Q.P. Code: 19AG0710 **R19**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations August-2022

DAIRY & FOOD ENGINEERING

(Agricultural Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Explain the causes of food spoilage.	L1	6M
	b	What is total solids and SNF of milk? Calculate the total solids and SNF of milk having 3% fat and the density of milk at 20°C is 1016 kg/m^3	L2	6M

OR

2	a	Define milk and explain the factors affecting composition of milk	L1	6M
	b	List out different physical, chemical and biological food preservation methods.	L2	6M

UNIT-II

3	a	Explain the process for preparation of ice-cream with a detailed flow chart	L1	6M
	b	Calculate the amount of water to be added to 100 kg of cow milk with 4.5% fat to make it to 3% fat.	L2	6M

OR

4	a	Differentiate between pasteurization and sterilization of milk.	L1	6M
	b	Explain hydrostatic retort with a neat sketch.	L2	6M

UNIT-III

5	a	What is homogenization of milk? Explain the need of homogenization.	L1	6M
	b	What is the importance of site selection in dairy plant lay out?	L2	6M

OR

6	a	Explain the working of a disc bowl centrifuge with a neat sketch.	L1	6M
	b	Describe the steps involved in manufacturing of butter with a detailed flow chart.	L2	6M

UNIT-IV

7	a	Define evaporation and describe the basic components of an evaporator with a schematic flow diagram.	L1	6M
	b	Write the advantages and limitations of For-ward feed and mixed feed evaporation system.	L1	6M

OR

8	**a**	Explain the design of multiple effect evaporator with neat sketch and related expressions.	**L1**	**6M**
	b	What is boiling point elevation? What are the factors effecting the liquid boiling point?	**L2**	**6M**

UNIT-V

9	**a**	Define freezing and explain the working of a plate freezer.	**L1**	**6M**
	b	A spherical food product is being frozen in an air-blast freezer. The initial product temperature is 10°C and the cold air temperature is -40°C. The product has a 7 cm diameter with density of 1000 kg/m3, the initial freezing temperature is -1.25°C, the thermal conductivity of the frozen product is 1.2 W/(m K), and the latent heat of fusion is 250 kJ/kg. Compute the freezing time.	**L2**	**6M**

OR

10	**a**	What is membrane processing? Write the uses of membrane filtration.	**L1**	**6M**
	b	What are the methods for controlling water content? Explain the effect of water content during storage.	**L2**	**6M**

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