservation Biodiversity-Concept, patterns, importance; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife, sanctuaries and Ramsar sites.