(7 pages) Reg. No. :.....

Code No. : 20624 E **Sub. Code : ESCH 21/ FSCH 21**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2025.

Second Semester

Chemistry

Skill Enhancement Course — DAIRY CHEMISTRY

(For those who joined in July 2023 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following carbohydrates is the primary sugar found in milk?

   (a) Glucose (b) Sucrose

   (c) Lactose (d) Fructose

2. What is the purpose of adding preservatives to milk?

   (a) To enhance flavor

   (b) To prevent spoilage

   (c) To improve texture

   (d) To increase acidity

3. What is the purpose of pasteurization in milk processing?

   (a) To increase the fat content

   (b) To improve the taste

   (c) To extend the shelf life by destroying harmful bacteria

   (d) To enhance the nutritional value

4. Which pasteurization method is known for its rapid heating and cooling process, minimizing heat damage to milk?

   (a) Bottle pasteurization

   (b) Batch pasteurization

   (c) HTST pasteurization

   (d) Ultra High Temperature (UHT) pasteurization

5. What is the primary constituent of ghee?

(a) Protein (b) Lactose

(c) Fat (d) Water

6. How can rancidity in fats and oils be prevented?

(a) Refrigeration

(b) Adding antioxidants

(c) Exposure to light

(d) Sealing in airtight containers

7. Which of the following is a characteristic of homogenized milk?

(a) Increased fat content

(b) Uniform distribution of fat globules

(c) Reduced protein content

(d) Extended shelf life

8. Condensed milk is:

(a) Milk with reduced water content

(b) Milk with added preservatives

(c) Milk with increased fat content

(d) Milk with reduced sugar content

9. What is the role of culture in the production of cultured milk products?

(a) To enhance flavor

(b) To increase fat content

(c) To initiate fermentation

(d) To improve shelf life

10. What is the primary need for making milk powder?

(a) To reduce fat content

(b) To increase shelf life

(c) To improve taste

(d) To enhance color

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Discuss the factors affecting the composition of milk.

Or

(b) Write a note on the preservatives used in milk.

12. (a) How will you destruct the microorganisms present in milk?

Or

(b) Discuss the bottle and vacuum pasteurization of milk.

13. (a) Describe the chemistry of the creaming process. How does cream separate from milk and what factors influence the process?

Or

(b) Write a note on desi butter and salted butter.

14. (a) Write a note on homogenized milk.

Or

(b) Define reconstituted milk and provide a flow diagram of its manufacture.

15. (a) Define acidophilus milk and discuss its production.

Or

(b) Write a note on fermentation of milk.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) What are the different constituents present in milk? Explain.

Or

(b) Discuss the physical properties of milk

17. (a) Explain the physico-chemical changes that occur in milk during boiling and pasteurization.

Or

(b) Discuss the different types of pasteurization methods used in milk processing, including HTST, vacuum, and UHT pasteurization.

18. (a) List out the common adulterants present in ghee and the methods to detect them.

Or

(b) Define butter and discuss its composition.

19. (a) Define condensed milk and discuss its composition and nutritive value.

Or

(b) Describe the production of flavored milk.

20. (a) Define ice cream and discuss its composition.

Or

(b) Explain the drying process for milk powder production.
