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

Subject Code: 2131405   **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)** What do you understand by drying and dehydration? Discuss different types of dryer in details. **07**

(b) Milk with 3.8% fat and 8.1% fat free solids (FFS) is used for the production of canned concentrated milk. The process includes the separation of cream in a centrifuge and concentration of the partially defatted milk in an evaporator. If the cream that is produced in the centrifuge contains 55% water, 40% fat and 5% FFS, calculate how much milk is necessary in order to produce a can of concentrated milk that contains 410g milk with 7.8% fat, 18.1% FFS. How much cream and water must be removed in the centrifuge and the evaporator respectively **07**

Q.2 **(a)** Explain how the government supports the development of food processing sector in India? **07**

(b) Discuss Dimensions, Basic units, Derived units and Supplementary units with example. Also discuss the homogeneity of the equation with example. **07**
OR
(b) Give the significance of cereals and fruits & vegetables as important classes of food **07**

Q.3 **(a)** Discuss different mills used for size reduction and explain Kick's and Rittinger's law in detail. **07**

(b) Describe the various principles used for arriving at nutritional requirements of individual **07**
OR
Q.3 **(a)** What are the opportunities and challenges of Indian food processing sector? **07**

(b) i. Derive the following equation **07**

$$MC_{db} = \frac{MC_{wb}}{1 - MC_{wb}}$$

ii. Determine the percent moisture, dry basis of a product if the percent moisture wet basis is 50%. Also find out the moisture content on wet basis if the percent moisture dry basis is 23.25%.

Q.4 **(a)** Describe various sectors of food processing industry. **07**
(b) Discuss the followings in brief **07**
  i. Specific volume
  ii. Relative humidity
  iii. Energy balance
  iv. Blanching
  v. Grading
  vi. Evaporation
  vii. Bond's law

OR

Q.4 **(a)** Write a note on current approach used to assess energy requirement of individuals. **07**

(b) Explain the importance of size reduction in food processing technology. Discuss **07** with diagram in details about hammer mill, ball mill and roller mill.

Q.5 **(a)** What do you understand by steam? Discuss the steam formation. Draw the skeleton **07** of psychrometric chart and explain the characteristics of that.

(b) Write in detail about parameters used to evaluate quality of dietary proteins **07**

OR

Q.5 **(a)** What do you understand by peeling? Discuss different methods of peeling. **07**

(b) Explain the guidelines for intake of dietary fat for Indians and give the nutritional **07** importance of dietary fats

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