Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012

Subject code: 161405 **Date: 07/01/2013**

Subject Name: Milk and Milk Products Technology

Time: 02.30 pm - 05.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Answer the followings in short: **07**

i) Enlist the different types of vanilla flavorings available in market.
ii) State the advantages of homogenized milk.
iii) Enlist the name of major milk proteins.
iv) Write the name of instruments used to measure viscosity and refractive index of milk.
v) Give the name of the pigments responsible for yellow colour of cow milk and greenish ting of paneer/cheese whey.
vi) Define: Softy ice-cream
vii) Write the PFA specifications for ice-cream.

(b) Write short notes on: **04**

i) Forced crystallization
ii) Anand pattern of milk collection

(c) Write in brief for rennet coagulation of milk in cheese making. **03**

Q.2 **(a)** Write short note on various platform test and give principle and procedure for alkaline phophatase test. **07**

(b) Enlist the different types of cream and discuss the methods of preparation of cream. **07**

OR

(b) Define ripening of cream. Write down the objective and procedure for cream ripening for butter making. **07**

Q.3 **(a)** List benefits of dried milk product preparation and explain various physical and functional properties of dried milk product. **07**

(b) Discuss the following steps in preparation of butter: **07**
i) Neutralization of cream ii) Working of butter

OR

Q.3 **(a)** Give PFA requirement and flow diagram for preparation of sweetened condensed milk with technical details. **07**

(b) Give the flow diagram for the preparation of butter and describe 'Churning' step in detail. **07**

Q.4 **(a)** Write short notes on: **07**

i) Recombined milk
ii) Flavoured milk

(b) Discuss the flow diagram for preparation of cheddar cheese with technical details. **07**

OR

Q.4	**(a)**	Define Toned milk and write the advantages and procedure for preparation of toned milk.	**07**
Q.4	**(b)**	Draw line diagram of Spray Drier indicating various parts and give flow diagram for preparation of high heat skim milk powder.	**07**
Q.5	**(a)**	Enlist the different non dairy products used in preparation of ice-cream and write the role of stabilizers and emulsifiers with examples.	**07**
	(b)	Write detailed constituents of milk in the form of chart and classify traditional Indian Milk products.	**07**

OR

Q.5	**(a)**	Discuss in detail the steps 'Homogenization' and 'Freezing' in preparation of ice-cream	**07**
	(b)	To meet the shortage of liquid milk in summer, dairy is required to prepared 10,000liter of Recombined toned milk (3% fat & 8.6% SNF) using white butter (80% fat &1.5% SNF) and SMP (94.5% SNF, 1.5% fat & 4% moisture). Calculate the quantities of white butter, SMP and water required to prepare the same.	**03**
	(c)	Discuss any four physico-chemical properties of cow milk and buffalo milk important for processing and equipment design.	**04**

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