A–0409

Total Pages : 3 **Roll No. .....**

MSCCH-507

M.SC. (CHEMISTRY) (MSCCH)

(Organic Chemistry-II)

Examination, June 2025

Time : 2:00 Hrs. Max. Marks : 70

Note* :–** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

Long Answer Type Questions 2×19=38

***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Discuss the mechanism of following reactions :

   (a) Wittig reaction

   (b) Stobbe reaction

   (c) Mannich reaction

   (d) Gatterman Koch reaction

2. Give the mechanism of photobromination of 1-bromo-2-methylbutane and indicate the stereochemistry of the reaction, if any.

3. What do you understand by cycloaddition reaction ? Discuss various approaches to exaplain cycloaddition reactions.

4. Explain the following with suitable examples :

   (a) Regeoselectivity

   (b) Hofmann rule

   (c) Cope rearrangement

   (d) E_1cB elimination reaction

5. (a) Discuss the stereochemistry of aliphatic electrophilic substitution reaction with reference to SE_1 and SE_i reaction.

   (b) What is an aliphatic electrophilic substitution reaction. Discuss various types of aliphatic electrophilic substitution ?

Section–B

Short Answer Type Questions 4×8=32

***Note* :–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What is meant by iodolactonisation ? Give mechanism of this reaction.

2. What are dipolar reactions ? Discuss their importance in organic chemistry.

3. What are chelotropic reaction ? Discuss maechanism of chelotropic reaction following FMO approach.

4. What are pericyclic reactions ? Discuss classification of pericyclic reactions.

5. What do you understandand by conrotation and disrotation ? Discuss with example.

6. Write the mechanism of the following name reactions :
   (a) Hunsdiecker reaction
   (b) Sandmeyer reaction

7. Write a short note on :
   (a) Stork Enamine reaction
   (b) Stobbe reactions

8. Give the mechanism of and application of Sharpless asymmetric epoxidation.

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