



Date: 30-10-2018

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

Part A

Answer all the questions.

10 x 2 = 20 marks

1. State Beer-Lambert law.
2. Write the principle of atomic absorption spectroscopy.
3. What are primary and secondary solutions?
4. State the selection rule for IR spectroscopy.
5. What is meant by coupling constant in NMR spectroscopy?
6. What are Meta stable ions in mass spectroscopy?
7. Write the principle of potentiometric titration.
8. What is meant by linkage isomerism? Give an example.
9. Why TMS is used as a standard in NMR spectroscopy?
10. What are chromophores?

Part B

Answer any eight questions.

8 x 5 = 40 marks

11. Write a note on $\sigma\text{-}\sigma^*$ and $\pi\text{-}\pi^*$ transitions in electronic spectroscopy.
12. How will you determine the amount of riboflavin present in curry leaves using spectrofluorimetric method?
13. What are geometrical isomers? Mention the condition required for a molecule to exhibit the same.
14. Write a note on various types of molecular vibrations in IR spectroscopy.
15. Describe in detail the fragmentation pattern of hydrocarbons in mass spectroscopy.
16. Discuss the importance of molecular ion peak in mass spectroscopy.
17. Explain any two important types of detectors in gas chromatography.
18. List out any five important characteristics of adsorbents used in column chromatography.
19. Write the principle and mention any four applications of super critical fluid chromatographic technique.
20. What are shielding and deshielding effect in NMR spectroscopy.
21. Write a note on bathochromic shift and hypso chromic shift.
22. Explain inter and intra molecular hydrogen bonding with an example.

Part C

Answer any four questions.

4 x 10 = 40 marks

23. Describe in detail the instrumentation of UV-Visible spectroscopy.
24. a) How will you calculate the force constant for vibrations in IR spectroscopy?
b) Describe the importance of finger print region in IR Spectroscopy.
25. a) Write a note on various types of relaxation effect in NMR spectroscopy
b) Discuss the instrumentation of NMR spectroscopy.
26. State nitrogen rule. Describe the importance of isotopic peaks in mass spectroscopy.
27. Write the principle, procedure and application of paper chromatographic technique.
28. Describe in detail the instrumentation and application of HPLC.
