Syllabus

BP301T. PHARMACEUTICAL ORGANIC CHEMISTRY –II (Theory) 45 Hours

Scope

This subject deals with general methods of preparation and reactions of some organic compounds. Reactivity of organic compounds are also studied here. The syllabus emphasizes on mechanisms and orientation of reactions. Chemistry of fats and oils are also included in the syllabus.

Objectives

Upon completion of this course the student should be able to:

1. Write the structure, name and the type of isomerism of the organic compound,
2. Write the reaction, name the reaction and orientation of reactions,
3. Account for reactivity/stability of compounds,
4. Prepare organic compounds.

Course Content

General methods of preparation and reactions of compounds superscripted with asterisk (*) to be explained.

To emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences.

Unit I 10 Hours

1. **Benzene and It's Derivatives:**
   - i. Analytical, synthetic and other evidences in the derivation of structure of benzene, Orbital picture, resonance in benzene, aromatic characters, Huckel's rule.
   - ii. Reactions of benzene - nitration, sulphonation, halogenationreactivity, Friedelcrafts alkylation- reactivity, limitations, Friedelcrafts acylation.
   - iii. Substituents, effect of substituents on reactivity and orientation of mono substituted benzene compounds towards electrophilic substitution reaction.
   - iv. Structure and uses of DDT, Saccharin, BHC and Chloramine.

UNIT-II 10 Hours

2. **Phenols:** Acidity of phenols, effect of substituents on acidity, qualitative tests, Structure and uses of phenol, cresols, resorcinol, naphthols.
3. **Aromatic Amines:** Basicity of amines, effect of substituents on basicity, and synthetic uses of aryl diazonium salts.
4. **Aromatic Acids:** Acidity, effect of substituents on acidity and important reactions of benzoic acid.

UNIT-III 10 Hours

5. **Fats and Oils:**
   i. Fatty acids – reactions.
   ii. Hydrolysis, Hydrogenation, Saponification and Rancidity of oils, Drying oils.
   iii. Analytical constants – Acid value, Saponification value, Ester value, Iodine value, Acetyl value, Reichert Meissl (RM) value – significance and principle involved in their determination.

UNIT-IV 08 Hours

6. **Polynuclear Hydrocarbons:**
   iv. Synthesis, reactions
   v. Structure and medicinal uses of Naphthalene, Phenanthrene, Anthracene, Diphenylmethane, Triphenylmethane and their derivatives.

UNIT- V 07 Hours

7. **Cycloalkanes:**
   i. Stabilities – Baeyer's strain theory, limitation of Baeyer's strain theory, Coulson and Moffitt's modification, Sachse Mohr's theory (Theory of strainless rings), reactions of cyclopropane and cyclobutane only.

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