2-vaishali nagar, Near Amrapali railway crossing, Raiya road, Rajkot-360001. Ph.No.-(0281)2440478, 2472590	**3-vaishali nagar, Near Amrapali railway crossing, Raiya road, Rajkot-360001. Ph.No.-(0281)2471645**	**Behind marketing yard, Near Lalpari lake, Between Amargadh-Bhichri, Rajkot-360002. Ph.No.-90990 63150**

M. Sc. SEMESTER-II

C-201: INORGANIC CHEMISTRY

1. Organometallic Compounds

Introduction, nature of bonding in organornetalliccompounds of transition metals. bonded organometallic compounds:Introduction, classification and synthesis of bonded organotransitionmetal compounds, general characteristics, chemical reactions, bonding and structure.

bonded organometallic compounds: Introduction and classification of bonded organometallic compounds (a)-alkene complexes: Preparative methods, physical and chemical properties, bonding of structure. (b) allyl (or enyl) complexes: preparation, physical of chemical properties.

2. Fundaments of Bioinorganic Chemistry

Introduction to bioinorganic chemistry.Classification and role of metal ions according to their action in biological system.Essential trace elements and chemical toxicology, Introduction of trace elements.The essential ultratrace metals and non-metals. Iodine and thyroid hormones, toxic elements, toxicity and deficiency. Transport and storage of proteins:Metalloporphyrins, oxygen carriers-hemoglobinand myoglobin, Physiology of blood.

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3. Electron spin resonance

Introduction to Electron Spin Resonance.Technique of electron spin resonance, interaction between nuclear spin and electron spin: hyper fine splitting, calculation and energies of Zeeman levels. Calculations of energies, frequency, ESR spectrum when one electron influenced by a single proton and one electron delocalized over two equivalent protons.

4. Ion-Exchangers and their applications

General introduction, classification of ion-exchangers and their applications in the separation of 1. Zinc and Magnesium, 2. Chloride and bromide, 3. Cobalt and Nickel, 4. Cadmium and Zinc.

5. Uses of Organic reagents in Inorganic Analysis

Cupferron, DMG, dithiozone, aluminon, oxine, dithiooxamide, α-benzoinoxime, αnitro-(3-naphthol, α-nitroso-3-naphthol, diphenyl carbazone, diphenyl carbazide, anthranilic acid, tannin, pyragallol, benzidine. salicylaldoxime, o-phenanthroline.

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Reference Books:

1 Advanced Inorganic Chemistry, Cotton Wilkinson, W S E Wiley.

2 Vogel's Text book of Quantitative Inorganic Analysis, ELBS Press.

3 Organometallic Chemistry, R.C. Mehrotra and A. Singh, New Age International.

4 Bioinorganic Chemistry, Chatwal andBhagi, Himaliya Publishing House.

5 Physical Methods in Chemistry, R.S.Drago, Saunders College.

6 The Organometallic Chemistry of the Transition Metals, R.H. Crabtree, John Wiley.

7 Metallo-Organic Chemistry, A.J. Pearson, Wiley.

8 The Inorganic Chemistry of Biological Processes, M.N.Hughes, John Wiley & Sons