

GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
FOOD PROCESS TECHNOLOGY –III (Milk and milk products)
FT601

TIME ALLOTTED: 3 HOURS

FULL MARKS: 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A**(Multiple Choice Type Questions)**Answer any **ten** from the following, choosing the correct alternative of each question: **10×1=10**

		Marks	CO No
1.	(i) The aim of pasteurization milk is to:- a. Improve Flavour b. Kill vegetative organism c. Improve Colour d. None of the above	1	CO2
	(ii) The process to increase in volume caused by whipping air into the ice cream mix during freezing is called? a. Homogenization b. Aging c. Overrun d. Hardening	1	CO4
	(iii) Yogurt contains mixed lactic acid culture containing a. Lactobacillus bulgaricus and Streptococcus thermophilus b. Lactobacillus bulgaricus and Propionibacterium c. Lactobacillus bulgaricus and Leuconostoc d. None of the above	1	CO4
	(iv) During HTST pasteurisation, if the correct temp is not attained the milk is diverted back through a. Flow diversion valve b. Float diversion valve c. Heater d. Record controller	1	CO2
	(v) What is the percentage of fat in Butter? a. 70 % b. 80 % c. 90 % d. 95 %	1	CO3
	(vi) Chlorine compounds have widespread acceptance in the dairy industry due to? a. Non-toxicity b. High corrosiveness c. High sanitizing efficiency d. All of the above	1	CO2

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|--------|---|---|-----|
| (vii) | The formation of free fatty acids causes a _____ flavor in cheese.
a. sweet
b. bitter
c. salty
d. rancid | 1 | CO4 |
| (viii) | Acinol-N is used in dairy industry as:
a. surface active agent
b. sequestering agent
c. sanitizing agent
d. Wetting agent | 1 | CO2 |
| (ix) | Titratable acidity of milk is expressed in terms of
a. citric acid
b. acetic acid
c. lactic acid
d. None | 1 | CO1 |
| (x) | Fat is present in milk in the form of
a. Suspension,
b. Solution,
c. Emulsion,
d. None | 1 | CO1 |
| (xi) | _____ CFU/gm culture should be present to call a fermented product as probiotic.
a. 10^7 CFU/gm
b. 100^7 CFU/gm
c. 10^{10} CFU/gm
d. 10^2 CFU/gm | 1 | CO1 |
| (xii) | Which of the following statements is not true:
a. Pasteurisation destroys Vit C and thiamine during processing
b. Nutritive value is diminished
c. Increases cost
d. It destroys the bacterial spores | 1 | CO2 |

GROUP – B**(Short Answer Type Questions)**Answer any *three* from the following: $3 \times 5 = 15$

- | | | Marks | CO No |
|----|--|-------|-------|
| 2. | Define milk. How will you differentiate milk on the basis of fat% and SNF %. | 5 | CO1 |
| 3. | Write Short note on (any one):
• Thermization and Tyndallisation
• In-bottle Sterilization | 5 | CO2 |
| 4. | Define instantization. What are the principles of different types of drier employed for milk? | 5 | CO3 |
| 5. | What is malted milk powder, explain with flowchart. | 5 | CO3 |
| 6. | a. Define standardization of cream. | 1 | CO4 |
| | b. Given 1000 kg cream having 50% fat. How much skim milk having 0.1% fat must be added to obtain 40% fat in the standardized cream? | 4 | CO4 |

GROUP – C

(Long Answer Type Questions)

Answer any *three* from the following: 3×15=45

			Marks	CO No
7.	a.	Define Ice-cream. What are the Food and Nutritive value of Ice-cream?	4	CO4
	b.	Give the detailed Flow diagram of Ice-cream manufacture. What are the main properties of the Ice-cream Mix?	8	CO4
	c.	What do mean by overrun in ice cream? What is Soft ice cream?	3	CO4
8.	a.	What are the advantages and disadvantages of HTST Pasteurization process used in Dairy Industry for processing of milk?	4	CO2
	b.	With schematic diagram explain the milk flow through HTST pasteurizer.	7	CO2
	c.	With schematic diagram explain the principle of batch pasteurizer.	4	CO2
9.		Write short notes on (any three):	15	CO2, CO3, CO4
		<ul style="list-style-type: none"> • Kefir • Probiotics • Infant Formula • Heat stability of milk • Acidophillus milk 		
10	a.	Explain the 7 principles of HACCP. Show the probable CCPs of any product with a proper process flow chart.	10	CO4
	b.	What is the cause of sandiness in ice-cream and how can it be prevented? Name the natural and the three synthetic anti-oxidants used as preservative in butter-oil.	5	CO3
11.	a.	Prepare an ice cream mix containing a fat about 10% , SNF – 11% , Sugar – 15% and stabilizer 0.5% . Given whole milk testing 6.8% fat, 9.6% SNF, and cream testing 40% fat and 5.4% SNF. Skimmed milk powder testing 0.5% fat and 97% SNF	9	CO4
	b.	Define Homogenization. What are the merits and demerits of Homogenization?	4	CO2
	c.	Draw the flow diagram for cultured sour milk.	2	CO3