



B.M.S COLLEGE FOR WOMEN

BENGALURU – 560004

III SEMESTER END EXAMINATION – JAN/FEB - 2024

B.Sc. - ANALYTICAL AND ORGANIC CHEMISTRY
(NEP Scheme 2021-22 onwards F+R)

Course Code: CHE3DSC03

Duration: 2½ Hours

QP Code: 3014

Max. Marks: 60

*Instructions: 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. (5x2=10)

1. Explain the principle of Turbidimetry.
2. List the application of solvent extraction.
3. Predict among singlet and triplet carbene which is more stable and why?
4. Write the R and S configuration of Lactic acid.
5. Mention any two limitations of Beer-Lambert's law.
6. What is the principle of ion-exchange chromatography?
7. Investigate the effect of a catalyst on reaction mechanism?

PART–B

Answer any Four of the following questions. Each question carries Five marks. (4x5=20)

8. Explain the estimation of Titanium by colorimetric method. (5)
9. Explain the extraction of copper by solvent extraction using diethyl dithio carbamide. (5)
10. a. Discuss the mechanism of Claisen Schmidt Condensation reaction with a suitable example.
b. How would you generate a nitrene? (3+2)
11. a. Explain the biochemical method of resolution of a racemic mixture with an example.
b. Write E and Z configuration of 1,2 dichloroethene. (3+2)
12. a. How would you explain the isotopic labelling method in determining reaction mechanism? (3+2)
b. Explain the terms (i) Standard addition (ii) Sensitivity
13. a. Explain with an example the identification of spots of colourless compound by chemical method.
b. Meso-tartaric acid is optically inactive. Justify. (3+2)

PART-C

Answer any Three of the following questions. Each question carries Ten marks. (3x10=30)

14. a. Discuss the instrumentation of Single beam Spectrophotometer.
b. What is Calibration graph? Why does the straight-line pass through the origin?
c. A sample produces an absorbance of 0.372. The path length is 1cm and the concentration is 2M. What is the molar absorption coefficient? (4+3+3)
15. a. Explain the factors affecting column efficiency
b. What is a cation exchanger? Give an example
c. Categorize types of paper chromatography techniques. (4+3+2)
16. a. Explain the stability of Carbocations based on hyperconjugation.
b. Briefly explain the isotopic labelling method in determining reaction mechanism.
c. Discuss the mechanism of conversion of benzene diazonium chloride to bromobenzene. (4+3+3)
17. a. What are erythro and threo isomers? Give an example.
b. Draw any four Newman projections possible for butane (4+4+2)
c. Mention the necessary conditions for the compounds to exhibit geometrical isomerism,
18. a. Explain the mechanism involved in the conversion of benzaldehyde to cinnamic acid.
b. Elaborate the process of obtaining soft water.
c. What are diastereomers? Give an example. (4+3+3)
