

INDIAN INSTITUTE OF TECHNOLOGY, GUWAHATI
GUWAHATI - 781 001
DEPARTMENT OF CHEMISTRY

CH - 001

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.

Sparingly Soluble Salts, Acids and Bases, Hydrolysis, Buffer Solutions.

Oxidation States, Half - Reactions, Nernst Equation, Balancing Oxidation - Reduction Reactions, Electrolysis, Electrochemical Cells.

Text Book:

Bruce H. Mahan - **University Chemistry** (3rd edition)
Narosa Publishing House, New Delhi.

CH - 002

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, Carbonyls Compounds,

Simple Organic Reactions, Aliphatic and Aromatic Compounds, Isomers, Reactive Intermediates, Lipids, Carbohydrates, Proteins and Nucleic Acids.

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