Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – WINTER 2013

Subject Code: 161405 **Date: 04-12-2013**

Subject Name: Milk and Milk Products Technology

Time: 02:30 pm to 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: **06**

i) What are the advantages of centrifugal method cream separation over gravitational method?

ii) Define: Homogenized milk, Recombined milk

iii) What are the merits of reconstituted and flavoured milk?

(b) Describe the flow sheet for preparation of sterilized milk. **04**

(c) Discuss various phases of Operation Flood. **04**

Q.2 **(a)** Define butter. Discuss the PFA specifications and classification of butter. **07**

(b) Give composition of cow's milk and discuss various factors affecting it. **07**

OR

(b) Discuss the various physico-chemical properties of milk. **07**

Q.3 **(a)** Explain the flow diagram for manufacturing of sweetened condensed milk. **07**

(b) Explain manufacturing of skim milk powder using spray drier with all technical details from raw full cream milk. **07**

OR

Q.3 **(a)** Explain the flow diagram for manufacturing of Cheddar cheese. **07**

(b) Give the composition of Paneer. What is the effect of coagulation temperature on quality, yield and solids recovery of Paneer? **07**

Q.4 **(a)** What is neutralization of cream? Explain the process of neutralization of cream during preparation of butter. **07**

(b) Discuss in detail the freezing step in ice-cream preparation. **07**

OR

Q.4 **(a)** Describe the common defects in butter with their causes and prevention. **07**

(b) Explain homogenization and cooling- ageing steps in ice-cream preparation. **07**

Q.5 **(a)** Write short notes on: (1) Standardized milk (2) Flavours in ice-cream **07**

(b) Comments on 'Role and objectives of National Dairy Development Board in dairy development in India'. **07**

OR

Q.5 **(a)** Write short notes on: (1) Toned milk (2) Overrun in ice-cream **07**

(b) Calculate the quantity of whole milk and skim milk with 6.5% and 0.5% fat respectively, required to prepare 10,000 liter of Standardized milk. Make necessary assumptions. **03**

(c) Standardize 1000 kg milk with 5.5% fat and 2.6% casein so that C/F ratio is 0.68 using skim milk with 2.8% casein. Neglect the fat content in skim milk. **04**

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