SHIV NADAR UNIVERSITY CHENNAI

SNU Chennai Entrance Examination 2026 (SNUCEE 2026)

Chemistry Syllabus

S.No	Topic	Content
1	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, electrical and magnetic properties. Band theory of metals, conductors, semiconductors and insulators and n & p type semiconductors.
2	Solutions	Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties.
3	Electrochemistry	Redox reactions, 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, EMF of a cell, standard electrode potential, EMF Series , Nernst equation and its application to chemical cells, Relation between Gibbs energy change and emf of a cell, corrosion.

4	Surface Chemistry	Absorption and Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids and liquids. Catalysis: homogenous and heterogenous, Theories of catalysis: The Intermediate compound formation theory, Adsorption theory and active centres, activity and selectivity; enzyme catalysis. Colloidal state: distinction between true solutions, colloids

		and suspension; lyophilic, lyophobic multimolecular and macromolecular colloids; properties of colloids: Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.
5	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)
6	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 H, Hess's law□U and □ 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).
7	Principles and process of Isolation of Elements	Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.

8	Periodic Classification of Elements	Modern Periodic Table, Nomenclature of elements with atomic number >100, Grouping of elements based on electronic configuration. Variation of electronic configuration in the periods and groups. Periodic trends in properties: Atomic radius, ionic radius, ionisation energy, electron affinity and electronegativity. Periodic trends in chemical properties
9	p block elements	General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; Phosphorus - allotropic forms, compounds of phosphorus: preparation and properties of phosphine, halides PCl_3 , PCl_5 .
10	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 Lathanoids and Actinoids : Electronic configuration, oxidation states and their comparison
11	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 stereo isomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).
12	Basic Principles and Techniques in Organic chemistry	Introduction, Classification and nomenclature of organic compounds; IUPAC rules for naming organic compounds; structural representation; Isomerism – structural isomerism, stereo isomerism: Geometrical and optical isomerism, Detection and estimation of elements (C, H, N, S, X and P) in organic compounds; Purification of organic compounds – sublimation, crystallisation, distillation (fraction, steam and azeotropic), differential extraction

13	Organic compounds containing X, O and N	Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions. Haloarenes: Nature of C -X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). 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, electrophilic substitution reactions, uses of phenols. Ethers: Nomenclature, methods of preparation, physical and chemical properties, uses. Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.
14	Chemistry in everyday life and Environment	Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines. Chemicals in food – Role and examples of preservatives (Sodium Benzoate only), artificial sweetening agents (aspartame and Saccharin) Environmental pollution; Definition, Types – air, water and soil pollution- sources and effects Environmental Issues: Greenhouse effect, global warming, acid rain and ozone hole; Role of individuals to control pollutions

15	Biomolecules	Carbohydrates - Classification (aldoses and ketoses), monosaccahrides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen) importance. Proteins - Elementary idea of α - 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: : Basic units – Purine and Pyrimidine ,DNAdouble helical structure, RNA –elementary idea only, differences between DNA and RNA