Ref. No. Ex/FTBE/PC/B/T/223/2024

B.E (FTBE) SECOND YEAR, SECOND SEMESTER EXAMINATION 2024

PRINCIPLES OF FOOD PRESERVATION-I **TIME: 3 H** **FULL MARKS = 100**

(50 Marks for each Part)

PART- I (50 MARKS)

Use separate answer script for each Part

Q1. I. Describe the following with the aid of graphs (any 2): **2 × 5 = 10**

a. Heat removal during freezing of foods
b. Nucleation and Crystal growth
c. Water activity scale and Food spoilage

II. Define the following: **5 × 2 = 10**

a. T_g
b. T_E
c. Freeze burn
d. IF_P
e. Fortification

OR

Q1. Differentiate between (any 5): **5 × 4 = 20**

a. Homogenous vs. Heterogeneous nucleation
b. Contraction vs. Expansion during freezing
c. Direct freezing vs. Indirect freezing
d. Quick freezing vs. Slow freezing
e. Thawing curves vs. Freezing curves for a fish slab of 5 mm thickness, considering all other parameters same
f. Enrichment vs. Restoration

Q2. Analyze the following with the aid of diagrams and graphs wherever necessary (any 5): **5 × 6 = 30**

a. Fish freezing needs glazing.
b. Heat transfer, and not mass transfer limits rate of crystallization during freezing.
c. Slow freezing is not recommended for pulpy fruits.
d. Addition of maltodextrin enhances storage temperature of ice cream.
e. Changes in physicochemical properties of unfrozen water during freezing.
b. Thawing curves are flatter than freezing curves.

Ex/FTBE/PC/B/T/223/2024

BE (FTBE) 2 ND YEAR 2 ND SEMESTER EXAMINATION 2024

PRINCIPLES OF FOOD PRESERVATION I

Time: 3hours **Part II** **Full Marks: 100**

(Marks 50) (50 Marks for each Part)

Use separate answer script for each Part

Answer any five questions from the following: 5x10

1.a)Define: equilibrium moisture, critical moisture and bound moisture content of food.

b) Explain about case hardening of food during drying. 6+4

2a).Explain mechanism of drying by convection.

b) What is microwave drying? 6+4

3a) Classify with examples drying methods for fruits and vegetables.

b) A food product contains 25% moisture on wet basis. Calculate the moisture content on dry basis. 7+3

4.a) Explain Osmotic dehydration technique. Give two examples of Osmotic agent.

b) What are the advantages of IMF preservation?

c) Explain the effect of fruit to osmotic solution ratio on osmotic dehydration process. 4+3+3

5. What is meant by preservation of food by canning? What are the functions of filling liquid for canning. Explain microbial spoilage of canned foods. 3+3+4

6.a) Explain the process of foam mat drying.

b) A dry food product has been exposed to a 30% RH environment at 15^0C for 5 hours without a weight change. The moisture content has been measured and it is at 7.5% wet basis. The product is moved to 50% RH environment and a weight increase of 0.1kg/kg product occurs before equilibrium is achieved. Determine the moisture content of the produ on dry basis in both environments. 4+6

7. Write short notes on: (any two)
a) drum drying of fruits b) major mass transfer operation during Osmotic dehydration process. c) fluidized bed drying