

GUJARAT TECHNOLOGICAL UNIVERSITY**Subject code: 161405****Subject Name: Milk and Milk Products Technology****Date : 23/05/2011****Time: 10:30 am to 1:00pm****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) You are having 10,000 liter of Whole milk. Calculate the quantity of standardized milk which can be prepared from it. Make necessary assumptions where ever required **04**
- (b) Give full form of following: **03**
(i) NDDDB (ii) PFA (iii) GCMME (iv) OF (v) SCM (vi) BIS
- (c) Classify the ingredients used for ice-cream preparation and discuss the role of stabilizers and emulsifiers as ice-cream ingredients. **07**
- Q.2** (a) Do as directed: **04**
i) Differentiate between: Single toned milk and Double toned milk
ii) Write PFA specifications for khoa
iii) Define: Softy Ice-cream
iv) Write the optimum conditions for chhana coagulation
- (b) State the various stages at which fat losses may occur during butter making. **03**
- (c) Write the PFA requirement for Malted milk food and give flow diagram for its preparation with technical details **07**
- OR**
- (c) Draw line diagram of spray drier for skim milk powder indicating various part and drying parameters. **07**
- Q.3** (a) Enlist the various types of ice-cream and give a flow diagram with technical details for the preparation of ice-cream. **06**
- (b) Discuss the characteristics of cow milk khoa and buffalo milk khoa. **04**
- (c) Write preheating temperature for low, medium and high heat powders and mention the advantages of preheating of milk during condensing of milk **04**
- OR**
- Q.3** (a) Discuss 'Neutralization of cream' for butter making with respect to: i) Objective ii) procedure iii) types of neutralizers. **06**
- (b) Define 'Recombined milk' and write the process for preparation of recombined milk. **04**
- (c) Write the regent, principle and procedure of the test used to check the pasteurization efficiency of milk. **04**
- Q.4** (a) write short notes on: **06**
i) Composition of ice-cream
ii) Methods of cream separation
- (b) Discuss any four physico-chemical properties of milk **04**
- (c) What is forced crystallization? Write the procedure for the same. **04**

OR

- Q.4** (a) Draw line diagram of two stage forward flow falling-film evaporator with thermocompressor indicating various parts and temperature at different stages. **07**
- (b) Enlist the different types of special milks and write in detail the process for preparation of sterilized milk. **04**
- (c) Describe the importance of ‘churning of cream’ in butter making. **03**
- Q.5** (a) Do as directed: **06**
- (i) Write mechanism of coagulation of milk by rennet enzyme.
- (ii) Write short note on “operation flood”.
- (b) Enlist the various ‘coagulated’ Indian whole milk products and explain any one of them. **04**
- (c) Discuss some of the common defects in ‘butter’ with their possible causes. **04**
- OR**
- Q.5** (a) Classify the cheese based on the moisture content and give flow diagram for manufacturing of cheddar cheese with technical details. **06**
- (b) Describe briefly the various types of butter **04**
- (c) Comments on ‘ Importance of freezing in ice-cream preparation’ **04**
