

Roll No.

Total Pages : 3

GSE/M-22

1481

ORGANIC CHEMISTRY

Paper-CH-106

Time : Three Hours]

[Maximum Marks : 32

Note : Attempt *five* questions in all. Question No. 1 is compulsory. Select *two* questions from each Section.

Compulsory Question

1. (a) Give IUPAC names of the following compounds :



- (b) Out of *cis* 2-Butene and *trans* 2-Butene, which has higher boiling point, and why?
- (c) Give the name and structure of electrophiles generated in Nitration and Friedel Craft Alkylation reactions in aromatic electrophilic substitution.
- (d) Give the preparation of Ethyl bromide by Hunsdiecker reaction. (2×4=8)

SECTION-A

2. (a) Explain Saytzeff rule with the help of dehydrohalogenation of 2-Bromobutane with alc. KOH.

- (b) Explain in detail the rearrangement process occurring during the addition of HBr to 3-Methylbut-1-ene. (3,3)

3. (a) Write the reaction and mechanism of dehydration of 2-Butanol with conc. H₂SO₄ to give alkene.
- (b) Discuss the reaction and mechanism of oxidation of 2-Methylbut-2-ene with perbenzoic acid. Also give the ring opening reaction of the resulting epoxide in basic medium. (3,3)

4. (a) Explain *o*, *p*-directing and activating nature of -NH₂ group.
- (b) What is meant by Aromaticity? State Hückel Rule and explain with suitable examples. (3,3)

5. (a) What are Annulenes? Give *one* example each of an aromatic, antiaromatic and non-aromatic annulene.
- (b) Give the reaction and mechanism of Sulphonation of benzene. (3,3)

SECTION-B

6. (a) What are Dienes? Give their classification with *one* example each.
- (b) Explain the acidic nature of terminal alkynes. (3,3)
7. (a) Explain the addition of HBr to 1,3-Butadiene along with mechanism.
- (b) Write the reaction and mechanism of Birch reduction of 2-Butyne with Na-Liq.NH₃. (3,3)

8. (a) Give Addition-Elimination mechanism of Nucleophilic Aromatic Substitution in Aryl halides.

(b) Convert CH_3Br into (i) CH_3NH_2 (ii) CH_3CN
(iii) CH_3OCH_3 . (3,3)

9. (a) Discuss the mechanism and stereochemistry of $\text{S}_{\text{N}}1$ reactions.

(b) Discuss the factors affecting $\text{S}_{\text{N}}2$ reactions. (3,3)

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