B.Sc. First Year (CBCS Pattern) Semester-I

USCHT02 - Chemistry Paper-II - Organic Chemistry

P. Pages : 2 **GUG/S/25/11545**

Time : Three Hours * 1 4 9 5 * Max. Marks : 50

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1. a) Define hybridization? Explain structure of Ethane on the basis of hybridization? **5**

b) Explain- **5**

i) Inductive effect ii) Electrometric effect

OR

c) Write short note on pKa value? **2½**

d) Explain Nucleophile and Electrophile with example? **2½**

e) Explain Elimination reaction with example? **2½**

f) Explain Homolytic and Heterolytic fission of covalent bond. **2½**

2. a) Define Isomerism? Discuss classification of isomerism with example. **5**

b) Explain conformational analysis of n-Butune. **5**

OR

c) Write a note on Asymmetric Synthesis? **2½**

d) Describe Optical Isomerism in Tartaric acid? **2½**

e) Write a short note on E & Z nomenclature? **2½**

f) Explain- **2½**

i) Enantiomers ii) Diastereomers

3. a) Explain Baeyer's strain theory. **5**

b) Explain the following- **5**

i) Addition of HX to ethene in presence of H_2O_2.

ii) Halogenation of methane.

OR

c) What are Diene's? Give its classification? **2½**

d) How will you prepare acetylene from calcium carbide? **2½**

e) Write a short note on Hydroboration-Oxidation. **2½**

f) How will you prepare propane by Kolbe's reaction. **2½**

4. a) Explain nitration of Benzene? **5**

b) Discuss directive influence of -OH group on electrophilic aromatic substitution reaction? **5**

OR

c) Explain Huckel's Rule of Aromaticity? **2½**

d) What is the directive influence of $-CH_3$ group when directly attached to Benzene ring. **2½**

e) Explain Freidel craft reaction with respect to Alkylation. **2½**

f) How will you prepare Benzene from Benzene sulphonic acid. **2½**

5. Attempt **any ten.** **1x10 =10**

i) Define Bond length.

ii) Define Free radical.

iii) Explain Addition reaction.

iv) What is meant by 'R' & 'S' in nomenclature system.

v) Write Newman Formula for Ethane.

vi) Define Optical activity.

vii) Define LPG.

viii) State Saytzeff's rule.

ix) Define Octane Number.

x) What is Orientation?

xi) Write Kekule structure for Benzene.

xii) Identify activating and deactivating group from following-
i) $-NO_2$ ii) $-NH_2$

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