

MAHATMA VISHWAVIDYALAYA, INDORE
M.Sc. CHEMISTRY (SEMESTER -III)

Paper No.

Compulsory / Optional

Max. Marks

: OPT-1 Code- MCH-504

: Optional

: 100

Optional Paper : Organotransition Metal Chemistry

Unit-1	<p>Alkyls and Aryls of Transition Metals Types, routes of synthesis, stability and decomposition pathways, organocopper in organic synthesis.</p> <p>Compounds of Transition Metal-Carbon Multiple Bonds Alkylidenes, alkylidynes, low valent carbenes and carbynes-synthesis, nature of bond, structural characteristics, nucleophilic and electrophilic reactions on the ligands, role in organic synthesis.</p>
Unit-2	<p>Transition Metal π-Complexes Transition metal π-Complexes with unsaturated organic molecules, alkenes, alkynes, allyl, diene, dienyl, arene and trienyl complexes, preparation, properties, nature of bonding and structural features. Important reactions relating to nucleophilic and electrophilic attack on ligands and to organic synthesis.</p>
Unit-3	<p>Transition organometallic compounds: Transition metal compounds with bonds to hydrogen, boron, silicon</p>
Unit-4	<p>Homogeneous Catalysis Stoichiometric reactions for catalysis, homogeneous catalytic hydrogenation, Zeigler-Natta polymerization of olefins, catalytic reactions involving carbon monoxide such as hydrocarbonylation of olefins (oxoreaction), explanation reactions, activation of C-H bond.</p>
Unit-5	<p>Fluxional Organometallic Compounds Flexionality and dynamic equilibrium in compounds such as η^2 olefine, η^3-allyl and dienyl complexes.</p>

Books Suggested :

1. Principles and Application of Organotransition Metal Chemistry, J.P. Collman, L.S. Hegsdus, J.R. Norton and R.G. Finke, University Science Books.
2. The Organometallic Chemistry of the Transition Metals, R.H. Crabtree. John Wiley.
3. Metallo-organic Chemistry, A.J. Pearson, Wiley.
4. Organometallic Chemistry, R.C. Mehrotra and A. Singh New Age International.

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