

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – SUMMER • 2014****Subject Code: 131405****Date: 23-05-2014****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)** 1000 kg of mixture of benzene (B) and toluene (T), containing 40% by mass of B to be separated in to two streams in a distillation column contains 375kg of B and the bottom output stream contains 515 kg of T. **07**
1. Perform mass balance for B and T
 2. Determine the composition of the top and bottom streams
- (b)** Milk undergoes processing with a parallel tubular heat exchanger. Fluid milk is to be produced at 5000 kg/h at 150⁰C. milk with a initial temperature of 15⁰C is fed to the heat exchanger. Steam at 543.1kPa and 100% quality is used as heating medium. Condensate at 155⁰C flows from the steam trap. What is the required flow rate of steam. Enthalpy of steam is 2746.5kJ/kg. Specific heat of milk and condensate is 3.849 and 4.18 kJ/kg⁰C. **07**
- Q.2 (a)** Differentiate between cleaning, grading, sorting and scalping. List out the criteria based on which, cleaning and grading equipments are classified? Discuss with diagram any one cleaning or grading equipment. **07**
- (b)** Differentiate between drying and dehydration. Discuss different methods of drying and its advantages. **07**
- OR**
- (b)** Answer the followings **07**
- a. What is food composition?
 - b. Give function of protein.
 - c. What is design of food?
 - d. What is a balance diet?
 - e. What is sensory evaluation method?
- Q.3 (a)** Discuss the followings in brief; **07**
1. Centrifugation
 2. Freezing
 3. PFA, FPO
 4. Blanching
 5. Latent heat
 6. Sensible heat
 7. Relative humidity
- (b)** Two different mixtures of methanol and water are kept in separate tank. The first mixture contains 40% wt methanol and second contains 30% wt water. Quantity of first mixture is 200gm whereas 150gm in second mixture. When they are mixed together, then what are the total mass and composition of the product? **07**

OR

- Q.3 (a)** Write the followings in brief **07**
1. Specific volume
 2. Dry bulb temperature
 3. Specific heat
 4. Latent heat
 5. Draw the skeleton of psychrometric chart and explain the characteristics of that.

- (b)** Answer the followings; **07**
1. Importance of industrial training
 2. What is irradiation method?
 3. How cooling helps in preservation?

- Q.4 (a)** Discuss the different laws used to calculate the energy requirement in size reduction. Draw the stress strain diagram by showing the different material properties of materials. **07**

- (b)** Write short notes on; **07**
1. Statutory laws of food with requirements.
 2. Marketing of food.
 3. Milk and its products

OR

- Q.4 (a)** Describe the present status of food industry in India and prospect of future growth. **07**

- (b)** What do you understand by peeling? Explain different methods of peeling. **07**

- Q.5 (a)** What do you understand by food preservation? Enlist different methods of preservation and discuss the heating methods of preservation.

- (b)** List out the importance of instrumentations and control in food industry? List the instrument which measure temperature and pressure. **07**

OR

- Q.5 (a)** Who is entrepreneur? Enlist characteristics of smart entrepreneur. Write down the advantages of entrepreneurship. **07**

- (b)** Write down the importance of packaging in food industry. Discuss different types of packaging materials with their advantages and disadvantages. **07**
