Roll No. .....

Total Pages : 3

GSE/M-22

1481

ORGANIC CHEMISTRY

Paper–CH-106

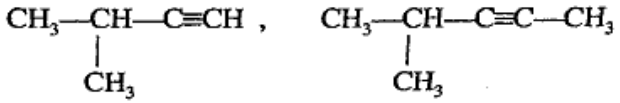
Time : Three Hours]

[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 Hünsdiecker 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. H_2SO_4 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 $-NH_2$ 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.NH_3. (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 $S_{N}1$ reactions.

(b) Discuss the factors affecting $S_{N}2$ reactions. (3,3)
