Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (New) EXAMINATION – WINTER 2018

Subject Code: 2131405 Date: 28/11/2018

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)**	Fill in the blanks 1. Psychometric chart is designed at _____ pressure. 2. Unit of specific volume is _____. 3. _____ solution is used for peeling process.	**03**
	(b)	Define following terms 1. Food Technology 2. Food Ingredient 3. Food Fortification 4. Food Additive	**04**
	(c)	Describe the advantages of processing of food.	**07**
Q.2	**(a)**	State the laws of conservation of mass and energy.	**03**
	(b)	Explain how nutritional variability affects on RDA value?	**04**
	(c)	Discuss various opportunities for growth of Indian food industry	**07**
		OR	
	(c)	Why size reduction is required in food processing operations? Discuss different mills used for size reduction with diagram.	**07**
Q.3	**(a)**	Enlist different sectors of Indian Food Industry.	**03**
	(b)	Write a short note on present status of Indian food industry.	**04**
	(c)	Discuss the Rittinger's, Bonds and Kick's Law in size reduction. Also draw stress-strain diagram to identify the types of material.	**07**
		OR	
Q.3	**(a)**	Write a note on different methods of blanching used in food industry.	**03**
	(b)	State the use of psychometric chart in food processing. Draw a neat labelled diagram of psychometric chart indicating various variables.	**04**
	(c)	Enlist the different parameters used to evaluate quality of dietary proteins and write in detail about PDCAAS	**07**
Q.4	**(a)**	State any six agencies or institutes related to Indian food industry.	**03**
	(b)	Enlist the challenges faced by Indian Food Industry.	**04**
	(c)	Milk with 3.6% fat and 8.2% Fat Free Solids (FFS) is used for the production of canned concentrated milk. The process includes 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 contain 50% water, 44% fat and 6% Fat Free Solids, calculate how much milk is necessary in order to produce a can of concentrated milk that contain 400g milk with 7.5% fat and 18.2% FFS. How much cream and how much water must be removed in the centrifuge and the evaporation respectively.	**07**
		OR	
Q.4	**(a)**	What is drying? State different advantages of drying.	**03**

	(b)	Mention the criteria used for classification of cleaning and grading food equipments.	**04**
	(c)	Describe 'Beverage Sector' of Indian food industry.	**07**
Q.5	**(a)**	Write a brief note on PAR and PAL values.	**03**
	(b)	Explain physiological function of food.	**04**
	(c)	In a food processing operation 10 kg of water per second is to be heated from 20 to 80^0C. To perform this, a steam at 150^0C is passed from the boiler into a copper coil immersed in water. The steam condenses in the coil and returned to the boiler as water at 90^0C. How many kg of steam is required per second? The specific heat of water and latent heat of steam is 4.186 kJ/kg K and 2260 kJ/kg respectively.	**07**

OR

Q.5	**(a)**	100 kg of food at a moisture content of 260% dry basis is dried to 40% wet basis. Calculate the amount of water removed.	**03**
	(b)	Define the followings; 1. Latent Heat 2. Specific volume 3. Enthalpy 4. Diffusion	**04**
	(c)	Write in detail about basic sciences related to food processing technology	**07**

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