LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2019**

PFP 1504 – TECHNIQUES IN FOOD ANALYSIS

Date: 07-11-2019 Dept. No. Max. : 100 Marks

Time: 01:00-04:00

Part A

Answer ALL the questions. (10 x 3 = 30 marks)

1. What are absolute and relative errors in error analysis?
2. Tabulate the differences between accuracy and precision.
3. What are chromophores and auxochromes?
4. Why is TMS used as a standard reference in NMR spectroscopy?
5. What are cation exchange resins? Give an example.
6. Define R_f value. Mention any four factors affecting R_f value in paper chromatography.
7. List any four applications of HPLC in food analysis.
8. What are stokes lines and anti-stokes lines in Raman spectroscopy?
9. Write the principle of conductometric titration.
10. Mention any four factors affecting electrophoresis technique.

Part B

Answer ALL questions. (5x 8 = 40 marks)

11. What are determinate and indeterminate errors? Mention any three methods used to minimize error in analysis.

(OR)

State volumetric law. What are primary and secondary standard solutions? Mention any four important prerequisites of primary standard solution.

12. Describe in detail the principle and procedure involved in column chromatography.

(OR)

Describe the instrumentation and any four important applications of gas chromatographic technique.

13. Describe the principle, advantages and types of membrane filtration technique.

(OR)

Explain the instrumentation of inductively coupled plasma spectrophotometry.

14. Describe the various types of electronic transitions in UV -Visible spectroscopy.

(OR)

Write a note on following i) Bathochromic shift ii) nitrogen rule iii) deshielding effect

15. How will you determine the amount of ferrous ion present in raggi sample using potentiometric titration method?

(OR)

Discuss any three factors affecting chemical shift in NMR spectroscopy.

Part C

Answer any TWO questions. **(**2 x 15 = 30 marks)

16. a. Calculate the range, median, average deviation, standard deviation and coefficient of variance for the following data. 5.326, 5.383, 5.392, 5.291, 5.312 and 5.285 (8)

    b. Describe the principle and application of complexometric and precipitation titration method .(7)

17. a. Describe the various types of bending vibrations possible in IR spectroscopy.(4)

    b. Explain the importance of finger print region in IR spectroscopy. (4)

    c. Describe the principle and procedure involved in ion-exchange chromatographic technique. (7)

18. a. How will determine the acidity of milk using pH meter? (6)

    b. Write a note on various sampling technique in IR spectroscopy. (8)

19. a. Describe the principle and procedure involved in isotopic dilution analysis. (7)

    b. What are super critical fluids? Mention their important characteristics. (4)

    c. Explain ascending and descending technique in paper chromatography. (4)

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