

March 2022

**DAIRY TECHNOLOGY**

Time Allowed: 3 Hours

Full Marks: 70

Answer the following questions from Group A, B &amp; C as directed.

**GROUP-A**

1. Choose the correct answer from the given alternatives (any ten):

1x10

- i. The major protein present in cow milk is: ~~A) Casein~~, B) Albumin, C) Zein, D) None of the above.
- ii. Which one is a pathogen present in milk: A) *E. Coli*, ~~B) *M. Tuberculosis*~~, C) *C. Burnetii*, D) All of the above.
- iii. The SPC/ml for microbiologically 'Fair' grade of raw milk is: A) less than 2lakh, B) 2lakh – 10lakh, C) 10lakh – 50lakh, D) more than 50lakh.
- iv. According to Indian standards, the minimum % of fat that must be present in WMP is: A) 18, B) 22, ~~C) 26~~, D) 30
- v. The minimum % of milk fat that must be present in Double Toned milk is: A) 0.5, B) 1, ~~C) 1.5~~, D) 2
- vi. Milk sugar lactose is a disaccharide of: A) glucose & fructose, B) two glucose, ~~C) glucose & galactose~~, D) glucose & mannose.
- vii. The skim milk has a \_\_\_\_\_ colour. [T/F] A) greenish, B) bluish, C) yellowish, ~~D) whitish~~
- viii. The dominating protein in 'colostrum' milk is: A) casein, B) lactalbumin, ~~C) lactoglobulin~~, D) renin.
- ix. Milk is an example of natural \_\_\_\_\_. A) solution, ~~B) suspension~~, D) emulsion, d) dispersion
- x. The compound responsible for characteristics aroma of butter is \_\_\_\_\_. A) pepsin, B) fat, ~~C) diacetyl~~, D) butyric acid
- xi. Use of sodium alginate in ice-cream as \_\_\_\_\_. ~~A) emulsifier~~, B) stabilizer, C) preservative, D) colouring agent
- xii. According to Indian standards, maximum % of moisture that can be present in Skim Milk Powder is: ~~A) 4~~, B) 5, C) 6, D) 7

2. Fill in the blanks (any ten):

1x10

- i. The pH of normal, fresh cow milk varies from \_\_\_\_\_ to \_\_\_\_\_.
- ii. The Titrable acidity of buffalo milk varies from \_\_\_\_\_ to \_\_\_\_\_.
- iii. Sterilized milk can be kept for at least \_\_\_\_\_ day/days at room temperature without deterioration.
- iv. The colour of butter is responsible for the presence of \_\_\_\_\_ dye.
- v. Yellow colour of milk fat is because of the presence of \_\_\_\_\_ pigment.
- vi. Cow's milk contains about \_\_\_\_\_ % of fat.
- vii. The optimum temperature for the formation of curd is \_\_\_\_\_.
- viii. The product obtained by churning of cream is known as \_\_\_\_\_.
- ix. The minimum fat percentage in ghee is \_\_\_\_\_.
- x. Milk sugar is also known as \_\_\_\_\_.
- xi. Adulteration of milk with starch can be detected by \_\_\_\_\_ reagent.

- xii. \_\_\_\_\_ kg of water to be added to 100kg of milk containing 4.5% fat to reduce its percentage of fat to 3%.

3. Answer the following questions in one or two sentences (any ten):

1x10

- i) What is the use of MBRT test?
- ii) Name two pigments in milk?
- iii) What is full name of FDV valve?
- iv) Write the function of H<sub>2</sub>SO<sub>4</sub> in Gerber Test?
- v) Name the stabilizer used in ice cream?
- vi) What is the full name of CIP?
- vii) Name two detergent used in cleaning of Dairy equipments?
- viii) What are the time & temperature requirement for HTST pasteurization?
- ix) What are minimum percentage milk fat and MSNF present in Toned Milk?
- x) Name two example of semi hard cheese?
- xi) What is Buttermilk?
- xii) What is TOFU?

#### GROUP-B

4. Answer the following questions (any five):

2x5

- a) What is meant by colostrums?
- b) What is milk soil?
- c) What is milk stone?
- d) What is Mozzarella Cheese?
- e) What is Cheese?
- f) Name two butter cultures.
- g) What is the utility of phosphatase test?

#### GROUP-C

5. Answer the following question (any one):

- A. Discuss the roles of different enzymes found in milk. Discuss any five factors affecting the composition of milk. <https://www.wbscteonline.com> 5+5
- B. How do you surely detect *E.coli* in a milk sample? Write a short note on MBRT test and its significance? 6+4
- C. Explain lactometer test and its significance in dairy industry. Write short notes on any two physico-chemical properties of milk. 5+5

6. Answer the following question (any one):

- A. Draw the detail process flow diagram of infant milk manufacturing process. Compare in between drum drying and spray drying milk powder. 7+3
- B. Discuss the preparation steps of TOFU from soy. State the different merits and demerits of soy milk. Write the composition of Ice-cream mix powder. 4+4+2
- C. Discuss the different defects in Ice cream. Depending on moisture percentage classify cheese with example. Why hardening is done in an ice-cream? 6+2+2

7. Answer the following question (any one):

A. Draw the process flowchart for preparation of: (a) cheddar cheese, (b) mozzarella cheese, (c) paneer.  
3.5+3.5+3

B. Classify butter. State the process flowchart of butter manufacturing process. Discuss different defects found in dahi.  
2+4+4

C. Discuss the different utilization of Sweet Cream Buttermilk. Draw process flowchart for preparation of: (a) whey protein concentrate and (b) whey powder.  
3+3.5+3.5

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