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Reg. No. : .....

Name : .....

Second Semester M.Sc. Degree Examination, November 2023

Chemistry/Analytical Chemistry/Applied Chemistry/Polymer Chemistry

CH 222/CL 222/CA 222/PC 222 : ORGANIC CHEMISTRY II

(Chemistry/Analytical Chemistry/Applied Chemistry : 2016-2019 Admission/Polymer Chemistry : 2018-2019 Admission)

Time : 3 Hours Max. Marks : 75

SECTION – A

Answern **two** among (a), (b) and (c) from each question. Each sub question carries **2** marks.

1. (a) Briefly explain Fischer-Hepp reaction.

   (b) Write the mechanism for Beckmann rearrangement.

   (c) Describe Lossen rearrangement.

2. (a) What is F-strain? Explain.

   (b) What is ortho effect? Explain.

   (c) State Curtin-Hammett principle.

3. (a) Draw the structure of *cis*- and *trans*-β ocimene.

   (b) Explain any one identification tests for flavonoids.

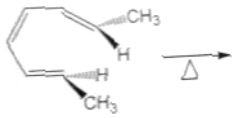
   (c) What is Emde degradation of alkaloids.

P.T.O.

4. (a) Define 1, 3-dipolar cycloaddition.

(b) Is [10] annulene aromatic? Justify your answer.

(c) Complete the following reaction



5. (a) Explain fluorescence.

(b) What is photo Fries rearrangement?

(c) Distinguish between singlet and triplet states in photochemistry.

(10 × 2 = 20 Marks)

SECTION – B

Answer either (a) or (b) from each question. **Each** sub question carries **5** marks.

6. (a) Explain the stereo aspects of Cope rearrangement.

(b) Write a brief note on Diels-Alder reaction and its synthetic applications.

7. (a) Discuss about salt effect in SN reactions.

(b) What are Hammett parameters? Explain their significance in the study of organic reactions.

8. (a) Write a note on biosynthesis of terpenes front mevalonic acid.

(b) Explain the steps involved in the chemical conversion of cholesterol to testosterone.

9. (a) Discuss the mechanism with evidence of Wittig reaction.

   (b) Discuss the mechanism and applications of dienone-phenol rearrangement.

10. (a) Discuss the photochemistry of vitamin D.

    (b) Explain Barton reaction and show that it is an example of a photochemical remote functionalization.

(5 × 5 = 25 Marks)

SECTION – C

Answer **any three** questions. **Each** question carries **10** marks.

11. Discuss about the various methods of determining reaction mechanisms.

12. Discuss the structure elucidation of atropine.

13. Derive the selection rules for cycloaddition reactions using correlation diagram method.

14. Give a detailed account on the photoreactions of carbonyl compounds.

15. Explain the mechanism of :

    (a) Orton rearrangement

    (b) Hofmann-Martius rearrangement

    (c) Sommelet-Hauser rearrangement

    (d) Pinacol-pinacolone rearrangement.

(3 × 10 = 30 Marks)

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