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2023

5th Sem

B.Tech Food Technology
Semester V Examination, 2023
Paper Title: Techniques in Food Analysis
Paper Code: BFTG – 508
Set-1

Time: 3 Hours

Max Marks 75

Attempt all questions. Marks are mentioned against each question.

Section A

- 1. Specify the correct answer (1 x 15=15 marks)**
- (a) Which of the following botanist used chromatography to separate plant pigments:
(i) Gregor John Mendel (ii) Mikhail Tswett
(iii) Marie Curie (iv) Charles Darwin
- (b) Degree of closeness between a measurement and its true value is
(i) Precision (ii) Accuracy
(iii) Calibration (iv) All the above
- (c) The process of extracting a substance that is adsorbed to another by washing with a solvent
(i) Solvent Extraction (ii) Elution
(iii) Bifurcation (iv) None of these
- (d) Which of the following are visualizing agents used in TLC
(i) Ninhydrin (ii) Sulphuric acid
(iii) Iodine (iv) All the above
- (e) With increasing distance from the axis of rotation, the centrifugal force
(i) increases (ii) decreases
(iii) remains constant (iv) none of these

Fill in the blanks

- (f) _____ is a method for separation and analysis of macromolecules (DNA, RNA and proteins) and their fragments, based on their size and charge.
- (g) _____ is a process of drawing a sample/ a small portion of food which is a representative of a population/lot of a food for testing, analysing, intended to show the nature and quality of the whole specimen.
- (h) _____ is an analytical technique that is used to measure the mass-to-charge ratio of ions.

- (i) Ability of a lens to separate or distinguish small objects that are close together is termed as _____.
- (j) Beams of electrons are used to produce images in _____ microscopy.

State true or false

- (k) Accuracy refers to the degree to which repeated measurements are unchanged.
- (l) Calibration is not a necessary requirement for analytical laboratories.
- (m) Biosensors may be of different kinds: optical, conductometric, electrochemical, piezoelectric etc.
- (n) Mobile phase in chromatography is either a gas and liquid passed through a column.
- (o) RCF stands for rotational centripetal force.

Section B

Answer any three of the following

(10 x 3 = 30 marks)

2. Discuss the principle and applications of affinity chromatography.
3. Sampling is essential in food analysis. Justify the statement. Discuss the types of sampling.
4. Discuss the principle and applications of Scanning Electron Microscopy.
5. How will you separate molecules having different densities? Discuss its different types and applications.
6. Discuss the principle and procedure of ion exchange chromatography.

Section C

Answer any two of the following

(15 x 2 = 30 marks)

7. Explain the principle, instrumentation and applications of Gas chromatography-mass spectrometry (GC-MS).
8. What are biosensors? What are the types of biosensors? Explain the role of biosensors in the food industry.
9. Explain the principle, working and applications of electronic nose and electronic tongue.

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CO Mapping

Set1

	Section A	Section B	Section C
Q1a-c	CO 2,1,2,2,4		
f-j	CO 4,1,2,3,3		
k-o	CO 1,1,4,2,4		
Q2-6		CO 2,1,3,4,2	
Q7-9			CO 2,4,4