

Reg. No. :

Name :

Second Semester M.Sc. Degree Examination, September 2022

Chemistry/Analytical Chemistry/Polymer Chemistry

CH/CL/PC 222 — 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 question. Each sub-question carries **2** marks.

1. (a) Discuss the applications of chromatographic techniques.
(b) Discuss the characteristics of the developing agents used in chromatography.
(c) Discuss the Crag's technique of liquid — liquid extraction.
2. (a) How does the ortho effect influence the basicity and acidity of aromatic compounds?
(b) What is Curtin — Hammett principle? What is its significance?
(c) What are the significances of salt effects in SN reactions?
3. (a) What is Stevens' reaction?
(b) What is Fischer—Hepp rearrangement?
(c) Discuss the mechanism of Wolff rearrangement.

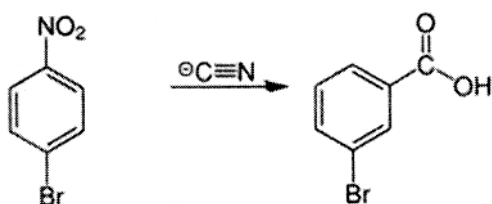
4. (a) What is the Huckel theory of cyclo-addition reactions?
(b) Why is aromaticity important?
(c) What is the difference between Cope and Claisen rearrangements?
5. (a) Describe the photochemistry of vision.
(b) What is the difference between sensitization and quenching?
(c) What is the chemistry of chemiluminescence?

(10 × 2 = 20 Marks)

SECTION – B

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

6. (a) Distinguish between adsorption and partition chromatography techniques.
(b) What is Gel electrophoresis? Discuss its applications.
7. (a) Discuss the various methods for the isolation and detection of reaction intermediates.
(b) Distinguish between primary and secondary kinetic isotope effects.
8. (a) Discuss the mechanism of conversion of a hydroxamate ester to an isocyanate
(b) Discuss the mechanism of conversion of:



9. (a) What is Huisgen reaction? Discuss its mechanism.
(b) Discuss the classification of sigmatropic rearrangements.
10. (a) Discuss the mechanisms of Norrish Type I and Type II reactions.
(b) Discuss the applications of photochemistry.

(5 × 5 = 25 Marks)

SECTION – C

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

11. Explain the principle, instrumentation and applications of GC-MS.
12. Explain the Hammett equation. What are its applications? What is mean by abnormal Hammett plot?
13. Explain the mechanism, variations and applications of Hoffmann rearrangement.
14. Explain the Diels — Alder reaction, its stereochemistry and applications?
15. Explain the mechanisms of Patterno-Buchi and Barton reactions.

(3 × 10 = 30 Marks)
