Chemistry

WBJEE 2026 Question Paper Pattern

All questions in WBJEE are **Multiple-Choice Questions (MCQs)** with four options. Each subject contains three categories of questions with different marking and negative-marking schemes.

Subject	Category 1	Category 2	Category 3	Total Questions	Total Marks
Mathematics	50	15	10	**75**	**100**
Physics	30	5	5	**40**	**50**
Chemistry	30	5	5	**40**	**50**

Category-wise Marking Scheme

Category	Marks per Question	Negative Marking
Category 1	1 mark	**–¼ mark** for an incorrect answer
Category 2	2 marks	**–½ mark** for an incorrect answer
Category 3	2 marks	**No negative marking**

Total: 155 questions carrying **200 marks**.

Particular	Details
Subject	Chemistry
Number of Questions	40
Total Marks	50

Major Areas	Inorganic Chemistry, Physical Chemistry and Organic Chemistry
Important Topics	Chemical Bonding, p-Block Elements, Equilibrium, Chemical Kinetics, Organic Chemistry, etc.
Key Focus	Conceptual clarity and understanding of fundamental concepts
Preparation Focus	Strong fundamentals, reaction concepts, formulas and regular practice

No.	Chemistry Chapter	Important Topics

1	**Atoms, Molecules and Chemical Arithmetic**	Laws of chemical combination. 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. Different concentration terms of solutions and related calculations.

2	**Atomic Structure**	Bohr's model and its limitations, concept of shell and sub-shells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, Schro dinger wave equation (elementary idea only). 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, exchange energy, electronic configuration of an atom, stability of half-filled, completely filled orbitals.
3	**Classification of Elements and Periodicity in Properties**	Modern periodic law and the present form of the periodic table; periodic trends in the properties of elements – atomic radii, ionic radii, van der Waals' radii, ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.

4	**Classification of Elements and Periodicity in Properties**	Modern periodic law, periodic table, atomic radius, ionic radius, ionisation energy, electron affinity, electronegativity, oxidation states
5	**Chemical Bonding and Molecular Structure**	Valence electrons, ionic bond, bond parameters, covalent bond, Lewis structure, formal charge, 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, intermolecular interactions (dipolar interactions, London dispersion forces, van der Waals' interactions), intra- and intermolecular hydrogen bonding, Molecular orbital theory of homonuclear diatomic molecules (H2, He2, O2, N2, F2 – qualitative idea only)

6	**States of Matter - Solids and Gases**	Classification of solids (elementary idea): molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea), unit cell in two-dimensional and three-dimensional lattices, packing efficiency, calculation of density of unit cell, packing in solids, voids, number of atoms per unit cell in a cubic unit cell, point defects. INFORMATION BULLETIN-WBJEE-2026 WBJEEB 49 Kinetic theory of gas, molecular speeds, Dalton's law of partial pressure, Graham's law, deviation from ideal behaviour and van der Waals' equation of state, Liquefaction of gases, critical parameters.
7	**Chemical Thermodynamics**	Concepts of system (including types of system), surroundings. Work, heat, energy, extensive and intensive properties, state function, Zeroth law of thermodynamics and definition of temperature. The first law of thermodynamics –

		internal energy change (ΔU) and enthalpy change (ΔH), Enthalpy of bond dissociation, combustion, formation, atomization, ionization, solution and sublimation. Transformation of state. Hess's law of constant heat summation, Born Haber Cycle and its application. 2nd law of thermodynamics, the introduction of entropy as a state function, Gibbs free energy change for spontaneous and nonspontaneous processes, criteria for equilibrium
8	**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, ionisation of acids and bases, strong and weak electrolytes, degree of ionisation of polybasic acids, acid strength, concept of pH, Henderson Equation. Hydrolysis of salts (elementary idea). Buffer solutions, buffer action, solubility product, common

		ion effect (with illustrative examples)
9	**Solutions**	Introduction, solubility of gases in liquids, solid solutions, vapour pressure and Raoult's law. Colligative properties: relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, and osmotic pressure. Determination of molecular mass using colligative properties. Abnormal molecular mass, van't Hoff factor and calculations involving it. Colloidal solution, true solutions, colloids and suspensions.

10	**Chemical Kinetics**	Rate of a reaction (average and instantaneous), factors affecting the rate of reaction: concentration, temperature and 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), Arrhenius equation, activation energy, the concept of collision theory (elementary idea, no mathematical treatment). Catalysis, homogeneous and heterogeneous catalysis, enzyme catalysis. 10) Redox Reactions INFORMATION BULLETIN-WBJEE-2026 WBJEEB 50 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 in permanganometry and dichromatometry

11	**Electrochemistry**	Conductance in electrolytic solutions, specific and molar conductivity, variation of conductivity with concentration, Kohlrausch's law, electrolysis and laws of electrolysis (elementary idea), dry cell – electrolytic cells and Galvanic cells, emf of a cell, standard electrode potential, Nernst equation and its application to chemical cells, relation between Gibbs free energy change and emf of a cell, fuel cells, Li-ion batter
12	**Organic Chemistry: Some Basic Principles**	General introduction, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, resonance and hyperconjugation. Homolytic and heterolytic fission of covalent bonds: free radicals, carbocations and carbanions, electrophiles and nucleophiles. Types of organic reactions: elementary idea of addition, elimination and substitution reactions

13	**Hydrocarbons: Classification of Hydrocarbons**	Alkanes – Nomenclature, isomerism, conformations (ethane only), physical properties (up to 6 carbons) and chemical reactions including halogenations, free radical mechanism, combustion and pyrolysis. Alkenes – Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties (up to 3 carbons) and methods of preparation. Chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis and oxidation. Mechanism of electrophilic addition. Alkynes – Nomenclature, structure of triple bond (ethyne), physical and chemical properties (up to 3 carbons) and preparation, Chemical reactions; addition of hydrogen, halogens, hydrogen halides and water. Aromatic hydrocarbons – Introduction, IUPAC nomenclature. Benzene; resonance,

		Hu ckel's rule and aromaticity, chemical properties, mechanism of electrophilic substitution – nitration, sulphonation, halogenations, Friedel-Crafts alkylation and acylation. INFORMATION BULLETIN-WBJEE-2026 WBJEEB 51 14) Haloalkanes and Haloarenes Haloalkanes: Nomenclature, nature of C-X bond, physi
14	**Haloalkanes and Haloarenes**	Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, and mechanism of substitution reactions. Stability of carbocations. R/S and D/L configurations. Uses and environmental effects of dichloromethane, trichloromethane, tetrachloromethane, iodoform, and freons. Haloarenes: Nature of C-X bond, substitution reaction (directive influence of halogen for monosubstituted compounds only), stability of carbocations. Uses and environmental effects of DDT.

15	**Alcohols, Phenols and Ethers Alcohols:**	Nomenclature, methods of preparation, physical and chemical properties (primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses of methanol and ethanol.
16	**Phenols:**	Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenols, electrophilic substitution reaction, and uses of phenolic compounds.
17	**Ethers:**	Nomenclature, methods of preparation, physical and chemical properties, and uses

18	**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, and uses.
19	**Carboxylic Acids:**	Nomenclature, acidic nature, methods of preparation, physical and chemical properties, and uses.
20	**Nitro compounds:**	General methods of preparation and reduction reactions. Amines: INFORMATION BULLETIN-WBJEE-2026 WBJEEB 52 Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines

21	**Cyanides and Isocyanides:**	Nomenclature, structure, methods of preparation, and chemical reactions (hydrolysis and reduction reactions only).
22	**Diazonium salts:**	Preparations, chemical reactions and importance in synthetic organic chemistry.
	Biomolecules	

23	**Carbohydrates:**	Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D/L configuration, oligosaccharides (sucrose), polysaccharides (starch, cellulose)
24	**Proteins:**	Elementary idea of α-amino acids, zwitterionic structures of amino acids, peptide bonds, polypeptides, structure of proteins (primary structure only), denaturation of proteins, and enzymes.
25	**Nucleic Acids:**	DNA & RNA (introduction and basic concept)

26	**Polymers**	Classification (natural and synthetic), methods of polymerisation (addition and condensation), and copolymerization. Some important polymers like polythene, nylon, polyesters, Bakelite, and rubber. Biodegradable and non- biodegradable polymers.
27	**s-Block Elements (Group 1 and Group 2 elements)**	Electronic configuration, occurrence, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, hydrides (ionic, covalent and interstitial), hydrogen peroxide (preparation, properties, structure & use), hydrogen as a fuel. Biological importance of Na, K, Mg, and Ca.
28	**Amines and Diazonium Salts**	Classification, preparation, basicity, reactions, diazotisation and coupling reactions

29	**Biomolecules**	Carbohydrates, proteins, amino acids, enzymes, vitamins and nucleic acids
30	**Polymers**	Classification, addition and condensation polymers, copolymers and applications
31	**p-Block Elements**	General introduction to p-block elements, electronic configuration, occurrence, variation in properties, oxidation states, and trends in chemical reactivity

		Group 13: Boron- physical and chemical properties of compounds of Boron, boron oxides, boric acid, borates, B2H6 and inorganic graphite. Aluminum: Reactions of Al with acid and alkali, uses of Al, preparation and uses of LiAlH4 and Al2O3. Group 14: Carbon: Catenation, allotropic forms, nano carbon, graphene, physical and chemical properties of two oxides of carbon- CO and CO2, Silicon: Some compounds of silicon and their important uses – silicon tetrachloride (structure, preparation, hydrolysis and reduction reaction only), silicates [structure of open chain silicates constructing of (SiO3)n 2n– ions], use of zeolites. Group 15 : General introduction, electronic configuration, occurrence, oxidation states. Structure and reaction of NH3, HNO3, NCl3, oxides of nitrogen (structures only). Phosphorus – allotropic forms (white and red), preparation and

		properties of phosphine, phosphorus halides (PCl_3 and PCl_5) and oxoacids (elementary idea only). Group 16: General introduction, electronic configuration, occurrence, oxidation states. Oxygen- classification of oxides. Preparation and properties of ozone. Sulphur- allotropic forms (rhombic and monoclinic). Properties and uses of oxides, oxoacids and peracids of Sulphur. Group 17: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties. Compounds of halogen- preparation, structure and uses of oxides, oxoacids of halogens, interhalogen compounds. Elementary idea of pseudohalogens and polyhalides. Group 18: General introduction, electronic configuration, occurrence, and uses of noble gases. Preparation,

		structure and chemical reactions of XeO2, XeO3, XeF2, XeF4, XeF6, XeOF2
32	**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 – ionic radii, ionisation enthalpy, oxidation states, colour, catalytic and magnetic properties. Preparation and properties of K2Cr2O7 and KMnO4.
33	**Lanthanoids:**	Electronic configuration, oxidation states, chemical reactivity, lanthanoid contraction and its consequences, uses.

34	**Actinoids**	Electronic configuration, oxidation states, comparison with lanthanoids, uses.
35	**Coordination Compounds**	Introduction, ligands, classification of ligands based on denticity and field strength, coordination number, colour, and magnetic properties. IUPAC nomenclature of mononuclear coordination compounds, EAN rule, Bonding (Werner's theory, VBT and CFT), CFSE, structuralisomerism and stereo-isomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems)
36	**Environmental Chemistry**	Environmental pollution – air, water and soil pollution (cause and effects), primary and secondary pollutants (solid and liquid), chemical reactions in the atmosphere, smog, pollution due to industrial wastes, solid waste management

		(elementary idea only), SPM, RSPM, green chemistry as an alternative tool for reducing pollution. Water preservation and protection. Strategy for control of environmental pollution.
37	**Qualitative and Quantitative Analysis**	Detection of special elements (N, S, halogens) in organic compounds by the Lassaigne test. Identification of the following functional groups present in organic compounds: primary aromatic amine, aldehyde, ketone, carboxylic acid and unsaturation. Calculations based on acid-based and redox titration (dichromatometry and pernanganometry). Detection of water-soluble non-interfering acid and basic radicals by dry and wet tests among the following: Acid radicals: Cl- , S2- , SO4 2- , NO2 - , NO3 - , CO3 2- Basic radicals: Cu2+, Al3+, Fe2+, Fe3+, Zn2+, Ca2+, Mg2+, Na+, NH4 +