

This question paper contains 4 printed pages]

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S. No. of Question Paper : 1562

Unique Paper Code : 2172541102

Name of the Paper : DSC-B1 (Fundamentals of Organic Chemistry,
Stereochemistry and Hydrocarbons)

Name of the Course : B.Sc. (Prog.) (Analytical Chemistry)

Semester : I

Duration : 2 Hours

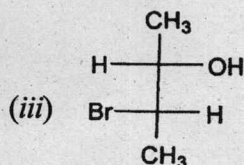
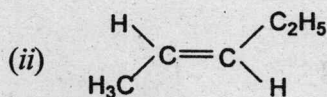
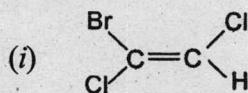
Maximum Marks : 60

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt four questions in all.

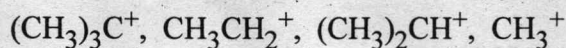
All questions carry equal marks.

1. (a) Differentiate between enantiomers and diastereomers with example.
- (b) Draw the chair and boat conformations of cyclohexane and comment on their stability.
- (c) Assign the priority and designate E/Z or R/S to the following :



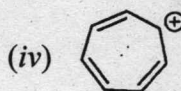
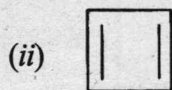
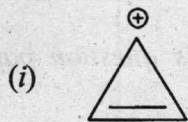
P.T.O.

- (d) Arrange the following carbocations in the decreasing order of their stability and give reason :



3,4,4,4

2. (a) What happens when propene reacts with $\text{H} \cdots \text{Br}$ in presence of peroxide ? Give suitable mechanism.
- (b) Give mechanism for addition of bromine to cis-2-butene.
- (c) Identify aromatic, anti-aromatic and non-aromatic compounds among the following and give reasons for your answer :

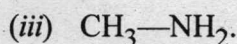
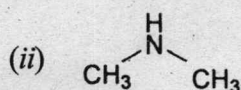
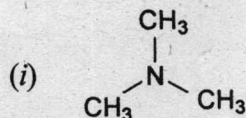


3,4,8

3. (a) What is Saytzeff's rule ? Explain with example.
- (b) Giving example, write short notes on the following :
- (i) Hyperconjugation
- (ii) Erythro and Threo stereoisomers
- (iii) Geometrical isomerism.

3,4,4,4

4. (a) Compare the reactivity of alkene and alkynes towards electrophilic addition reactions.
- (b) Arrange the following amines in the decreasing order of their basicity in aqueous solution and give reason :

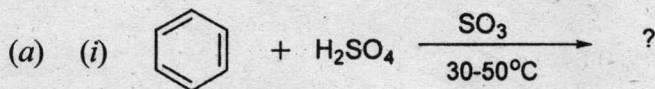


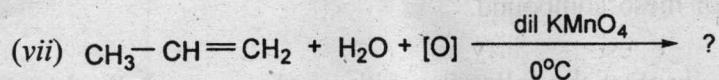
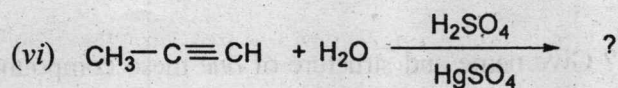
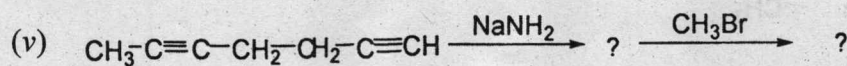
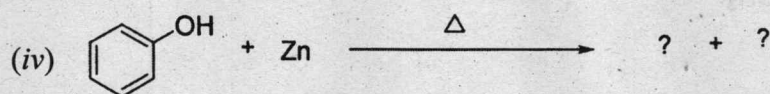
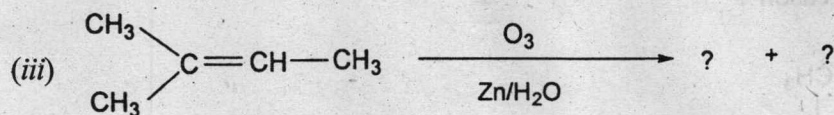
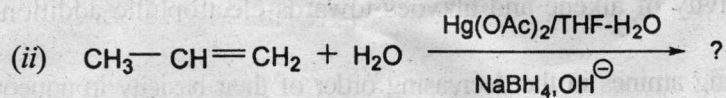
- (c) What are meso compounds ? Give name and structure of *one* meso compound. Discuss the optical activity of meso compound. 5,5,5

5. Write short notes on any *three* of the following with emphasis on (i) Product formed (ii) reaction condition (iii) mechanism : 5,5,5

- (a) Birch reduction
- (b) Friedel-Craft's acylation
- (c) Wurtz reaction
- (d) Nitration of benzene.

6. Complete the following reactions and identify the product :





- (b) Explain why the peroxide effect is observed only in the addition of H---Br and not for H---Cl and H---I ?

10×1,5