

B.Sc. First Year (CBCS Pattern) Sem-I
USCHT02 - Chemistry Paper-II : Organic Chemistry

P. Pages : 2

Time : Three Hours



GUG/W/23/11545 (S)

Max. Marks : 50

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

1. a) Define Hybridisation. Explain the formation of Acetylene molecule on the basis of SP-Hybridisation. 5

b) Explain generation, stability and reactions of carbocation. 5

OR

c) Explain Inductive effect with suitable example. 2½

d) Write about electrophiles and nucleophiles. 2½

e) Explain rearrangement reaction. 2½

f) Discuss factors affecting on pK values of acid. 2½

2. a) Define Isomerism and give their classification. 5

b) What is conformation? Explain conformation of cyclohexane. 5

OR

c) Explain the interconversion of Fischer Projection to Flying-Wedge projection of lactic acid. 2½

d) Write note on asymmetric synthesis. 2½

e) Describe optical isomerism in tartaric acid. 2½

f) Discuss CIP rules with suitable examples. 2½

3. a) Discuss the following : 5

i) Oxymercuration of alkene. ii) Hydroboration of alkene.

b) What are dienes? How they are classified? Explain Diels-Alder reaction. 5

OR

c) State and explain Markownikoff's rule. 2½

d) Write a note on Wurtz reaction. 2½

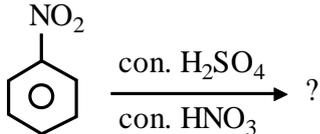
e) State and explain Saytzeff rule? 2½

- f) Define : 2½
 i) Octane number ii) LPG
4. a) What are activating & deactivating group? Describe influence of –NO₂ group in nitrobenzene. 5
- b) What is electrophilic aromatic substitution reaction? Explain nitration with mechanism. 5

OR

- c) Give the Huckel's rule of aromaticity. 2½
- d) Write note on 'Friedel – Craft alkylation. 2½
- e) How will you prepared benzene from phenol? 2½
- f) What is ortho-para directing effect? Explain with suitable example. 2½
5. Answer the following questions **any ten**. **1x10**

=10

- i) What is mean by free radical?
- ii) Define electrometric effect with example.
- iii) Classify following as electrophile & nucleophile.
 a) BF₃ b) OH⁻
- iv) What is mean by racemic mixture?
- v) What is mean by inversion and retention configuration?
- vi) Draw Newmann projection formula of ethane (eclipsed and staggard form).
- vii) Write Wurtz reaction?
- viii) What is peroxide effect?
- ix) Define cracking.
- x) Write the product of
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c1ccc(cc1)[N+](=O)[O-]
 $\xrightarrow[\text{con. HNO}_3]{\text{con. H}_2\text{SO}_4}$?
- xi) Identify activating & deactivating group from following.
 –NO₂, NH₂
- xii) How will you prepare benzene from benzene sulphonic acid?
