

**CARMEL COLLEGE OF ARTS, SCIENCE AND COMMERCE, NUVEM – GOA**

**POST GRADUATE DEGREE STUDIES (AFFILIATED TO GOA UNIVERSITY)**

**M.Sc. (II) Food Technology (Semester III) Examination February 2022**

**FTO 109 DAIRY TECHNOLOGY**

**Max. Marks: 45**

**Duration: 2 hours**

**Date: :     /     /2022**

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**INSTRUCTIONS:**

1. All questions in **Section I** are compulsory.
  2. Answer **any 3** questions from **Section II**
  3. Figures on the right indicate maximum marks assigned to the question
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**SECTION I**

**Q1. Study the two statements labelled as Assertion (A) and Reason (R). Point out if:**

1. Both, A and R, are true and R is the correct explanation of A
2. Both, A and R, are true but R is not the correct explanation of A
3. If A is true but R is false
4. If A is false but R is true

**(3 × 1 mark = 3 marks)**

- a. **A:** High temperatures used for ultra-high temperature (UHT) pasteurization of dairy products may affect product quality and nutritional properties

**R:** Maillard reaction occurs between the lactose and free amino group of protein in milk thus produces undesirable flavours and colour, and reduces lysine content.

- b. **A:** It is not necessary to homogenised milk sample before testing for quality.

**R:** There is a significant difference in specific gravity of milk fat and milk serum.

- c. **A:** Milk production of a cow follows a dynamic curve

**R:** Production of milk by the cow slowly decreases after six weeks from parturition.

**Q2. Identify the end product (EP) based on clues provided.**

**(4 × 1 mark = 4 marks)**

- a. Milk + Vit. D3 + Vit. A → EP
- b. Liquid milk → suspension → mechanized hot air → EP
- c. Milk → inoculation → incubation → curd → planetary mixer → EP
- d. Milk + maltose syrup → dehydrate → EP

**Q3. Answer any four of the following:**

**(4 × 2 marks = 8 marks)**

- a. Barfi v/s Gulab Jamun v/s Milk Cake.
- b. Conventional v/s Cultured buttermilk.
- c. Ghee v/s Butter
- d. Standardized v/s Toned v/s Double Toned milk
- e. Evaporated v/s Condensed milk

## **SECTION II**

**Q4.** Comment on the processes involved in producing the following products:

- a. Milk with fat content of 4% (5)
- b. Milk with uniform fat globules. (5)

**Q5. a.** What physical and chemical changes occur during the transformation of milk into cheese? (6)  
**b.** Provide a layout of the steps involved in the manufacture of cheese. (4)

**Q6. a.** Briefly explain the manufacture of Ice cream with a suitable flowchart. (6)  
**b.** Describe the role of the different components added to ice cream. (4)

**Q7.** Discuss in detail the protocol-operation in milk that leads to formation of yogurt. What factors affect the quality of yogurt? (10)

**Q8.** Elaborate on the following technologies employed in the dairy industry:

- a. Reverse Osmosis (2.5)
- b. Nanofiltration (2.5)
- c. Electrodialysis (2.5)
- d. UHT Processing (2.5)

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