



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology) 2020 Admission
V Semester Final Examination – February 2023

Pafe.3126

Instrumental Techniques in Food Analysis (2+1)

Marks: 50

Time: 2 hours

I Fill in the blanks (10x1=10)

1. The most important application of NMR is the study of _____ in organic molecule.
2. Most effective method of detecting adulterated food is _____.
3. Electrophoretic effect are used to separate substance based on their _____ ratio.
4. The temperature range of radiation thermometer is _____ to _____ (in °c).
5. The radiation that is used in NMR spectroscopy is _____.

State True or False

6. The fluorescence is pH dependent.
7. Atomic absorption spectroscopy is not followed by beer's law.
8. It is essential in HPLC that all solvents are degassed before use.
9. A food sample contains ester, aldehyde, ketone and carboxylic group. For the detection of these functional group UV visible spectrometry is used an analytic techniques.
10. Ion- Selective electrode measure only the free ion.

II Write short notes on ANY FIVE of the following (5x2=10)

1. Write about the principles of near infrared absorption technology in food composition analysis.
2. Define immuno assay techniques in food analysis.
3. Write the differences between accuracy and precision.
4. The results of an analysis are found to be 34.89. Compared with the true value of 36.98%. What is the relative error in part thousand?
5. How an FTIR spectrometer works?
6. Define radiation thermometers.
7. Explain Ion- Exchange chromatography.

III Answer ANY FIVE of the following (5x4=20)

1. Sketch and explain the principle of NMR instrument.
2. What are the analytical methods of food analysis? Explain any two.
3. Write the principle and instrumentation of HPLC.
4. Write the differences between adsorption and Gas. Liquid chromatography.
5. Explain the practical aspects of infrared thermometry.
6. Explain chemically sensitive Semiconductor devices with an example.
7. Explain Amperometric and Potentiometric biosensors.

IV Write an essay on ANY ONE of the following (1x10=10)

1. Explain the principle and application of biosensors and chemosensor.
2. Write the uses of Analytical techniques in food industry.
