A-0554

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MSCCH–507

M.Sc. CHEMISTRY (MSCCH)

(Organic Chemistry–II)

2nd Semester Examination, Session December 2024

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. Explain the role of solvent in aliphatic nucleophilic substitution reactions. How the rate of reaction change if solvent is changed from protic to aprotic ?

2. Write a short note of the following reaction.

   (a) Haloform reaction

   (b) Stork- Enamine reaction

   (c) Hell-Volhard-Zelinskii reaction

3. what do you understand by umpolung ? Discuss mechanism of carbonyl group umpolung. Write applications of umpolung.

4. Write notes on the following :

   (a) Saytzeff's orientation

   (b) Regioselectivity

   (c) Hofmann orientation

   (d) Cope rearrangement

5. What do you understand by cycloaddition reaction ? Discuss various approaches to explain cycloaddition reactions.

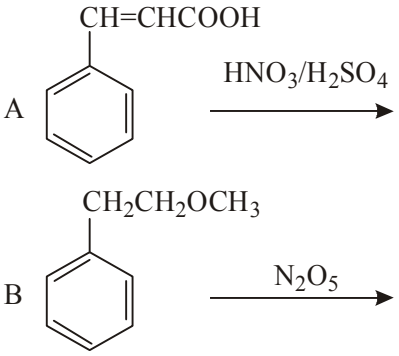
Section–B

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. Explain the effect of substrate in aliphatic nucleophilic substitution reaction.

2. (a) What are the major products in following reactions ?



(b) Write the mechanism of Claisen rearrangement.

3. Explain why aniline is more reactive than acetanilide in electrophilic substitution reaction ?

4. How will you define elimination reaction ? Discuss various types of elimination reactions.

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

6. Give the structures of all the free radical monochlorination products of 1, 2-dichloropropane and indicate them as chiral or achiral.

7. Write short notes on the following :

   (a) Smiles rearrangement

   (b) Ene reaction

   (c) Aza-Cope reaction

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

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