

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III (New) EXAMINATION – WINTER 2015

Subject Code:2131405**Date:18/12/2015****Subject Name: Introduction to Food Processing Technology****Time: 2:30pm to 5:00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 Short Questions 14**
State the following sentences are TRUE or FALSE
- 1 Secondary dimensions do not involve a combination of primary dimensions.
 - 2 Sphericity is mechanical properties.
 - 3 Material balance is based on the law of conservation of mass.
 - 4 Lye solution is used for peeling process.
 - 5 Psychometric chart is designed at one atmospheric pressure.
 - 6 Drying is not a good method of preservation of foods.
 - 7 Bucket elevators are used to transport the material horizontally.
 - 8 Ball mill is used to reduce the size of dry food materials.
 - 9 Relative humidity is expressed in Kg/m³.
 - 10 Superheated steam contains no wet vapors.
 - 11 If you know any two properties of air-water vapor mixtures, you can find out all other properties from psychometric chart.
 - 12 Carborundum is used in abrasion peeling.
 - 13 Unit of specific volume is m³/kg.
 - 14 Blanching is carried out to inactivate the enzymes.
- Q.2 (a) What do you mean by Engineering units, Dimensions and Derived Units? 03**
 Prove that the given equation is homogeneous or not $v = u + at$.
- (b) What do you mean by peeling? Discuss all methods of peeling in detail. 04**
- (c) 1000 kg of mixture of benzene (B) and toluene (T), containing 40% by mass 07**
 of benzene to be separated into two streams in a distillation column. The top output stream contains 375 kg of benzene and the bottom output stream contains 515 kg of toluene.
 A) Perform the mass balance for B and T
 B) Determine the composition of the top and bottom stream
- OR**
- (c) What are different criteria based on which, cleaning and grading equipments 07**
 are classified? Discuss any one cleaning or grading equipment with diagram.
- Q.3 (a) What is size reduction? Explain the working of equipments used in size 03**

reduction of fibrous foods and dry foods with diagram.

- (b) Draw the line diagram of psychometric chart with all notations and list out the uses in food processing technology. **04**
- (c) Falling film evaporator capacity 10kg water per hour. Feed enter at 5.5% solids and 25% solids are desired. To do that, system of recycles was used at which recycling pump moves 20 kg/hr of fluid into evaporator. Calculate the followings **07**
1. The feed rate
 2. Concentrate production rate
 3. Amount of concentrate recycled
 4. Concentration of mixture of feed and recycled concentrate
- OR**
- Q.3** (a) Discuss the followings; **03**
1. Cleaning, Grading and Sorting
 2. Moisture content
 3. Wet bulb temperature
- (b) Discuss the steps of formation of steam. Explain the purposes of steam table. Define Latent heat, Specific heat, Specific volume of steam. **04**
- (c) Discuss the importance and advantaged of material handling. What are the equipments are required to transport the materials. **07**
- Q.4** (a) Enlist various sectors of Indian food industry with two major brands for each sector. **03**
- (b) What are different methods of sensory evaluation of food? **04**
- (c) What are the opportunities for growth of food industry in India. **07**
- OR**
- Q.4** (a) Differentiate between subjective and objective evaluation of food. **03**
- (b) How nutrients can be classified into various categories on the basis of their functions? **04**
- (c) Describe the reasons for processing of food into different processed products **07**
- Q.5** (a) Describe the concepts of PAR and PAL. **03**
- (b) Write a note on “Reference Indian men and women”. **04**
- (c) Justify the statement “Food processing is inter-disciplinary subject” **07**
- OR**
- Q.5** (a) Briefly describe about protein requirement of Indians. **03**
- (b) Write a note on “Textural measurement of food”. **04**
- (c) Explain various functions of food. **07**
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