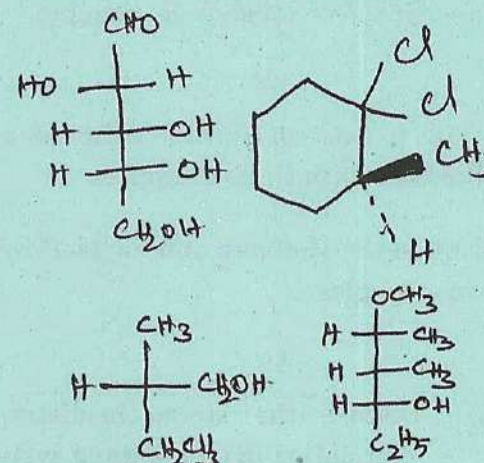## MCH11 — ORGANIC CHEMISTRY - I

Time : Three hours   Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Designate the chiral centres of the following molecules with 'R-S' notation.

Or

   (b) Give Newmann and Sawharse projections for meso-tartaric acid and explain..

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9. (a) Explain the following elimination reactions :

   (i)   Dehydrohalogenation

   (ii) Dehalogenation.

   (b) Explain the E1 mechanism.

10. (a) Describe in detail the S_N1 and S_NAr mechanisms.

   (b) Give any two methods which can generate the benzene intermediate.

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2. (a) How the conformation influences the esterification and hydrolysis in cyclohenane carboxylic acid derivatives?

Or

(b) Explain in detail the reduction of cyclohexanone in terms of conformation and reactions.

3. (a) Explain the following :

(i) S_{Ni} mechanism

(ii) S_{Ei} mechanism with example.

Or

(b) Write a note on stark – examine reaction. Illustrate with three examples.

4. (a) Explain the Hoffman and Saytzeff rules with two examples.

Or

(b) (i) Discuss the stereo-chemistry of E2 elimination in cyclohexane systems.

(ii) Explain the chugaev and cope eliminations.

5. (a) Explain the electrophilic substitution reaction using the examples nitration, sulphonation and halogenation.

Or

(b) Explain the following :

(i) Benzyne mechanisms

(ii) Ziegler alkylation.

SECTION B — $(3 \times 15 = 45 \text{ marks})$

Answer any THREE questions.

6. (a) Explain the Cram's rule with a suitable example.

(b) Explain the term molecular dissymmetry.

(c) Draw and assign E and Z notation to the geometrical isomers of $1 - 10 \text{ do} - 1 - \text{bulene}$.

7. Draw the chair conformations of cis and trans $1, 2 -; 1, 3 -$ and $1, 4 -$ dimethycyclohexanes. Which is more stable and why?

8. Discuss the mechanism and stereochemistry of $S_E 1$ and $S_E 2$ reactions.