

**GSE/M-20****1483****CHEMISTRY**

(Organic Chemistry)

Paper-VI (CH-106)

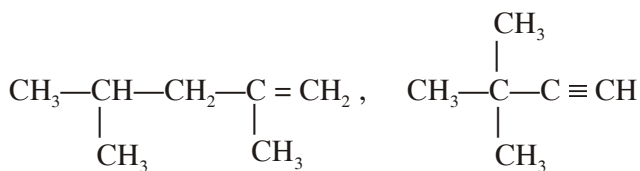
Time : Three Hours]

[Maximum Marks : 32

**Note :** Attempt *five* questions in all, selecting *two* questions from each section. Question no. 1 is compulsory.

**Compulsory Question**

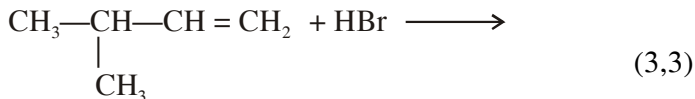
1. (a) Give IUPAC names of following compounds



- (b) Out of cis 2-Butene and trans 2-Butene, which has higher melting point and why?
- (c) Give the name and structure of electrophiles generated in Nitration and Friedel Craft Acylation reactions in aromatic electrophilic substitution.
- (d) How will you prepare Fluorobenzene from benzenediazonium chloride? Write the name of the reaction also. (2×4)

## SECTION-A

2. (a) Explain Saytzeff rule with the help of dehydrohalogenation of 2-Bromobutane.  
(b) Complete the reaction with mechanism :



3. (a) Dehydration of 1-Butanol and 2-Butanol give same mixture of alkenes. Explain.  
(b) Discuss the mechanism of Oxymercuration-reduction of alkenes. (3,3)
4. (a) What is meant by Aromaticity? State Huckel Rule. Illustrate with suitable examples.  
(b) Give the reaction and mechanism of Halogenation of benzene. (3,3)
5. (a) What are Annulenes? Give *one* example each of an aromatic, antiaromatic and non-aromatic annulene.  
(b) Explain m-directing and deactivating nature of  $-\text{NO}_2$  group. (3,3)

## SECTION-B

6. (a) Explain the mechanism and regioselectivity of Diel's Alder reaction.  
(b) How will you distinguish between 1,3-Butadiene and 1-Butyne ? (3,3)

7. (a) Explain why 1,3-Butadiene undergoes both 1,2- and 1,4-addition reaction (by taking the example of addition of HBr).
- (b) Convert Ethyne into (i) Acetaldehyde (ii) Methyl vinyl ether (iii) 1-Butyne. (3,3)
8. (a) Discuss the mechanism and stereochemistry of  $S_N^1$  reactions.
- (b) Discuss the factors affecting  $S_N^2$  reactions. (3,3)
9. (a) Give Benzyne mechanism of Nucleophilic Aromatic Substitution in Aryl halides.
- (b) Out of alkyl halides and aryl halides, which is more reactive towards nucleophilic substitution reactions and why? (3,3)
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