B.Sc. (CBCS Pattern) Semester-I

USCHT02 - Chemistry Paper-II - Organic Chemistry

P. Pages : 2 **GUG/W/24/11545**

Time : Three Hours * 4 5 0 1 * Max. Marks : 50

Notes : 1. All questions are compulsory.
2. Draw diagram wherever necessary.
3. Use of calculator is permitted.

1. a) Define SP^2 Hybridization. Explain the formation of ethylene molecule on the basis of Hybridization. **5**

b) Write brief note on- **5**
i) Addition Reaction
ii) Substitution Reaction

OR

c) Explain hybridization in methane. **2½**

d) Differentiate between inductive effect and electrometric effect. **2½**

e) Write about Electrophile and Nucleophile. **2½**

f) Define Carbanions and Free radicals with example. **2½**

2. a) Define Isomerism with their classification in detail. **5**

b) Discuss conformation of n-butane. **5**

OR

c) What is resolution? Discuss biochemical method of resolution of racemic mixture. **2½**

d) Write a note on Optical Isomerism in Lactic Acid. **2½**

e) Discuss Newman representation of Ethane molecule. **2½**

f) Discuss CIP rules. **2½**

3. a) What are Dienes? Give their classification. Explain Diels-Alder reaction. **5**

b) Write brief note on- **5**
i) Anti peroxide effect
ii) Wurtz reaction

OR

c) State and explain Markownikoff's rule with example. **2½**

d) Explain dehydrohalogenation of vicinal dihalide. **2½**

e) Explain Saytzeff's rule with example. **2½**

f) Write a note on Dickmann's synthesis. **2½**

4. a) What are activating & deactivating group? Describe influence of $-NO_2$ group in nitrobenzene. **5**

b) Explain the molecular orbital diagram of benzene and draw the structure. **5**

OR

c) Write note on 'Friedel-Craft alkylation'. **2½**

d) Give the Huckel's rule of aromaticity. **2½**

e) Give the preparation of benzene from phenol. **2½**

f) Explain electrophilic substitution reaction. **2½**

5. Answer the following questions **any ten**. **10**

i) What is inductive effect?

ii) Define free radicals.

iii) Classify following as electrophile & nucleophile..

a) $FeCl_3$ b) CN^-

iv) Define racemic mixture?

v) Draw dextro form of Lactic Acid.

vi) Draw Newmann projection formula of n-butane.

vii) Explain anti Markovnikov addition?

viii) What is CNG?

ix) What is Ozonolysis?

x) What is Sulphonation Reaction?

xi) Identify activating & deactivating group from following.

CN^-, CH_3

xii) Draw two possible Kekule structure for benzene.

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