No. of Printed Pages : **2**

21CHE2C6L

M.Sc. II Semester Degree Examination, Sept./Oct. - 2024

CHEMISTRY

DSE 6 : Reaction Mechanism in Organic Synthesis and Pericyclic Reactions

(NEP)

Time : 3 Hours Maximum Marks : 70

Note : *Answer **any five** of the following questions with question No. **1 (Q1)** is **compulsory**, each question carries **equal** marks.*

Answer **any five** of the following questions : **5x14=70**

1. (a) Explain the free radical substitution mechanism at an aromatic substrate.
(b) Describe the mechanism of S_E1 and S_E2 reactions. **5+5+4**
(c) Give an account on Hammond's postulate.

2. (a) Write a note on (i) Curtin-Hammette principle. **5+5+4**
(b) Explain the Sandmeyer and Hundiecker reactions.
(c) Describe the mechanism of E1CB reaction.

3. (a) Write a note on hydroboration and sharpless asymmetric epoxidation. **5+5+4**
(b) Discuss the addition reaction involving electrophiles and nucleophiles.
(c) Differentiate between region-selectivity and chemo-selectivity.

4. (a) Explain addition reaction involving free radicals. **5+5+4**
(b) Discuss the hydrogenation of double and triple bonds in organic compounds.
(c) Account on Michael reaction.

5. (a) Outline the mechanism of Aldol and Claisen condensation reaction. **5+5+4**
(b) Give an account on Woodward and Prevost hydroxylation.
(c) Give the mechanism of Ziegler-Natta catalyst.

P.T.O.

6. (a) Give the structure and synthetic utility of DDQ. **5+5+4**

(b) Describe the hydrolysis of esters and aminds.

(c) Write a note *on Witting* reaction.

7. (a) Describe the M.O. diagram for ethylene and 1,3 butadiene. **5+5+4**

(b) Explain Woodward and Hoffmann correlation diagram.

(c) Differentiate between antrafacial and suprafacial.

8. (a) Account on Claisen and Cope Rearrangements. **5+5+4**

(b) Explain with suitable examples 3,3 and 5,5-sigmatropic rearrangement.

(c) Differentiate between conrotatory and disrotatory system.

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