

REV-01
BFST/30/35

2023/12

**B.Sc. FOOD SCIENCE & TECHNOLOGY
THIRD SEMESTER
DAIRY TECHNOLOGY
BFST-301 (IDMj)**

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

(Objective)

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

- Which of the following factors does not affect the viscosity of milk?
 - Temperature and age of milk
 - State and concentration of proteins
 - Spoilage
 - State and concentration of fat
- What form of milk is made by the churning of whipping cream?
 - Butter
 - Cream
 - Ghee
 - Curd
- Spray dried milk has the moisture content in the range of.....
 - 1.5-2.5%
 - 2.0-3.5%
 - 3.5-5.0%
 - 5.0-6.0%
- In HTST pasteurization, the milk is heated at 72°C for.....
 - 30 minutes
 - 30 seconds
 - 15 seconds
 - 15 minutes
- The most favorable pH range for growth of bacteria is.....
 - Less than 4.5
 - More than 8
 - 6.7 to 7.5
 - None of the above
- Temperature at which ice cream hardening room operates is.....
 - 50°C
 - 30°C
 - 10°C
 - 0°C
- A large part of droplets in a spray dryer can be expected to have the size of.....
 - 5 microns
 - 40 microns
 - 80 microns
 - 150 microns
- As per FSSAI, percent of fat content in butter must be.....
 - 60
 - 70
 - 90
 - None of the above
- Which of the following membrane separation technique would be most suitable for the concentration of milk proteins in dairy industry?
 - Nano filtration
 - Ultra filtration
 - Membrane filtration
 - Reverse osmosis
- The phenomenon of boiling the milk in an open container when milk spills over the vessel termed as.....
 - Saturated nucleate boiling
 - Film boiling
 - Sub-cooled boiling
 - Interface evaporation

11. Which of the following material is used for heat transfer in the dairy industry?
 - a. Copper
 - b. Platinum
 - c. Iron
 - d. Stainless steel
12. What is the USDEC?
 - a. United States Dairy Export Council
 - b. United States Dairy Export Corporation
 - c. United States Dairy Export Center
 - d. United States Dairy Export Company
13. During pasteurization, which types of bacteria are killed?
 - a. Pathogenic
 - b. Non pathogenic
 - c. Both a and b
 - d. None of the above
14. Unsweetened condensed milk should contain milk fat not less than.....
 - a. 4.5%
 - b. 5.6%
 - c. 7.1%
 - d. None of the above
15. Which of the following has the largest particle size in milk?
 - a. Casein micelles
 - b. Lactose
 - c. Fat globules
 - d. Minerals
16. The storage temperature needed for cheddar cheese is.....
 - a. 1°C
 - b. 4°C
 - c. 12°C
 - d. -20°C
17. Properly processed UHT milk may be stored at room temperature for.....
 - a. 6 months
 - b. Several weeks
 - c. 14-28 days
 - d. 10-15 days
18. Energy requirement (E) of a homogenizer can be expressed by which of the following equation?
 - a. $E = P+Q$
 - b. $E = P^2/Q$
 - c. $E = P/Q$
 - d. None of the above
19. If Corrected Lactometer Reading (CLR) of milk is 28, then the specific gravity of milk will be.....
 - a. 1.008
 - b. 1.128
 - c. 1.028
 - d. None of the above
20. Which of the following does not require considerable amount of emulsifier and stabilizer?
 - a. Kulfi
 - b. Ice cream
 - c. Softy
 - d. None of the above

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. a) Fresh milk is kept in a vessel. The properties of the milk at 35°C are as follows: 5+5=10
- | | |
|-------------------------|--------------------------|
| Diameter of fat globule | = 3 microns |
| Density of serum | = 1028 kg/m ³ |
| Density of fat globule | = 980 kg/m ³ |
| Viscosity | = 1.42 centi-poise |
- Determine the velocity at which the fat globule will begin to move upwards.
- b) The milk (the properties are same as given in the above problem) is put at a radial position of 0.2 m in a centrifuge rotating at a speed of 1800 rpm. Determine the sedimentation velocity (m/s) of a fat globule.
2. What is cheese? Draw a flowchart for cheese manufacturing process. Bring out the nutritional importance of cheese. 2+5+3=10
3. Describe the different types of dried milk products available in India. 10
4. Define pasteurization. Why is pasteurization carried out on milk? Explain the different methods of pasteurization. 2+3+5=10
5. Explain the working principle of a cream separation by centrifugal method with neat sketch. 10
6. a) Define: 5+5=10
- i) Skim milk
 - ii) Condense milk
 - iii) Toned and double toned milk
 - iv) Cream
 - v) Sterilized milk
- b) How does scum formation occur in milk? Explain.
7. Write a short notes on: 5+5=10
- a) Physico-chemical properties of milk.
 - b) Aseptic packaging of milk.
8. Discuss the principle utilization of dairy by-products. 10

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