Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(New) • EXAMINATION – WINTER 2016

Subject Code:2131405 Date:02/01/2017

Subject Name:Introduction to Food Processing Technology

Time:10:30 AM to 01:00 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)** Correct the following statements **06**

1. Lipids are known as protective nutrients
2. Factorial approach is used to determine RDA for Vitamins
3. Gluten is used as reference protein while calculating amino acid score of protein
4. Sensory evaluation is type of objective evaluation of food
5. Vitamins and minerals are considered as energy yielding nutrients.
6. Taste is the combination of aroma and flavor.

(b) Define following terms **04**

1. Sensible heat 2. Angle of Repose
3. Dew point temperature 4. Specific volume

(c) Write any two brand names for following processed products **04**

1. Jam 2. Bread
3. Butter 4. Weaning food

Q.2 **(a)** Explain how nutritional variability affects on RDA value? **03**

(b) Write in detail about physiological functions of food. **04**

(c) Enlist different sectors of Indian food industry and write in detail about Dairy and Beverage sector. **07**

OR

(c) Comment on "Initiatives by government for growth of Indian food processing industry" **07**

Q.3 **(a)** State the law of conservation of mass with suitable examples. **03**

(b) State and describe different laws of size reduction. **04**

(c) Calculate the amount of cooling water required to cool a tomato concentrate at the rate of 120kg/hr, containing 37% solids from 85 to 30^0 C in a parallel flow heat exchanger. The increase in temperature of water is not allowed to exceed 8^0 C. The specific heat of liquid concentrate is 2.85 and water is 4.18KJ/kg. **07**

OR

Q.3 **(a)** Define "Unit" and explain different types of units with suitable example. **03**

(b) What do you understand by peeling? State different methods of peeling used in food industry. **04**

(c) What is significance of size reduction of food products? Describe operation of any size reduction machine for grains with it's principal and diagram. **07**

Q.4 **(a)** Give the parameters used for "Reference Indian men and women" **03**

(b) Describe how basic sciences are related to food processing technology? **04**

(c) Describe various principles used to determine RDA value. **07**

OR

Q.4	**(a)**	Enlist different advantages of processing of food.	**03**
	(b)	What do you mean by subjective and objective evaluation of food?	**04**
	(c)	State the challenges and opportunities for the Indian food processing industry.	**07**
Q.5	**(a)**	Enlist different instruments used for process control in food industry.	**03**
	(b)	Differentiate between 1. Dry bulb temperature and Wet bulb temperature 2. Abrasion peeling and Caustic peeling	**04**
	(c)	Cow Milk with 4.1% fat and 8.5% 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 60% water, 35% fat and 5% FFS, calculate how much milk is necessary in order to produce a can of concentrated milk that contains 450g milk with 8.0% fat, 18 % FFS. How much cream and water must be removed in the centrifuge and the evaporator respectively	**07**

OR

Q.5	**(a)**	Draw stress-strain diagram to indicate different types of material.	**03**
	(b)	Mention different criteria used for classification of cleaning and grading equipment in food industry.	**04**
	(c)	Explain the application of psychrometric chart in food processing technology. Draw a well labelled line diagram of psychrometeric chart and describe the properties like enthalpy, specific volume and dry bulb temperature.	**07**

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