

SYLLABUS 2021–2022

STANDARD: 11

SUBJECT : CHEMISTRY

UNIT	CONTENT
1. Basic Concepts of Chemistry and Chemical Calculations	<ul style="list-style-type: none">1.4 Mole Concept<ul style="list-style-type: none">1.4.1 Avogadro Number1.4.2 Molar Mass1.4.3 Molar volume1.5 Gram Equivalent Concept<ul style="list-style-type: none">1.5.1 Equivalent Mass of Acids, Bases, Salts, Oxidising Agents and Reducing Agents1.6 Empirical Formula and Molecular Formula<ul style="list-style-type: none">1.6.1 Determination of Empirical Formula from Elemental Analysis Data1.6.2 Calculation of Molecular formula from Empirical Formula1.7 Stoichiometry<ul style="list-style-type: none">1.7.1 Stoichiometric Calculations<ul style="list-style-type: none">Calculations based on Stoichiometry1.7.2 Limiting Reagents1.8 Redox Reactions<ul style="list-style-type: none">1.8.1 Oxidation Number<ul style="list-style-type: none">Rules to calculate Oxidation NumberCalculation of oxidation number using the above rulesRedox reactions in terms of Oxidation Number
2. Quantum Mechanical Model of Atom	<ul style="list-style-type: none">2.1 Introduction to atom model<ul style="list-style-type: none">2.1.1 Bohr atom model2.1.2 Limitations of Bohr's atom model2.2 Wave particle duality of Matter<ul style="list-style-type: none">2.2.1 Quantisation of angular momentum and de-Broglie Concept2.2.2 Davison and Germer Experiment2.3 Heisenberg's Uncertainty Principle

	<p>2.5 Quantum numbers Principal quantum number (n) Azimuthal quantum number (l) or subsidiary quantum number Magnetic quantum number (m) Spin quantum number (s)</p> <p>2.5.2 Energies of orbitals</p> <p>2.6 Filling of orbitals</p> <p>2.6.1 Aufbau principle</p> <p>2.6.2 Pauli Exclusion Principle</p> <p>2.6.3 Hund's rule of maximum multiplicity</p> <p>2.6.4 Electronic Configuration of atoms</p> <p>2.6.5 Stability of half filled and completely filled orbitals Symmetrical distribution of electron Exchange energy</p>
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5. Alkali and Alkaline earth metals	<p>5.1 s-block elements</p> <p>5.2 Alkali metals</p> <p>5.2.1 General characteristics of alkali metals</p> <p>5.2.2 Distinctive behaviour of lithium</p> <p>5.2.3 Chemical properties of alkali metals</p> <p>5.2.4 Uses of alkali metals</p> <p>5.3 General characteristics of the compounds of alkali metals</p> <p>5.5 Alkaline earth metals</p> <p>5.5.1 General characteristics of alkaline earth metals</p> <p>5.5.2 Distinctive behavior of beryllium</p> <p>5.5.3 Chemical properties of alkaline earth metals</p> <p>5.5.4 Uses of alkaline earth metals such as Mg,Ca</p> <p>5.6 General characteristics of the compounds of the alkaline earth metals</p> <p>5.6.4 Plaster of paris</p>
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	7.5.2	Enthalpy changes for different types of reactions and phase transitions
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	7.8	Hess's law of constant heat summation
	7.9	Lattice energy
	7.10	Second law of Thermodynamics
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	7.10.1	Standard Entropy Change
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	8.5	Homogeneous and heterogeneous equilibria
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10. Chemical Bonding	<p>10.1 Introduction</p> <p>10.1.1 Kossel - Lewis approach to chemical bonding & Octet rule</p> <p>10.2 Types of Chemical Bonds</p> <p>10.2.1 Covalent bonds</p> <p>10.2.2 Representing a covalent bond by Lewis dot structure</p> <p>10.2.3 Formal charge</p> <p>10.2.4 Lewis structure for exception to octet rule</p> <p>10.3 Ionic (or) Electrovalent bond</p> <p>10.5 Bond Parameters</p> <p>10.5.1 Bond length</p> <p>10.5.2 Bond order</p> <p>10.5.3 Bond angle</p> <p>10.5.4 Bond enthalpy</p> <p>10.5.5 Resonance</p> <p>10.5.6 Polarity of bonds</p> <p>10.6 VSEPR Theory</p> <p>10.7 Valence Bond Theory</p> <p>10.7.1 Salient features of VB Theory</p> <p>10.8 Orbital Overlap</p> <p>10.8.1 Sigma and pi bonds</p> <p>10.8.2 Formation of H₂, F₂, HF, O₂. molecules</p> <p>10.9 "Hybridisation"</p> <p>10.9.1 Types of Hybridisation and geometry of molecule</p> <p>10.10 Molecular Orbital Theory</p> <p>10.10.1 Linear Combination of atomic orbitals</p> <p>10.10.2 Bonding in some Homonuclear diatomic molecules</p> <p>10.10.3 Bonding in some Heteronuclear diatomic molecules</p>

11. Fundamentals of Organic Chemistry	11.1 Introduction Characters of organic compounds 11.2 Classification of organic compounds 11.2.1 Classification based on structure 11.2.2 Classification based on Functional groups 11.3 Nomenclature of organic compounds 11.3.1 IUPAC Rules for Nomenclature of organic compounds (except Table 11.6 Rules for naming of alicyclic compounds) 11.5 ISOMERISM in organic compounds 11.5.1 Constitutional Isomerism 11.5.2 Sterio Isomerism 11.5.3 Geometrical Isomerism 11.5.4 Optical Isomerism
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13. Hydrocarbons	Introduction 13.1 Introduction and classification of alkanes 13.2.1 Preparation of alkanes 13.2.2 Physical properties 13.2.4 Chemical properties Uses 13.3.1 General method of preparation of Alkenes 13.3.2 Physical properties of Alkenes 13.3.3 Chemical properties of Alkenes - No Mechanisms (Except Recycling Plastics) 13.3.4 Uses of Alkenes 13.5 Aromatic Hydrocarbons 13.5.2 Aromaticity 13.5.3 Structure of Benzene

	<p>13.5.4 Sources and preparation of Benzene</p> <p>13.5.5 Physical properties</p> <p>13.5.6 Chemical properties of Benzene compounds</p> <p>13.5.7 Directive influence of functional group and mono substituted Benzene</p>
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PRACTICAL

STANDARD: 11		SUBJECT : CHEMISTRY
Sl.No	Topic	
Salt Analysis		
1	Lead Nitrate	
2	Copper Sulphate	
3	Ferric Chloride	
4	Zinc Sulphide	
5	Aluminium Nitrate	
6	Calcium Carbonate	
7	Ammonium Bromide	
8	Magnesium Phosphate	