

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III • EXAMINATION – WINTER • 2014

Subject Code: 131405

Date: 18-12-2014

Subject Name: Introduction to Food Processing 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) a) How many kilograms of a solution containing 10% NaCl can be obtained by diluting 15 kg of a 20% solution with water? **07**
- b) Draw a diagram and set up equations representing total mass balance and component mass balance for a system involving the mixing of pork (15% protein, 20% fat, and 63% water) and back fat (15% water, 80% fat, and 3% protein) to make 100 kg of a mixture containing 25% fat.
- (b) Differentiate between; **07**
1. Wet bulb temperature and Dry bulb temperature
 2. Material balance and Energy balance
 3. Cleaning, Grading and Sorting
 4. Specific heat and Sensible heat
- Q.2** (a) Explain the importance of the following in food industry **07**
1. Cereals and Millets
 2. Milk and milk products
 3. Ready to eat food
- (b) In the manufacture of jam the crushed fruit is mixed with sufficient sugar to give a mixture of 45 parts of fruit to 55 parts of sugar and sufficient pectin (about 0.113 kg /45.35 kg of sugar) is added. The mixture is then evaporated until the soluble solids are 67%. What yield of jam can be expected from a fruit which has 14% soluble solids? Considering 0.4535 kg of fruit entering the system **07**
- OR**
- (b) What is drying and dehydration? List out the role of drying in preservation? Discuss different types of drying methods. **07**
- Q.3** (a) How size reduction helps in processing of food? Explain with the help of stress and strain diagram, different property of materials. Discuss Kick's and Rittinger's law. **07**
- (b) What do you mean by Recommended Daily Allowances (RDA) for nutrients? Explain the importance of preservation of foods. Discuss heating method of preservation. **07**
- OR**
- Q.3** (a) Justify that "Packaging is Heart of Processed Food". Discuss different types of packaging materials with their advantages and disadvantages. **07**
- (b) Draw the skeleton of psychrometric chart and explain the characteristics of that. Also define Relative humidity, Specific volume, Dew point temperature. **07**
- Q.4** (a) Uses of material handling equipments in food industry. List out the advantages of material handling equipments. **07**
- (b) Give the name of the instruments which measure temperature, relative humidity, pressure respectively. Also state the importance of control of temperature, relative humidity, pressure during the processing of foods. **07**

OR

- Q.4 (a)** Write the full form of the followings; **07**
NIFTEM, FPO, CFTRI, BIS, PFA, FSSAI, ICAR
- (b)** Discuss the role of egg in human diet. Explain different methods of peeling. **07**
- Q.5 (a)** What do you understand by canning of food products? Give importance of statutory laws in food. How they are maintained? **07**
- (b)** Define / Explain the following terms **07**
1. Nutrients, Spices, Poultry food, Meat
 2. Chemical additive, Ready to eat food
 3. Future growth for food in industry
 4. Give advantages of entrepreneurship.
- OR**
- Q.5 (a)** Define pulping, peeling and blanching. What are different criteria based on which, cleaning and grading equipments are classified? Discuss any one cleaning or grading equipment with diagram. **07**
- (b)** Explain industrial training concept in food industry and its benefits. What are different segments/sectors of processed food industry? Give names of any four Indian Food Processing industries with their brand names. **07**
