

Name:	
Enrolment No:	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December, 2023**

**Course: Milk process Technology**  
**Program: B.Tech Food Technology**  
**Course Code: HSFT3010**  
**Instructions: All Questions are compulsory**

**Semester: V**  
**Time : 03 hrs.**  
**Max. Marks: 100**

**SECTION A**

S. No.	Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	30 Marks	CO
1	Rank of India in cow milk production a) 1 <sup>st</sup> Rank                                      b) 2 <sup>nd</sup> Rank c) 3 <sup>rd</sup> Rank                                        d) 4 <sup>th</sup> Rank	1.5 marks	CO1
2	Which country has the highest buffalo milk production? a) India b) Pakistan c) America d) Denmark	1.5 marks	CO1
3	What is the pH of milk? a) 7.6 b) 6.6 c) 6.0 d) 5.6	1.5 marks	CO4
4	What is the unit of acidity in milk? a) Acetic acid b) Lactic acid c) Leptic acid d) Lauric acid	1.5 marks	CO1
5	Lactose is made up of: - a) Glucose+ Fructose b) Galactose+ Fructose c) Glucose+ Galactose d) Fructose+Maltose	1.5 marks	CO5
6	Biological value of whey protein is: - a) Equal to egg b) Less than egg c) More than egg d) None of the above	1.5 marks	CO1
7	Milk is a good source of: - a) Cyanocobalamin b) Vitamin C c) Iron d) All of the above	1.5 marks	CO4
8	What is the basis of money payment?	1.5 marks	CO1

	<ul style="list-style-type: none"> <li>a) Vitamin Content</li> <li>b) Mineral content</li> <li>c) Carbohydrate content</li> <li>d) Fat content</li> </ul>		
9	<p>Which one is a platform test?</p> <ul style="list-style-type: none"> <li>a) Garber Test</li> <li>b) Kjeldal Test</li> <li>c) Alcohol Test</li> <li>d) Fehling Test</li> </ul>	1.5 marks	<b>CO4</b>
10	<p>Grade C milk is used for production of: -</p> <ul style="list-style-type: none"> <li>a) Curd</li> <li>b) Cheese</li> <li>c) Paneer</li> <li>d) Yoghurt</li> </ul>	1.5 marks	<b>CO1</b>
11	<p>HTST means: -</p> <ul style="list-style-type: none"> <li>a) High Temperature Short Time</li> <li>b) Happy temperature short time</li> <li>c) Harsh temperature safety time</li> <li>d) None of the above</li> </ul>	1.5 marks	<b>CO1</b>
12	<p>What is temperature and duration of LTLT?</p> <ul style="list-style-type: none"> <li>a) 72 °C for 15 minutes</li> <li>b) 63 °C for 30 minutes</li> <li>c) 72 °C for 30 minutes</li> <li>d) 72 °C for 15 seconds</li> </ul>	1.5 marks	<b>CO5</b>
13	<p>What is the fat and SNF percentage of whole milk?</p> <ul style="list-style-type: none"> <li>a) 6 and 9%</li> <li>b) 4.5 and 8.5%</li> <li>c) 1.5 and 9%</li> <li>d) 3 and 9%</li> </ul>	1.5 marks	<b>CO5</b>
14	<p>What is the minimum SNF for cow milk in India?</p> <ul style="list-style-type: none"> <li>a) 9%</li> <li>b) 8%</li> <li>c) 7.3%</li> <li>d) 8.3%</li> </ul>	1.5 marks	<b>CO1</b>
15	<p>What is CIL?</p> <ul style="list-style-type: none"> <li>a) Clean in place</li> <li>b) Clean in point</li> <li>c) Clear in process</li> <li>d) Clear in point</li> </ul>	1.5 marks	<b>CO5</b>
16	<p>Pressure used in single stage homogenization: -</p> <ul style="list-style-type: none"> <li>a) 1500 psi pressure</li> <li>b) 2000 psi pressure</li> <li>c) 2500 psi pressure</li> <li>d) 1000 psi pressure</li> </ul>	1.5 marks	<b>CO5</b>

17	Indicator microorganism of sterilization: - a) <i>Coxiella burnetii</i> b) <i>Lactobacillus bulgaricus</i> c) <i>Clostridium botulinum</i> d) <i>E. coli</i>	1.5 marks	CO1
18	Yoghurt incubation temperature is: - a) 43 °C b) 38 °C c) 35 °C d) 30 °C	1.5 marks	CO5
19	Name the alcoholic fermented milk products: - a) Kefir b) Acidophilus milk c) Kumiss d) Both a and c	1.5 marks	CO1
20	Principle of cream separator is: - a) Chemical nature b) Strength of milk components c) Density difference d) Melting point Difference	1.5 marks	CO5

**SECTION B (4Qx5M=20 Marks)**

Q	Short Answer Type Question (5 marks each)	20 Marks	CO
1	Why is milk known as complete food? What is the nutritive value & importance of milk?	5	CO3
2	Describe briefly about the physical properties of milk?	5	CO4
3	What is homogenization? Discuss the theory and type of homogenization?(1+2+2 mark)	5	CO1
4	What is Acidophilus milk? Describe the processing of acidophilus milk? (1+4 marks)	5	CO2

**SECTION C (2Qx15M=30 Marks)**

Q	<b>Two case studies 15 marks each subsection</b>	30 Marks	CO
1	a) What is spray drying? Energy consumption and role of cyclone separator? (2+3+3 marks) b) What is butter? FSSAI specifications for butter and preparation procedure? (1+2+4 marks)	15	CO3
2	a) What is cleaning and sanitization? Different Cleaning and Sanitization agents used in milk industry? (2+6 marks) b) What is CIP? Importance and procedure of CIP? (1+2+4 marks)	15	CO2

**SECTION- D (2Qx10M=20 Marks)**

Q	Long Answer type Questions (10 marks each)	20 Marks	CO
1	What is cheese? Differentiate between paneer and cheese? Describe cottage cheese preparation? (2+4+4 marks)	10	CO5
2	What is the advantages of milk powders? Write down the FSSAI specifications for milk powders? Write different types of milk powder? (3+4+3 marks)	10	CO4