

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

P. Pages : 2

Time : Three Hours



GUG/S/23/11545

Max. Marks : 50

- Notes : 1. All questions are compulsory and carry equal marks.
2. Write chemical reaction and draw diagram wherever necessary.

1. a) Explain generation, stability and reactions of carbocation ? 5
b) Explain : 5
i) Inductive effect ii) Electromeric effect
- OR**
- c) Write about electrophiles and nucleophiles. 2½
d) Write short note on Pk value. 2½
e) Explain elimination reaction with examples. 2½
f) Explain the formation of ethane molecule. 2½
2. a) What is conformation ? Explain conformation of n-Butane? 5
b) Define Isomerism and give their classification. 5
- OR**
- c) Explain the term : 2½
i) Enantiomerism ii) Racemisation
d) Discuss CIP rules with suitable examples. 2½
e) Write a note on 'E' and 'Z' nomenclature ? 2½
f) Describe optical isomers of lactic acid ? 2½
3. a) What are cycloalkane ? Give methods of preparation of cycloalkane by – 5
i) Freund's reaction ii) Dieckmann reaction
b) Write note on : 5
i) Wurtz reaction ii) Anti-Peroxide effect
- OR**
- c) Explain Baeyer's strain theory. 2½
d) Define : 2½
i) Octane number ii) LPG
e) Explain Markownikoff's rule with example. 2½

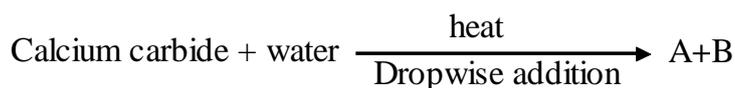
- f) What are Dienes ? Give its classification. 2½
4. a) Explain the molecular orbital diagram of benzene and draw the structure. 5
- b) Explain orientation. Describe the directive influence of -CH₃ group on electrophilic aromatic substitution reaction. 5

OR

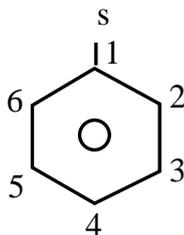
- c) Explain Huckels rule of aromaticity. 2½
- d) Explain directive influence of -OH gp on electrophilic aromatic substitution reaction ? 2½
- e) Discuss the mechanism of chlorination of benzene. 2½
- f) Write a note on 'Friedel-craft alkylation'. 2½

5. Attempt **any ten**. 10

- i) Define bond length
- ii) Define substitution reaction
- iii) Define free radical ?
- iv) Define chirality
- v) Define specific rotation
- vi) Write Fischer projection formula for ethane.
- vii) State Saytzeff rule.
- viii) Complete following synthesis of acetylene & write in formula –



- ix) Define cracking.
- x) Identify ortho, meta & para position with respect to first substituent.



- xi) Give preparation of Benzene from phenol.
- xii) Identify activating & deactivating group from following.

