

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. Sem-III(Food Processing Technology)Examination December 2009

Subject code: 131405

Subject Name: Introduction to Food Processing Technology

Date: 29 / 12 / 2009

Time: 11.00 am – 1.30 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) Milk with 4% fat and 8% fat-free-solid (FFS) is used for the production of canned concentrated milk. The process includes separation of cream in a centrifuge and concentration of partially defatted milk in an evaporator. If the cream that is produced in the centrifuge contains 50% water, 45% fat and 5% fat free solids, calculate how much milk is necessary in order to produce a can of concentrated milk that contains 400g milk with 8% fat and 20% FFS. How much cream and how much water must be removed in centrifuge and the evaporator respectively? **07**
- (b) What are nutrients? Describe functions of various nutrients in brief. What is recommended daily allowances of nutrients? Give its importance. **07**

- Q.2** (a) Give importance of industrial training. Discuss project proposal to start small scale food processing industry. List out various activities involved in food industry. **07**
- (b) Explain the pyramid of food. Describe different beverages. Give importance of food processing in India. **07**

OR

- (b) What is the purpose of steam table? Explain different phases of formation of steam to superheated steam. Define in brief about Latent heat, Specific heat, Specific volume and Specific enthalpy of steam. **07**
- Q.3** (a) How much dry sugar must be added in 1000 kg of aqueous sugar solution in order to increase its concentration from 30% to 60%. **03**
- (b) Define in brief Cleaning, Grading, Sorting, and Scalping. List out on what grade factor depends upon. Classify the equipments based on the properties of product. **04**
- (c) Discuss entrepreneurship. Give requirements of smart entrepreneur. List various government agencies helping food industries with their role. **07**

OR

- Q.3** (a) Calculate the amount of cooling water required to cool a liquid food paste at the rate 200kg/hr containing 30% solids from 80°C to 20°C in a counter flow heat exchanger. The increase in temperature of water is not allowed to exceed 10°C. The specific heat of liquid food paste is 3.0 and water is 4.2kJ/kgK. **04**
- (b) Discuss requirements of spices and condiments. List out various spices and condiments. **03**

- (c) What is size reduction? Explain the working of equipments used in size reduction of fibrous foods and dry foods with diagram. **07**
- Q.4** (a) A food is initially at a moisture content 80% dry basis. Calculate the moisture content in wet basis. Convert moisture content of 55% wet basis to moisture content dry basis. **03**
- (b) Write short notes on human foods. Discuss foods for adults, children and patient. **04**
- (c) Give importance of oils and fats in food. Explain nutrients in wheat and pulses. Write short note on fruits and vegetables. **07**
- OR**
- Q.4** (a) Discuss present status of food industries in India and abroad. Give prospects of future growth in India. **07**
- (b) What is psychometric chart? Draw and explain the skeleton of psychometric chart and list out the uses in food processing technology. **07**
- Q.5** (a) Write short note on Food Product Orders. **04**
- (b) Differentiate between glass packaging and flexible packaging. **03**
- (c) Give the importance of blanching in the processing of fruits and vegetables. Briefly discuss the working of steam blancher and hot-water blancher. **07**
- OR**
- Q.5** (a) Discuss quality control and describe various methods of food evaluation. **07**
- (b) Discuss food product development and also explain the design concept of food products. **07**
