

GROUP - (A) ELECTIVE PAPERS
PAPER I. ORGANIC SYNTHESIS I

M.M. - 75

60 Hrs. (2 Hrs./Week)

Units	Topics	
I	<p>Organometallic Reagents</p> <p>Principle, preparations, properties and applications of the following in organic synthesis with mechanistic details.</p> <p>Group I and II Metal Organic Compounds: Li, Mg, Hg, Cd, Zn and Ce compounds.</p> <p>Transition Metals: Cu, Pd, Ni, Fe, Co, Rh, Cr and Ti compounds.</p> <p>Other Elements: S, Si, B and I compounds.</p>	25 Hrs.
II	<p>Oxidation</p> <p>Introduction. Different oxidative processes.</p> <p>Hydrocarbons - alkenes, aromatic rings, saturated C-H groups (activated and unactivated).</p> <p>Alcohols, diols, aldehydes, ketones, ketals and carboxylic acids.</p> <p>Amines, hydrazines and sulphides.</p> <p>Oxidations with ruthenium tetraoxide, iodobenzene diacetate and thallium (III) nitrate.</p>	7 Hrs.
III	<p>Reduction</p> <p>Introduction. Different reductive processes.</p> <p>Hydrocarbons - alkanes, alkenes, alkynes and aromatic rings.</p> <p>Carbonyl compounds - aldehydes, ketones, acids and their derivatives</p> <p>Epoxides.</p> <p>Nitro, nitroso, azo and oxime groups.</p> <p>Hydrogenolysis.</p>	7 Hrs.
IV	<p>Rearrangements</p> <p>General mechanistic considerations - nature of migration, migratory aptitude, memory effects.</p> <p>A detailed study of the following rearrangements.</p> <p>Pinacol - pinacolone, Wagner - Meerwein, Demjanov, Benzil-Benzilic acid, Favorskii, Arndt-Eistert synthesis, Neber, Beckmann, Hofman, Curtius, Schmidt, Beayer - Villiger, Shapiro reaction.</p>	12 Hrs.
V	<p>Metallocenes, Nonbenzenoid Aromatics and Polycyclic Aromatic Compounds</p> <p>General considerations, synthesis and reactions of some representative compounds.</p>	9 Hrs.