



DCCH301

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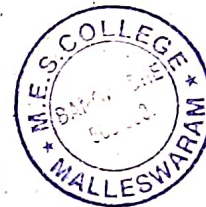
III Semester B.Sc. Degree Examination, April - 2023

CHEMISTRY

Chemistry Analytical and Organic Chemistry - II

Paper : DSC - III

(NEP CBCS Scheme 2022-23)



Time : 2½ Hours

Maximum Marks : 60

Instructions to Candidates:

- 1) Question paper has three parts. Answer all the parts.
- 2) Write chemical equations and diagrams wherever necessary.

PART - A

Answer any FIVE of the following questions. Each question carries Two marks.

(5×2=10)

1. Mention any two criteria for selection of stationary phase.
2. Mention any two applications of Turbidimetry.
3. Explain Aldol condensation with an example.
4. Write the cis and trans isomers of 1, 2 dimethyl ethene.
5. What are cross over experiments?
6. Write the R and S configuration of Glyceraldehyde.

PART - B

Answer any FOUR of the following questions. Each question carries Five marks.

(4×5=20)

7. a) Discuss the instrumentation of Nephelometry.
b) What is detection limit? (3+2)
8. a) Discuss the procedure involved in colorimetric estimation of Iron using Ammoniumthiocyanate.
b) Mention any two factors responsible for scattering of Incident light during Nephelometry. (3+2)
9. a) Discuss the classification of chromatographic methods based on principle of separation.
b) Give the relationship between percentage extraction and volume fraction. (3+2)

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10. a) Explain the mechanism of parkin condensation.
b) Between tertiary and primary alkyl carbocation, which is more stable and why. (3+2)
11. a) Give any three properties of Enantiomers.
b) Write syn and anti isomers in oximes. (3+2)
12. a) What is a Racemic mixture? How is it formed?
b) What is specific rotation? (3+2)

PART - C

Answer any THREE of the following questions. Each question carries Ten marks.

(3×10=30)

13. a) What are carbanions? Give any two methods of generating carbanions.
b) What are singlet carbenes? Give the reaction of singlet carbene with ethene.
c) Explain Diels-Alder reaction with an example. (5+3+2)
14. a) What is resolution of a Racemic mixture? Explain the resolution of racemic mixture of Tartaric acid by biochemical method.
b) How configuration of geometric isomers are determined based on dipole moment values.
c) What are meso compounds? Give an example. (5+3+2)
15. a) What is the principle of thin layer chromatography? How TLC plates are prepared?
b) Explain the continuous extraction method of solvent extraction.
c) Write Van-Deemter equation and mention the terms. (5+3+2)
16. a) Explain the general procedure for colorimetric determinations.
b) The transmittance of a solution whose concentration is 0.05M is 20% at 520 nm. The path length of the solution is 3.5cm. Calculate the molar absorption coefficient of the substance.
c) What is detection limit of an analytical method. (5+3+2)
17. a) Write the principle of column chromatography. Explain the factors affecting column efficiency and mention any two applications.
b) Explain E and Z configuration with a suitable example. (6+4)
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