LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **FOOD CHEMISTRY AND FOOD PROCESSING**

FIRST SEMESTER – NOVEMBER 2016

FP 1808 - ANALYTICAL AND INSTRUMENTATION TECHNIQUES

Date: 07-11-2016 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

Part A

Answer all the questions. **(10x2=20) marks**

1. What is buffer action? Give an example.
2. How many grams of solid NaOH are required to prepare 500ml of 0.04M solution? Express the concentration of this solution in terms of N, %W/V.
3. Mention the role of monohromators in UV-Visible spectrophotometers.
4. Differentiate absorption and emission spectra.
5. Compare Paper chromatography with Thin layer chromatography.
6. List the types of detectors used in Gas chromatography.
7. Why TMS is used as a reference standard in NMR spectroscopy?
8. State nitrogen rule with an example.
9. How will you differentiate inter and intra molecular hydrogen bonding using IR spectroscopy?
10. Define Coupling constant.

Part B

Answer any eight questions. **(8x5=40) marks**

11. State Beer Lambert's Law.
12. Explain the working principle of pH meter.
13. Write a note on column chromatography.
14. Describe the working principle of spectroflourimeter.
15. Discuss the significance of molar extinction coefficient.
16. Write a note on thin layer chromatography.
17. Explain the working principle of potentiometric titration.
18. What is called McLafferty rearrangement? Explain with an example.
19. Describe the instrumentation of NMR spectroscopy.
20. How will you differentiate geometrical isomers of organic compounds using IR spectroscopy?
21. Discuss the principle and applications of ^{13}C NMR spectroscopy.
22. Explain the different types of electronic excitations in UV visible spectroscopy.

Part C

Answer any four questions. **(4x 10=40) marks**

23 Explain the principle and instrumentation of Atomic Absorption Spectroscopy.
24. Discuss Gas Chromatography with its applications in food analysis.
25. Write a detailed note on the working principle of UV Visible spectroscopy.
26. Enumerate the role of detectors in HPLC and its application in analyzing food compounds with an example.
27. Describe any two factors affecting chemical shift in NMR spectroscopy.
28. i) Explain the various types of molecular vibrations in IR spectroscopy. **(6)**
    ii) Write a note on molecular ion peak in mass spectroscopy. **(4)**

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