

Total No. of Questions : 08

M.Tech.(Food Technology) (2018 Batch) (Sem.-1)

ADVANCES IN FOOD ANALYSIS

Subject Code : MTFT-512-18

Paper ID : [75599]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

- Q1 Write about different types of detectors used in spectroscopy. Out of them, which are routine used detectors and reason for their use? (12)
- Q2 a) Write the principles of separation of following in chromatography :
- i) Partition
 - ii) Adsorption
 - iii) Ion exchange
 - iv) Size exclusion
- b) Differentiate between tubular and packed column used in chromatographic analysis. Write advantages of tubular column over packed column. (6 + 6)
- Q3 a) How the GC works? Draw its working diagram. Step wise discuss with example the liquid sample preparation for GC analysis. (2 + 3 + 4)
- b) Write steps of the analysis of flavouring components or pesticides in food samples using GC technique. (3)
- Q4 a) What factors effect on the elution/ separation of compounds in GC/HPLC? (4)
- b) Write the principle of TLC. What are its system components? Write the TLC analysis procedure, advantage and applications. (1 + 2 + 5)

- Q5 What is TEM? How it works? How the results are interpreted using TEM micrograph. Discuss its applications in Food with some examples with respect to result and its interpretation. (2 + 3 + 7)
- Q6 What is thermogravimetric analysis? How a thermogravimetric analyzer works? Draw a generalized DSC graph. What results (useful information) we obtain from thermogravimetric analysis graph? (2 + 4 + 2 + 4)
- Q7 Write few lines about following characteristics (terminologies) encountered during thermal (DSC) analysis of food samples. (1.5-each marks for i-vi and one marks each for rest three)
- a) Glass Transition Temperature
 - b) Crystallization phase temperature
 - c) Melting phase temperature
 - d) heat of fusion
 - e) latent heat of melting
 - f) Reaction energy and temperature,
 - g) precipitation energy and temperature,
 - h) Denaturization temperatures,
 - i) Oxidation induction times
- Q8 a) Explain the technique of electrophoresis. Discuss its application in food with suitable examples.
- b) Write about the technique of western blotting and gel documentation and its purpose. (6+6)