

B.E (FTBE) SECOND YEAR, SECOND SEMESTER EXAMINATION 2022

PRINCIPLES OF FOOD PRESERVATION-I

TIME: 3 H

FULL MARKS = 100

PART- I (50 MARKS)

ANSWER Q1 AND ANY ONE FROM THE REST

USE SEPARATE ANSWER SCRIPT FOR EACH PART

Q1. Explain the following (any 5):

5 × 6 = 30

- a. Blanching is ineffective as a pretreatment method when frozen foods are to be stored at -10°C.
- b. Effect of initial concentration on decrease of volume and increase in molality of unfrozen phase in a 5% sucrose solution.
- c. Heat transfer, and not mass transfer limits rate of crystallization during freezing.
- d. Quick freezing is recommended for berries.
- e. The temperature profile of water in frozen foods differs from that of pure water.
- f. Thawing curves are flatter than freezing curves.

Q2. Differentiate between (any 4):

4 × 5 = 20

- a. Homogenous vs. Heterogeneous nucleation
- b. Contraction vs. Expansion during freezing
- c. Direct freezing vs. Indirect freezing
- d. Freezing of Milk vs. Strawberry jam in bottles
- e. Sarcoplasmic vs. Myofibrillar protein damage during freezing

3. What is/are? (any 4):

4 × 5 = 20

- a. Drip loss
- b. Eutectic point of NaCl/water solution during freezing
- c. Freeze burn
- d. Effect of freezing on vitamin C in beverages
- e. Changes in physicochemical properties of unfrozen water during freezing

[Turn over

Ex/FTBE/PC/B/T/223/2022

BE (FTBE) 2 ND YEAR 2 ND SEMESTER EXAMINATION 2022

PRINCIPLES OF FOOD PRESERVATION I

Time: 3hours

Part II (50 Marks)

Full Marks: 100

Answer any five questions from the following: 5x10

- 1.a) Define: Equilibrium moisture content, critical moisture content.
b) Explain mechanism of drying. 4+6
- 2a). What is case hardening? State the major mode of moisture transfer within the solid for / dehydration process.
b) A food product contains 32% moisture on dry basis. Calculate the moisture content on wet basis. 3+4+3
3. Classify driers according to heat input type. What is spray drying technique? Explain the spray drying process. 3.5+1.5+5
- 4.a) What is rehydration of dried food product?
/ b) A dry food product has been exposed to a 30% RH environment at 15⁰C 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 contents of the product on dry basis in both environments. 3+7
5. Explain the effect of dehydration on colour, flavor and texture of food material. 5+2.5+2.5
6. Write short notes on:
a) working principal of Tray drier
b) essential steps in foam mat drying 5+5