

B.Sc. (Hons.) Courses, Generic Elective, I year (Semester-1)

Name of Paper:-Atomic Structure, Bonding, General Organic Chemistry and Aliphatic Hydrocarbons

Contents	Allocation of Lectures	Month wise schedule to be followed	Tutorial/Assignments /Presentation etc
<p>Aliphatic Hydrocarbons</p> <p>Functional group approach for the following reactions: preparations, physical property & chemical reactions to be studied with mechanism in context to their structure</p> <p>Alkanes:</p> <p>Preparation: catalytic hydrogenation, Wurtz reaction, Kolbe's synthesis, Grignard reagent.</p> <p>Reactions: Free radical substitution: Halogenation</p>	<p>4</p>	<p>First & Second week January</p>	<p>Doubt Session</p>
<p>Alkenes:</p> <p>Preparation: Elimination reactions: Dehydration of alcohols and dehydrohalogenation of alkyl halides (Saytzeff's rule); cis alkenes (Partial catalytic hydrogenation) and trans alkenes (Birch reduction).</p> <p>Reactions: cis-addition (alk. KMnO₄) and trans-addition (bromine), addition of HX (Markownikoff's and anti Markownikoff's addition), Hydration, Ozonolysis, oxymercuration demercuration, Hydroboration-oxidation.</p>	<p>4</p>	<p>Third & Fourth week January</p>	<p>Doubt Session</p> <p>Assignment Distribution</p>

<p>Alkynes:</p> <p>Preparation: Acetylene from CaC_2 and conversion into higher alkynes; by dehalogenation of tetrahalides and dehydrohalogenation of vicinal-dihalides.</p> <p>Reactions: formation of metal acetylides and acidity of alkynes, addition of bromine and alkaline KMnO_4, ozonolysis and oxidation with hot alk. KMnO_4. Hydration to form carbonyl compounds</p>	<p>4</p>	<p>First & Second week February</p>	<p>Doubt Session University Papers Discussion</p>
<p>Stereochemistry</p> <p>Conformations with respect to ethane, butane and cyclohexane, interconversion of Wedge Formula, Newmann, Sawhorse and Fischer representations, concept of chirality (upto two carbon atoms). configuration: geometrical and optical isomerism; enantiomerism, diastereomerism and meso compounds). Threo and erythro; D and L; cis - trans nomenclature; CIP Rules: R/ S (for upto 2 chiral carbon atoms) and E / Z nomenclature (for upto two $\text{C}=\text{C}$ systems).</p>	<p>8</p>	<p>Third & Fourth week February</p>	<p>Doubt Session Assignment Collection</p>

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