

**Class – XII
Chemistry**

Pre-board and Board Final Examination : 2023-24

Question blue Print

Sl. No.	Chapter	Title	MCQ 1 mark	VSA 1 mark	SA(I) 2 marks	SA(II) 3 marks	LA 4 marks	VLA 5 marks	Total Marks
1	Chapter-2	Solutions	1x1	1x2	-	-	4x1	-	07
2	Chapter-3	Electrochemistry	1x1	-	-	3x1	-	5x1	09
3	Chapter-4	Chemical Kinetics	1x1	1x1	2x1	3x1	-	-	07
4	Chapter-8	d – and f – Block Elements	1x1	-	2x1	-	4x1	-	07
5	Chapter-9	Coordination Compounds	1x1	1x1	2x1	3x1	-	-	07
6	Chapter-10	Haloalkanes and Haloarenes	1x1	-	2x1	3x1	-	-	06
7	Chapter-11	Alcohols, Phenols and Ethers	1x1	1x1	-	-	4x1	-	06
8	Chapter-12	Aldehydes, Ketons and Carboxylic Acids	1x1	1x2	-	-	-	5x1	08
9	Chapter-13	Organic Compounds Containing Nitrogen	1x1	1x2	-	3x1	-	-	06
10	Chapter-14	Biomolecules	1x1	1x1	2x1	3x1	-	-	07
Total No. of questions			10	10	05	06	03	02	36 nos.
Total Marks :									70

**Class – XII
Chemistry**

Half-yearly Examination : 2023-24

Question blue Print

Sl. No.	Chapter	Title	MCQ 1 mark	VSA 1 mark	SA(I) 2 marks	SA(II) 3 marks	LA 4 marks	VLA 5 marks	Total Marks
1	Chapter-2	Solutions	1x2	1x1	2x1	3x1	4x1	-	12
2	Chapter-3	Electrochemistry	1x2	1x2	2x1	3x1	-	5x1	14

3	Chapter-8	d – and f – Block Elements	1x1	1x2	2x2	3x1	-	-	10
4	Chapter-10	Haloalkanes and Haloarenes	1x2	1x1	-	3x1	4x1	-	10
7	Chapter-11	Alcohols, Phenols and Ethers	1x2	1x2	2x1	3x1	-	5x1	14
10	Chapter-14	Biomolecules	1x1	1x2	-	3x1	4x1	-	10
Total No. of questions			10	10	05	06	03	02	36 nos.
Total Marks :									70

Class – XII
Chemistry (Practical)

Total no. of periods : 80

Total Marks : 30

Sl No.	Evaluation scheme for Examination	Marks
1	Volumetric Analysis	08
2	Salt Analysis	08
3	Organic Analysis	04
4	Lab. Note Book	03
5	Viva	02
6	Attendance	05
	TOTAL	30

Micro-chemical methods are available for several of the practical experiments. Wherever possible, such techniques could be used.

A. Determination of concentration / molarity of KMnO_4 solution by titrating it against standard solution of:

i) Oxalic acid,

ii) Ferrous Ammonium Sulphate

(Students will be required to prepare standard solutions by weighing themselves).

B. Qualitative Analysis

a) Determination of one anion and one cation in a given salt

Cations – Pb^{2+} , Cu^{2+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Cu^{2+} , Co^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , $[\text{NH}_4]^+$

Anions – $[\text{CO}_3]^{2-}$, S^{2-} , $[\text{SO}_3]^{2-}$, $[\text{SO}_4]^{2-}$, $[\text{NO}_3]^-$, Cl^- , Br^- , I^- , $[\text{PO}_4]^{3-}$, $[\text{C}_2\text{O}_4]^{2-}$, CH_3COO

(Note : Insoluble salts excluded)

C. Tests for the functional groups present in organic compounds:

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

Class – XII (2023-2024)
Sub : Chemistry
(THEORY)

Time : 3 Hours

Total Marks : 70

Unit - I : Chapter No. 02 - Solutions

10 Periods

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, abnormal molecular mass, Van't Hoff factor.

Unit - II : Chapter No. 03 - Electrochemistry

12 Periods

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, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, fuel cells, corrosion.

Unit - III : Chapter No. 04 - Chemical Kinetics

10 Periods

Rate of 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 - IV : Chapter No. 08 - 'd' and 'f' Block Elements

12 Periods

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 $K_2Cr_2O_7$ and $KMnO_4$.

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

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

Unit - V : Chapter No. 09 - Coordination Compounds

12 Periods

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mono nuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).

Unit - VI : Chapter No. 10 - Haloalkanes and Haloarenes

10 Periods

Haloalkanes : Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation.

Haloarenes : Nature of C-X bond, substitution reactions (Directive influence of halogen in mono substituted compounds only).

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

Unit - VII : Chapter No. 11 - Alcohols, Phenols and Ethers **10 Periods**

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.

Unit - XI : Chapter No. 12 - Aldehydes, Ketones and Carboxylic Acids **12 Periods**

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 - XII : Chapter No. 13 - Organic compounds containing Nitrogen **10 Periods**

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

Cyanides and Isocyanides - will be mentioned at relevant places in text.

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

Unit - XIII : Chapter No. 13 - Biomolecules **10 Periods**

Carbohydrates - Classification (aldoses and ketoses), monosaccharides (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.
