Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-III • EXAMINATION – SUMMER • 2014

Subject Code: 131405Date: 23-05-2014Subject Name: Introduction to Food Processing TechnologyTime: 02:30 pm - 05:00 pmInstructions:

- 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 07 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.
 - 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 150°C. milk with a initial temperature of 15°C is fed to the heat exchanger. Steam at 543.1kPa and 100% quality is used as heating medium. Condensate at 155°C 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/kg°C.
- Q.2 (a) Differentiate between cleaning, grading, sorting and scalping. List out the criteria 07 based on which, cleaning and grading equipments are classified? Discuss with diagram any one cleaning or grading equipment.
 - (b) Differentiate between drying and dehydration. Discuss different methods of drying 07 and its advantages.
 - OR
 - (b) Answer the followings
 - 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;
 - 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 07 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

07

- Q.3 (a) Write the followings in brief
 - 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;

- 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 07 reduction. Draw the stress strain diagram by showing the different material properties of materials.

(b) Write short notes on;

- 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 **07** instrument which measure temperature and pressure.

OR

- Q.5 (a) Who is entrepreneur? Enlist characteristics of smart entrepreneur. Write down the 07 advantages of entrepreneurship.
 - (b) Write down the importance of packaging in food industry. Discuss different types 07 of packaging materials with their advantages and disadvantages.

2

07

07

07