B.Sc. FOOD SCIENCE & TECHNOLOGY First Semester FOOD PROCESSING & PRESERVATION (BFST- 104)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20 Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8 Question no. 1 is compulsory.

Define angle of repose. What is evaporation? A single effect evaporator is being used to concentrate syrup from 10% solid to 50% solid at the rate of 100 kg/hr.
 Calculate mass of product & mass of vapour. (2+2+6=10)

2. Define the terms-

 $(2 \times 5 = 10)$

a. Roundness

b. Roundness ratio

c. Sphericity

d. Pasteurization

e. Sterilization

3. What is terminal velocity? During evaluation of an air screen grain cleaner with 2 screens 250 g samples were collected for analysis of clean seed fraction from different outlets. The data are presented in the following Table. Calculate the cleaning efficiency of the cleaner. (10)

Sample fraction	Feed	Clean grain outlet	Blower	Blower outlet	Undersize outlet
Cleaned seed	231	247	1.25	4.5	2
Impurities	19	3	248.75	245.5	248

4. What is effectiveness of screen? Write down the expression for screen efficiency. Determine the effectiveness of the below two screens— (2+1+7=10)

IS Screen	Feed	Overflow	Underflow
50	0.16	0.615	0.03
30	0.75	0.955	0.610

- 5. Define refrigeration. Explain vapour compression cycle with diagram.(2+8=10)
- 6. Explain Hysteresis Effect. Determine the EMC of wheat at 27°C and 80% relative humidity using Hendersan equation. (Given C=10.06×10⁻⁷ and n=3.03)

(4+6=10)

- 7. What is alcoholic fermentation? Write down the factors affecting fermentation.

 Write in brief about four fermented products. (2+4+4=10)
- 8. What are food additives? Describe some of the common food additives? Write the difference between grading & sorting. (2+6+2=10)

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(BFST- 104)

Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Mention whether true or false:

 $1 \times 7 = 7$

- 1. Preserved food is easier to distribute and can be made available in all places at all time.
- 2. Additives described as GRAS means that they have been used for many years without any known effects.
- 3. High energy electrons and X-rays are increasingly used for food irradiation.
- 4. Nutrients like Vitamin B and Vitamin C are affected as a result of fermentation.
- 5. Cereal grains are principal raw materials in wine making.
- 6. Diameter of drum is 10 m to 13 m in commercial rotary dryers.
- 7. Adsorption EMC is always higher than desorption EMC.

II. Choose the correct answer:

 $1 \times 2 = 2$

- 1. Microorganism which appears to be most radiation resistant.
 - a. Clostridium Botulinium
- b. Lactobacilus

c. Both

- d. None
- 2. Sublimation of frozen products is the basis of
 - a. Osmotic drying

b. Freeze drying

c. Vacuum drying

d. None

III. Write the full forms:

 $1 \times 3 = 3$

- 1. FSSAI:
- 2. GRAS :
- 3. EMC

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1×8=8

1.	means removal of moisture to very low levels usually to bone dr
	conditions.
2.	means removal of moisture from grains and other products to
	predetermined levels.
3.	Heat content of a material is its
4.	In deep bed drying, layer of grains is
5.	Osmotic drying is used for products such as
6.	is known as the controversial flavor.
7.	$C_6H_{12}O_6 + yeast \longrightarrow + \dots + \dots$

8.is done to inactivate enzymes and to destroy the peroxide.