

CH0001:**Preparatory Chemistry I (Physical)****(3-2-0-10)**

Atomic Theory, The Mole Concept, The Chemical Equation, Stoichiometric Calculations, Gas Laws, Kinetic Theory of Gases, Imperfect Gases, Phase Equilibria, Properties of Solutions, Ideal Solution. Macroscopic Properties of Solids, Types of Solids, Crystal Systems. Nature of Chemical Equilibrium, Equilibrium Constant, External Effects on Equilibria. Thermodynamics: Basic Principles and Concepts, Thermochemistry. Reaction Rates and Equilibria, Concentration Effects. Strongly Soluble Salts, Acids and Bases, Hydrolysis, Buffer Solutions. Oxidation States, Half-reactions, Nernst Equation, Balancing Oxidation-Reduction Reactions, Electrolysis, Electrochemical Cells.

Text Books:

1. Bruce H. Mahan – University Chemistry (3rd Edition), Narosa Publishing House, New Delhi.

CH0002:**Preparatory Chemistry II (Inorganic and Organic)****(3-2-0-10)**

Parameters of Molecular Structure, Ionic and Covalent Bonds, Atomic and Molecular Orbitals, Shapes of Molecules, VSEPR Theory, Molecular Geometry, Bond Polarity, Multiple Bonds, Multicenter Bonds, Metallic Bonding. The Periodic Table, Periodic Properties, Properties and Reactions of Metals and Non-metals, Coordination Complexes, Werner Theory, Crystal Field Theory.

IUPAC Names, Functional Groups, Alkanes, Alkenes and Alcohols, Carbonyl Compounds. Simple Organic Reactions, Aliphatic and Aromatic Compounds, Isomers, Reactive Intermediates, Lipids, Carbohydrates, Proteins and Nucleic Acids.

Text Books:

1. Bruce H. Mahan – University Chemistry (3rd Edition), Narosa Publishing House, New Delhi.