

**Diploma Course (Microbial analysis and Food safety)**  
**First Semester I**  
**MFS-104: Fundamentals of Food Chemistry and Analysis**

**Max. Marks: 40**

**Time allowed: 3 hrs.**

*Note: Attempt five questions in all, including Question no. 1 which is compulsory and selecting one question from each Unit.*

**I. Each question carry equal marks (1)**

- a) Define Saponification Value. How do we calculate it?
- b) List down Direct methods of moisture analysis for food samples?
- c) What are the various steps of Kjeldahl Method?
- d) Enlist important properties of Enzymes?
- e) Name four enzymes used in food processing industry?
- f) Why gelatinization of starch is important in food industry?
- g) What are the major Physicochemical Properties of Fats and oils in food?
- h) Name four enzymes which are involved in food deterioration?

**UNIT-1**

- II)** a) What are the basic steps to perform the sensory analysis and various types of panels used for sensory evaluation of foods? (4)
- b) Explain the Chromatographic techniques widely used in food analysis? (4)
- III)** a) Discuss various biochemical changes occurring in fruits and vegetables & meat and meat product during processing and storage on food quality? (4)
- b) Why do We Need Instrumentation in Food Analysis? List down various Instrumental Techniques in Food Analysis? (4)

## **UNIT-II**

- IV)** a) Define water activity and how do you measure it? Why water activity is importance in food spoilage? (4)
- b) What are the major techniques of moisture content analysisof food samples? (4)
- V)** a) Why protein analysis is important and what is principle behind Dumas Method of protein analysis. Write advantages and disadvantages of this technique? (4)
- b) What are the various Forms of Water in Foods and why moisturecontent analysis is important to the food processor? (4)

## **UNIT-III**

- VI)** Why Carbohydrate analysis is important? Explain Phenol-Sulfuric Acid Method for total carbohydrate analysis? (8)
- VII)** Why analysis of Vitamins is important? Explain HPLC method of vitamin A analysis in milk products? (8)

## **UNIT-IV**

- VIII)** a) Explain the various steps involved in Solvent extraction method in fat analysis? (6)
- b) Why fat analysis is important? (2)
- IX)** a) Explain various physical and chemical properties of oils and fats?(6)
- b) What are preservatives and name various preservatives used in milk preservation (2)