Course Title: **ORGANIC CHEMISTRY-** I PART: III Course Code: **16UCH5CO6**

Year: III Semester: V Credits: 5 Total Hours: 5 x 15 = 75

**UNIT I**

Preparation and properties of benzene suphonic acid and suphanilic acid. Preparation. Phenol - preparation, resonance structures, bromination, nitration, oxidation, reduction, Schotten-Baumann, phthalein fusion and coupling reactions. Mechanisms of Reimer-Tiemann and Kolbe-Schmidt reactions. Tests for phenol. Preparation and properties of o-cresol, catechol, resorcinol and pyrogallol.

**UNIT II**

Preparation and properties of formic and acetic, benzoic, oxalic and malonic acids. Action of heat on formic, oxalic, malonic and succinic acids - Blancks rule. Mechanism of hydrolysis of esters by BAC2 and AAC2. Diethyl malonate - preparation and synthesis of acetic acid, adipic acid, cinnamic acid, glycine and malonyl urea from diethyl malonate. Ethylacetoacetate -preparation and synthesis of succinic acid, crotonic acid, butanone, 4-methyl uracil and antipyrine from ethylacetoacetate.

**UNIT III**

Preparation of nitrobenzene. Reduction of nitrobenzene in acid, neutral and alkaline media. Electrolytic reduction of nitrobenzene. Preparation and properties of aliphatic primary, secondary and tertiary amines. Separation of amines by Hinsberg and Hofmann methods. Aniline - preparation and reactions. Basicity of aliphatic and aromatic amines. Preparation of benzene diazonium chloride, coupling reaction with aniline. Synthesis of phenol, benzene, benzoic acid, halo benzenes and nitrobenzene from benzene diazonium chloride.

**UNIT IV**

Heterocyclic compounds- preparation and reactions of pyrrole and pyridine. Comparison of basicities of pyridine and pyrrole. Synthesis and reactions of quinoline, isoquinoline and indole. Vitamins - classification, sources and deficiency diseases. Terpenoids-isolation and isoprene rule. Structural elucidation and synthesis of geraniol and α-terpeniol. Alkaloids - structural elucidation and synthesis of coniine and nicotine.

**UNIT V**

Molecular rearrangements-mechanisms of Pinacol-pinacolone, Beckmann, benzidine, Hoffmann, Curtius, Schmidt, benzil - benzilic acid, Claisen, Cope, Fries and Wolf rearrangements. (Applications not required)

**Text books**

1. B. S. Bahl and Arun Bahl, Advanced Organic Chemistry, S. Chand & Company Ltd.

2. O. P. Agarwal, Reactions and Reagents, Krishna Prakashan Media (P) Ltd.

3. M. K. Jain, Modern Organic Chemistry, Vishal Publishing Co.