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**Reg. No. : .....**

**Name : .....**

**Second Semester M.Sc. Degree Examination, September 2024**

**Chemistry/Analytical Chemistry/Polymer Chemistry/Chemistry with Specialisation in Drug Design and Development**

**CH 222/CL 222/PC 222/CHDD 522 – ORGANIC CHEMISTRY II**

**(2020 Admission Onwards)**

Time : 3 Hours Max. Marks : 75

SECTION – A

Answer any two sub-questions among (a) , (b), or (c) from each questions.
Each sub-question carries **2** marks.

1. (a) What type of solvents are generally employed in chromatography?

   (b) What is ultracentrifugation process?

   (c) What is the difference between adsorption and partition chromatography?

2. (a) What is the Curtin-Hammett principle?

   (b) What is secondary kinetic isotope effect?

   (c) What is microscopic reversibility in organic chemistry?

3. (a) Discuss the mechanism of Curtius rearrangement.

   (b) Describe Benzilic acid rearrangement and its mechanism.

   (c) What is Wolf Rearrangement?

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4. (a) Distinguish between aromaticity and anti-aromaticity.

(b) What is Retro – Diels – Alder reaction?

(c) Discuss the FMO theory of sigmatropic rearrangement.

5. (a) What is oxa-di- $\pi$ – methane rearrangement?

(b) Discuss the main methods of generation of singlet oxygen.

(c) What is chemiluminascence?

**(10 × 2 = 20 Marks)**

SECTION – B

Answer either (a) or (b) of each questions. Each question carries **5** marks.

6. (a) What is centrifugal TLC? What is its principle? Discuss its applications.

(b) What is Gel electrophoresis? What are its applications?

7. (a) Discuss the kinetic control of an organic reaction.

(b) What are phase transfer catalysts? What are their applications?

8. (a) Discuss the mechanism of the following reaction.


(b) What is Bamberger rearrangement? Discuss its mechanism.

9. (a) What is Huisgen reaction? Discuss its mechanism.

(b) Discuss the effect of aromaticity on chemical properties of organicmolecules.

10. (a) Discuss the reactions involved in photosynthesis.

(b) Explain the applications of photochemistry.

**(5 × 5 = 25 Marks)**

## SECTION – C

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

11. (a) Explain the principle of GC-MS. Discuss its applications.

    (b) Explain the Craig's technique of liquid-liquid extraction.

12. Explain the various methods used for the determination of mechanism of an organic reaction.

13. (a) Explain the various types of organic rearrangements.

    (b) What is Von Richter rearrangement? Discuss its mechanism.

14. (a) Explain the aromaticity of annulenes.

    (b) What is Diels – Alder reaction? Discuss its stereochemistry and applications.

15. (a) Explain the mechanism of Hofmann - Löffler - Freytag reaction.

    (b) Explain the photochemistry of vision.

**(3 × 10 = 30 Marks)**

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