Second Year-Third Semester

Paper 302101 Organic Chemistry 3 Credits, 75Marks(45 Hrs)

3 Hrs/week

I)Alcohols : 06 Hrs

Definition: Monohydric Alcohols: Methods of formation by reductions of Aldehydes, Ketones, Carboxylic Acids and Esters (one eg.each) Acidic nature reaction of Alcohols. Dihydric Alcohols: Methods of formation of ethylene Glycol-industrial method and From Alkenes using OsO_4, Chemical reaction of ethylene Glycol-nitration, Acylation, Oxidation (Using $Pb(OAc)_4$ without Mechanism Pinacol-Pinacolone rearrangement,
Trihydric Alcohols: Preparation of Glycerol from propane, Reaction of Glycerol.

II)Phenols: 06 Hrs

Preparation of phenols from Chlorobenzene, Cumene and Benzene Sulphonic Acid, Physical properties, Acidic Nature of phenol, Resonance stabilization of Phenoxide Ion. Reaction of phenols-Electrophilic Aromatic Substitution, Acylation, Carboxylation (Without Mechanism) Reaction with Mechanism- fries rearrangement, Claisen Rearrangement, Gatterman Synthesis and Reimer Tiemann Reaction.

III)Aldehydes and Ketones: 10 Hrs

Aldehydes: Preparation of aldehyde from Acid Chloride, Gattermann-Koch synthesis Ketones- Preparation of nitriles and form Carboxylic Acid , Physical properties of Aldehydes and Ketones. Mechanism of Nucleophilic addition to Carbonyl Group with particular emphasis on Benzoin, AldolKnoenenagel condensation, Mannich Reaction. Use of Acetals as Protecting Groups.Oxidation of aldehydes using Chromium Trioxide, Baeyers-Villeger Oxidation of Ketones.

IV)Carboxylic Acids: 09 Hrs.

Acidity of Carboxylic Acids, Effect of substituents on acid strength, preparation of acetic acid from CO2 from nitriles, from acid chloride, Anhydride, Ester and Amide.
Physical properties and reaction of carboxylic acid-synthesis of Acid Chloride, Ester and Amide, Hell-Volhard-Zelinsky Reaction.Reduction using LiAlH4, Mechanism of Decarboxylation, Hydroxyl Acids- Malic, Tartaric and Citric Acid. Method of Formation and Chemical reaction of Acrylic Acid

V) Organic Compounds of Nitrogen: 14 Hrs

Preparation of Nitroalkanes and Nitroarenes.
Chemical reation of Nitroalkanes, Nitration of Benzene and their reduction in Acidic, Basic and Neutral media.
Amines – Basicity of Amines, Amines Salt as PTC. Preparation of alkyl and Aryl Amines (Reduction of Nitro Compounds, Nitriles) Reductive Amination, Hoffmann Bromamide Reaction.
Reaction of Amines- Electrophilic aromatic Substitution in Aryl amines, Reaction of amines with Nitrous Acids.