Avinashilingam Institute for Home Science and Higher Education for Women

(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Master's Degree Examination – June / July 2021
II Semester

Class : I PG **Time : 3 Hours**
Major : Food Service and Nutrition **Max. Marks: 100**

20MFNC10 Analytical Instrumentation for Foods

PART A **10 x 1 = 10**

Choose the Correct Answer

1. Beer Lambert law gives the relation between --------- CO1K1
   a. Reflected radiation and concentration
   b. Scattered radiation and concentration
   c. Energy absorption and concentration
   d. Energy absorption and reflected radiation

2. Atomic absorption spectroscopy is used for the analysis of---------- CO1K1
   a. Metals b. simple mixtures c. sugars d. complex mixtures

3. Chromatography is the physical method that is used to separate and analyse----- CO2K2
   a. Simple mixtures b. complex mixtures c. viscous mixtures d. free fatty acids

4. Gas – solid is being used for the separation of---------- CO2K3
   a. Thermally stable organic components
   b. Volatile organic components
   c. Thermally stable inorganic components
   d. Low molecular weight gaseous species

5. The emission of light by a substance that has absorbed light in the form of luminescence is known as------- CO3K2
   a. Fluorescence b. phosphorescence
   c. photochemical reaction d. absorbance

6. In which technique separates charged particles using electric field? CO3K1
   a. Chromatography b. mass spectrometry c. electrophoresis d. fluorimetry

7. In which is a fluorescent substance in liquid scintillation counter? CO4K2
   a. Solvent b. solute c. crystal d. reagent

8. Which is radioactive? CO4K4
   a. Hydrogen sulphide b. vimentin c. tritium d. deuterium

9. The property of fluid that describes its internal resistance is known as------- CO5K2
   a. Viscosity b. friction c. resistance d. internal energy

10. Differential scanning calorimetry (DSC) is used to measure ------ CO5K2
    a. Electrical conductivity b. impact energy
    c. thermal expansion d. specific heat

Part B **5 x 6 = 30**

Answer ALL questions
Each answer should not exceed 400 words or two pages

11.a. Describe the principle and applications of UV – VIS spectrophotometer. CO1K3

(or)

11.b. Explain the criteria for selecting a spectrophotometric technique. CO1K3

12.a. Discuss the application of HPLC. CO2K3

(or)

12.b. Describe the instrumentation and sampling techniques of 'Thin layer chromatography'. CO2K3

13.a. Outline the theory of fluorescence. CO3K3

(or)

13.b. Explain the application of fluorescence in food systems. CO3K3

14.a. Discuss the uses and applications of gas scintillation. CO4K3

(or)

14.b. Explain Atomic Force Microscopy (AFM). CO4K4

15.a. How are components of food texture measured? CO5K4

(or)

15.b. Explain the application of FTIR. CO5K4

Part C **5 x 12 = 60**

Answer ALL questions
Each answer should not exceed 800 words or four pages

16.a. Derive Lambert -Beer's law. CO1K4

(or)

16.b. Explain the principle, procedure and applications of atomic absorption spectroscopy. CO1K4

17a. Classify chromatography and compare absorption and partition chromatography. CO2K3

(or)

17.b. Discuss the technique and applications of GC – MS. CO2K4

18.a. Distinguish between paper and agar electrophoresis. CO3K4

(or)

18.b. Explain the instrumentation in flame photometry. CO3K3

19.a. Elaborate the types and applications of radioactive isotopes. CO4K4

(or)

19.b. Compare and Contrast the techniques of SEM and TEM. CO4K4

20.a. Describe the analysis for Rheological properties of food. CO5K4

(or)

20.b. Discuss the principle, instrumentation and application of Differential Scanning calorimetry. CO5K4

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