LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – NOVEMBER 2016

16PFP1MC04 - TECHNIQUES IN FOOD ANALYSIS

Date: 09-11-2016 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

Part A

Answer all the questions. **10 x 2 =20 marks**

1. Define chromatography. Give its classification.
2. Write the principle of ion exchange chromatography.
3. Give the preparation of acidic and basic buffers.
4. What is the role of redox reactions in food analysis?
5. Mention the importance of normal error curve in error analysis.
6. A solution is prepared by dissolving 5.64 g of glucose in 60 g of water.Calculate the molality of a solution.
7. State Beer-lamberts law.
8. IR and Raman spectroscopy are complimentary to each other. justify
9. Define chemical shift. Mention any two factors affecting it.
10. Write the principle of gel filteration technique.

Part B

Answer any eight questions. **8 x 5= 40 marks**

11.Explain the instrumentation of HPLC.
12. Discuss the applications of conductivity in food industry.
13. Explain the measurement of Electrode Potential using Cu^{2+}/Cu Electrode.
14. What is the principle of affinity chromatography and explain how proteins are purified.
15. What are absolute and relative errors?
16. Describe the principle and procedure of colorimetric method involved in the estimation of iron.
17. Explain the various modes of vibrational frequencies.
18. Describe the principle and components of inductively coupled plasma spectrometry.
19. Discuss any four important applications of UV-visible spectroscopy.
20. How will you differentiate inter and intra molecular hydrogen bonding using NMR Spectroscopy?
21. What is meant by membrane filtration?Explain its various types.
22. Describe the principle and application of electrophoresis techniques in food analysis.

Part C

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

23. i.Explain the principle of Gas chromatography. **(5)**

    ii) Write a note on Ionisation detectors in Gas Chromatography. **(5)**

24. Discuss in detail about the principle and applications of potentiomerty in food analysis

25. Describe the following

    i) Role of redox reactions in the determination of vitamin C concentration using iodometry **(6)**

    ii) Principle of ultra filtration technique. **(4)**

26. i)Tabulate the differences between accuracy and precision. **(4)**

    ii)Explain any four methods used to minimize error during analysis. **(6)**

27. i) Describe the four different types of electronic transitions possible in UV visible spectroscopy **(6)**

    ii)Mention any five important characteristics of electromagnetic radiations. **(4)**

28. Discuss the principle, types and application of ultra centrifugation technique in the analysis of food.

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