SS805 ORGANOMETALLIC AND BIOINORGANIC CHEMISTRY 3-1-0-4

Organometallic compounds: Synthesis of metal carbonyls, poly nuclear carbonyls, poly nuclear carbonyls with and without bridging groups, complexes with cyclic pi-donors, cyclopentadiene, benzene, cycloheptatriene, cyclobutadiene and cyclooctatetraene, structure and bonding, fluxional molecules, metal clusters – isolobal concept, metal complexes as liquid crystals.

Organometallics as synthetic reagents, organometallics in industry, medicine, and agriculture, reactions of compounds involving small molecules, addition, elimination and rearrangement reactions – catalysis by organometallic complexes.

Metal ions in biological systems: Metalloporphyrins, respiration, structure and function of haemoglobin – property and applications of porphyrins – photodynamic therapy, NLO property. Platinum containing anticancer agents, co-enzyme B_{12} binding of co-enzyme with protein (base off and base on mode), model compounds, cobaloximes – synthesis, reactions, structure and property relationship and applications.

Supramolecular chemistry: Self assembly, self organization, self assembly of inorganic architectures, molecular recognition – directed self-assembly of organized phases, ordered solid state structures, supramolecular synthesis, supramolecular photonic devices, light conversion and energy transfer devices, photosensitive molecular receptors, NLO properties of supramolecular species, molecular wires, molecular devices, electro switching devices.

TEXT BOOKS/REFERENCES:

1. J. E. Huheey, E. A. Keiter and R. L. Keiter, "*Inorganic Chemistry*", Fourth Edition, Addison Wesley Publishing Company, New York, 1993.
2. Jonathan W. Steed and Jerry L. Atwood, "*Supramolecular Chemistry*", Second Edition, Wiley-Interscience, 2009.
3. Manfred Bochmann, "*Organometallics-Complexes with Transition Metal-Carbon piBonds*", Oxford University Press, 1994.

1. of thin films—O.S Heavens (Dover)