



## BRAINWARE UNIVERSITY

**Term End Examination 2024-2025**  
**Programme – B.Sc.(FND)-Hons-2022**  
**Course Name – Dairy Technology**  
**Course Code - BFNDE502B**  
**( Semester V )**

*Library*  
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Kolkata, West Bengal-700125

**Full Marks : 60**

**Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) What is India's current global ranking in milk production?
  - a) Second
  - b) Third
  - c) First
  - d) Fourth
- (ii) What is the primary source of milk production in India?
  - a) Large-scale dairy farms
  - b) Small-holder farmers
  - c) Government-owned dairy cooperatives
  - d) Foreign dairy companies
- (iii) Which of the following dairy products typically has a yellow color?
  - a) Milk
  - b) Butter
  - c) Yogurt
  - d) Cheese
- (iv) The pH of milk is typically:
  - a) Strongly acidic
  - b) Weakly acidic
  - c) Strongly basic
  - d) Weakly basic
- (v) The refractive index of milk can be used to determine its:
  - a) Fat content
  - b) Protein content
  - c) Water content
  - d) All of these
- (vi) The freezing point of milk is:
  - a) Higher than pure water
  - b) Lower than pure water
  - c) The same as pure water
  - d) Cannot be determined
- (vii) What is India's current global ranking in milk production?
  - a) Second
  - b) Third
  - c) First
  - d) Fourth
- (viii) What is the primary role of stabilizers in ice cream production?

- a) Enhance flavor  
c) Prevent ice crystal formation
- (ix) Why is cheddar cheese aged for several months?
- a) To increase its water content  
c) To improve its nutritional content
- (x) What differentiates paneer from cheddar cheese in terms of production?
- a) Paneer is fermented while cheddar is not  
c) Paneer is made from skim milk
- (xi) Why is milk powder preferred for long-term storage over fresh milk?
- a) It has a higher protein content  
c) It has reduced moisture content
- (xii) Which of the following products contains the least amount of water?
- a) Butter  
c) Flavored milk
- (xiii) In the production of shrikhand, which dairy product is strained to remove excess whey?
- a) Paneer  
c) Cream
- (xiv) In a large-scale dairy plant, which equipment is used to maintain milk's fat content by evenly distributing fat globules?
- a) Pasteurizer  
c) Cream Separator
- (xv) What is the purpose of the pasteurization process?
- a) To enhance shelf life  
c) To kill pathogenic bacteria
- b) Prevent fat separation  
d) Increase milk solids
- b) To develop its characteristic flavor and texture  
d) To remove harmful bacteria
- b) Paneer does not require aging  
d) Paneer requires bacterial cultures for fermentation
- b) It contains no lactose  
d) It has a higher fat content
- b) Ghee  
d) Condensed milk
- b) Yogurt  
d) Butter
- b) Clarifier  
d) Homogenizer
- b) To break fat globules into smaller, uniform sizes  
d) To separate milk solid from the liquid

#### Group-B

(Short Answer Type Questions)

3 x 5=15

2. What is meant by the amphoteric nature of proteins? Give an example of how this property is relevant in a biological context. (3)
3. Describe the effect of different type of casein (acid vs. rennet) on its functional properties in cheese making. (3)
4. Write a method for fractionating proteins from milk. What are the main steps involved and how do you separate casein from serum proteins? (3)
5. Describe the chemical structure of lactose and the differences between its alpha and beta forms. (3)
6. Evaluate the effectiveness of using proteases in the production of low-fat cheese compared to traditional methods. What are the potential benefits and drawbacks? (3)

OR

Assess the impact of different protein fractionation methods on the quality and functionality of dairy products. How do various methods compare in terms of efficiency and product characteristics? (3)

#### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Design a new dairy product that combines characteristics of cheese and yogurt. (5)
8. Develop a plan for introducing a new flavored milk variant into the market. What factors should you consider, and how would you address them? (5)
9. Assess the effectiveness of different types of pasteurization methods (HTST vs. UHT) in terms of microbial safety and product shelf life. (5)
10. What is the relationship between the refractive index of milk and its protein content. (5)
11. How the changes in specific heat can affect the texture of dairy products. (5)
12. Analyze the impact of using milk powder versus fresh milk in the production of condensed milk. What are the advantages and disadvantages of each? (5)

**OR**

Compare the nutritional content of shrikhand and plain yogurt. How do the added ingredients in shrikhand affect its nutritional profile? (5)

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