

B.Sc. (CBCS) Chemistry III Year V Semester Question Ban

Subject : Instrumental Method Of Analysis

UNIT-I : CHROMATOGRAPHY – I

1. Define the term 'Distribution law'.
2. State and explain Nernst distribution law. How is it modified when solute undergoes association and dissociation.
3. Write a note on solvent extraction and explain the methods involve in the extraction.
4. Explain counter current extraction.
5. Give any one application of solvent extraction.

[Or]

Determine the amount of Iron by using solvent extraction method.

6. What is the principle involved in paper chromatography.
7. Describe the principle of chromatography and also explain the classification of chromatographic methods.
8. Define the term adsorption.
9. Explain the classification of adsorbents and the solvents employed in it.
10. Name the types of paper chromatography and give a detailed description of ascending and descending chromatography.
11. Write a note on paper chromatography.
12. Write notes on :
 - A. Solvents used in chromatography
 - B. Radial paper chromatography.
13. Describe some of the important Application of paper chromatography.
14. What do you understand by the term "Retention factor" and write the factors on which R_f value depends.
15. Explain in detail about Thin layer chromatography.
16. Write one application of Thin layer chromatography.
17. How will you proceed to develop a chromatogram in adsorption chromatography.
18. What do you understand by the term partition coefficient.

UNIT- II : CHROMATOGRAPHY- II

1. Give a detailed account of Ion Exchange Chromatography and its applications in the Separation of ions.
2. Explain in detail about Column Chromatography.
3. Write three applications of Ion Exchange Chromatography.

4. Write a note on Gas Liquid Chromatography. www.FirstRanker.com
5. What is the principle involved in Column Chromatography.
6. Draw the bloc diagram of Instrumentation in Gas chromatography. Write about the stationary phase and Mobile phase in Gas chromatography.
7. What is meant by the term Retention factor. How does it help in identification of component in a given mixture.
8. Give a brief account of theory and instrumentation in case of high performance liquid chromatography.
9. Write the Analysis of paracetamol.
10. Describe some of the application of column chromatography.

UNIT – III : COLORIMETRY & SPECTROPHOTOMETRY

1. Define the term colorimeter.
2. Define electromagnetic spectrum. Explain the terms Emission spectrum & Absorption spectrum.
3. Define and explain the following terms
 - A. Absorbance
 - B. Transmittance.
4. Define molar absorptivity.
5. Derive Beer Lambert's Law .what are the limitations of this law.
6. Give a brief account on double beam photometer.
7. Explain the various components employed in UV & Visible spectrophotometers.
8. How will you proceed to determine Manganese in the given solution of MnO_4^- calorimetrically.
9. How will you proceed to determine chromium in $2\text{Cr}_2\text{O}_7$.
10. **A.** Write the principles involved in IR spectroscopy. Explain the sources of radiation in IR.
11. Draw a bloc diagram of FT- IR Spectrophotometer.
12. Explain how will you estimate Iron by Thiosulphate method.
13. Explain clearly how will you estimate Chromium & Manganese in steel.
14. Give a brief description of sampling techniques in IR.
15. Define the terms :
 - A. Wavelength
 - B. Frequency
 - C. Wave number.
16. Give the differences between Colorimeter and Spectrophotometers.

UNIT – IV: ELECTRO ANALYTICAL METHODS

1. Define the term " potentiometry".
2. What are electro chemical cells.
3. What are Reversible Electrodes? Describe giving examples.
4. Briefly describe the calomel electrode.

5. Define standard electrode potential. How is it measured.
6. What do you now about a reversible electrode? What types of reversible electrodes are commonly nown?
7. Briefly describe the Quinhydroneelectrode.
8. Explain the terms
 - A. Cell constant
 - B. Specific conductance
 - C. Equivalent conductance.
9. Explain about conductivity cell.
10. Define conductance and describe briefly the application of conductance measurements.
11. Give a detailed description of voltammetry.
12. Give a brief description of Three electrode Assembly.
13. Write a note on micro electrodes.
14. What do you now about the term over voltage? Write the factors which determines over voltage.
15. Give a brief account on polarization.
16. How will you estimate Cl ions (in Cl) by the use of silver nitrate.
17. Determine the strength of given sample of Aspirin using OH.
18. Write a note on Assay of sulphanilamide.

[Or]

Give an application of potentiometry.