



Date: 01-11-2018

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

Part A

Answer all the questions.

10 x 2 = 20 marks

1. Define the terms accuracy and precision in error analysis.
2. Mention any four methods used to minimize error in analysis.
3. What are hypo and hyper chromic shift in UV –Visible spectroscopy?
4. How does inter and intra molecular hydrogen bonding affects NMR spectroscopy?
5. Define Rf value. Mention any two factors affecting it.
6. Write the principle of adsorption and partition chromatography.
7. Give any four important applications of Nano filtration in food industries.
8. What is meant by iso-electric point?
9. What are basic buffer solutions? Give an example.
10. Mention any two advantages and disadvantages of gel filtration technique.

Part B

Answer any eight questions.

8 x 5 = 40 marks

11. What is meant by indeterminate error? Describe the importance of normal error curve.
12. Write a note on various types of co-precipitation in gravimetric analysis.
13. Describe the various types of electronic transitions in electronic spectroscopy.
14. Write the principle of ultra-filtration technique and explain its application in dairy industries.
15. Discuss in detail the nature of adsorbents and solvents used in column chromatography.
16. Describe the principle and procedure involved in thin layer chromatography.
17. Write a note on important characteristics of gels used in gel filtration chromatography.
18. Describe the principle, advantages and application of isoelectric focusing technique.
19. How will you estimate the strength of acid content in various food samples using conductometric titration?
20. What are acidic buffer solutions? Describe its buffer action mechanism with an example.
21. Define the terms normality and molarity. How will you prepare 0.25 N NaOH and 0.05 N Oxalic acid in 250 ml standard flask?
22. Explain any two factors affecting chemical shift in NMR spectroscopy.

Part C

Answer any four questions.

4 x 10 = 40 marks

23. a) Calculate average deviation, standard deviation and coefficient of variance for the following data: 35.21, 33.75, 34.24, 33.56 and 34.64.
b) Describe the types of determinate error with an example for each type.
24. a) Describe various types of vibrational transitions in IR spectroscopy.
b) How will you calculate vibrational frequency using Hooke's law?
25. a) State the following i) Beer-Lambert's law ii) Rayleigh scattering.
b) Describe the influence of shielding and deshielding in NMR spectroscopy.
26. Discuss the principle, instrumentation and any two applications of HPLC technique.
27. Write a note on principle, types and various applications of ultra-centrifugation technique.
28. a) What are ion-exchange resins? How are they classified?
b) Draw and explain the important characteristics of electromagnetic spectrum.
