

**CBSE · CLASS 12**

Chemistry

Thorough coverage of Physical Chemistry (Solutions, Electrochemistry, Chemical Kinetics), Inorganic Chemistry (d- and f-Block, Coordination Compounds), and Organic Chemistry (Haloalkanes, Alcohols, Aldehydes, Amines, Biomolecules).

Board: Central Board of Secondary Education**Theory:** 70 Marks**Internal/Practical:** 30 Marks (Practical)**Exam Duration:** 3 Hours

UNIT-WISE SYLLABUS & MARKS BREAKDOWN

UNIT	CHAPTERS & PRESCRIBED TOPICS	MARKS
Unit I	Solutions Types of solutions, solubility of gases in liquids (Henry's Law), Raoult's law, ideal and non-ideal solutions, colligative properties (relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure), determination of molecular masses, abnormal molecular mass, Van 't Hoff factor	07
Unit II	Electrochemistry Redox reactions, EMF of a cell, standard electrode potential, Nernst equation and 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, dry cell, lead accumulator, fuel cells, corrosion	09
Unit III	Chemical Kinetics Rate of a reaction (average and instantaneous), factors affecting rate: 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, activation energy, Arrhenius equation	07
Unit IV	d and f Block Elements General introduction, electronic configuration, occurrence, characteristics of transition metals, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation; Preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$; Lanthanoids and Actinoids (electronic configuration, oxidation states, lanthanoid contraction)	07
Unit V	Coordination Compounds Werner's theory, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, isomerism (structural and stereo), bonding in coordination compounds: Valence Bond Theory (VBT) and Crystal Field Theory (CFT), importance of coordination compounds	07
Unit VI	Haloalkanes and Haloarenes Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions (SN_1 and SN_2), optical rotation; Haloarenes: nature of C-X	06

UNIT	CHAPTERS & PRESCRIBED TOPICS	MARKS
	bond, substitution reactions (directive influence of halogen for monosubstituted compounds only), uses of dichloromethane, chloroform, iodoform, freons, DDT	
Unit VII	Alcohols, Phenols and Ethers Nomenclature, methods of preparation, physical and chemical properties of primary, secondary and tertiary alcohols; identification of primary, secondary and tertiary alcohols (Lucas test); mechanism of dehydration of alcohols; Phenols: nomenclature, preparation from haloarenes, cumene; physical and chemical properties, acidic nature of phenol, Kolbe's reaction, Reimer-Tiemann reaction; Ethers: nomenclature, preparation (Williamson synthesis), properties	06
Unit VIII	Aldehydes, Ketones and Carboxylic Acids Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; Tollens' test, Fehling's test, haloform reaction, Aldol condensation, Cannizzaro reaction; Carboxylic Acids: nomenclature, acidic nature, methods of preparation, physical and chemical properties	08
Unit IX	Amines Nomenclature, classification, structure, methods of preparation, physical and chemical properties, basic character of amines, distinction between primary, secondary and tertiary amines (Hinsberg test); Diazonium salts: preparation, chemical reactions and importance in synthetic organic chemistry	06
Unit X	Biomolecules Carbohydrates: classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration, oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Proteins: amino acids, peptide bond, polypeptides, proteins (primary, secondary, tertiary and quaternary structure), denaturation of proteins; Enzymes; Hormones; Vitamins; Nucleic Acids: DNA and RNA	07

INTERNAL / PRACTICAL ASSESSMENT SCHEME (30 MARKS (PRACTICAL))

EVALUATION COMPONENT	MARKS WEIGHTAGE
Volumetric Analysis (Titration) Standard KMnO_4 solution titration vs Mohr's salt / oxalic acid	08 Marks
Salt Analysis (Qualitative) Identification of one cation and one anion in unknown salt	08 Marks
Content-based Experiment Functional group tests / preparation of lyophilic sol	06 Marks
Project & Viva Voce Investigatory project report, lab journal, oral test	08 Marks

RECOMMENDED REFERENCE LITERATURE

Prescribed Textbooks: NCERT Chemistry Class 12 (Parts I & II), Pradeep's New Course Chemistry, Excellence Organic Reaction Mechanisms Guide

The Excellence Tuition Edge

Every unit in this curriculum is taught with structured conceptual lectures, followed by weekly speed-testing, detailed mistake analysis, and dedicated 1:1 doubt-clearing sessions to build board exam confidence.

