

**62. CHEMISTRY****Part-A (40 Marks)**

Coordination Compounds, Applications of Coordination Compounds, Organometallic Chemistry, Metal Carbonyls and Related Compounds, Boranes and Carboranes, Inorganic Reaction Mechanisms, Bioinorganic Chemistry, Hard and Soft Acids and Bases (HSAB). Carboxylic Acids and Derivatives, synthesis Based on Carbanions, Nitro Hydrocarbons, Amines, Cyanides and Isocyanides, Heterocyclic Compounds, Carbohydrates, Amino Acids and Proteins, Pericyclic Reactions, Synthetic Strategies, Asymmetric Synthesis. Electrochemistry and Emf, Chemical Kinetics, Thermodynamics. Photochemistry, Molecular Spectroscopy, Proton Magnetic Resonance Spectroscopy, Mass Spectroscopy.

**Part-B (60 Marks)**

S-Block Elements, P-Block Elements, Chemistry of Zero Group Elements, Chemistry of d-Block Elements, Chemistry of f-Block Elements, General Principles of Inorganic Qualitative Analysis, Symmetry of molecules, Non-Aqueous Solvents, Chemical Bonding, Molecular Orbital Theory, Theory of Quantitative Analysis, Theories of Bonding in Metals. Structural Theory in Organic Chemistry, Acyclic Hydrocarbons, alicyclic Hydrocarbons, aromatic Hydrocarbons, Arenes and Polynuclear Aromatic Hydrocarbons, Halogen Compounds, Alcohols, Phenols, Ethers and Epoxides, Carbonyl Compounds, Conformational Analysis, Stereochemistry of Carbon Compounds. Atomic Structure and Elementary Quantum Mechanics, Gaseous State, Liquid State, Solutions, Dilute Solutions and Colligative Properties, Solid State Chemistry, Phase Rule, Colloids and Surface Chemistry, adsorption, Material Science, Nano materials, Evaluation of Analytical Data.