Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 2131405   **Date: 28/11/2019**
Subject Name: Introduction to Food Processing Technology
Time: 02:30 PM TO 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 is drying? State different advantages of drying.	**03**
	(b)	Define the followings;	**04**
		1. Dry bulb temperature	
		2. Specific volume	
		3. Enthalpy	
		4. Size reduction	
	(c)	What are various opportunities for growth of Indian food industry?	**07**
Q.2	**(a)**	Enlist the challenges faced by Indian Food Industry.	**03**
	(b)	State various constraints for development of Indian food processing industry.	**04**
	(c)	Explain the Rittinger's, Bonds and Kick's Law of size reduction.	**07**
		OR	
	(c)	Differentiate between cleaning and grading. Explain the working principle of hand operated double screen grain cleaner and seed grader with diagram.	**07**
Q.3	**(a)**	Describe the concepts of PAR and PAL	**03**
	(b)	Give the effect on nutritional variability on RDA value.	**04**
	(c)	List out the purposes to study the physical properties. Explain the application of frictional properties. Describe angle of repose.	**07**
		OR	
Q.3	**(a)**	Write a note on different methods of blanching used in food industry.	**03**
	(b)	Give the criteria used for classification of cleaning and grading food equipments.	**04**
	(c)	Give a detailed note on sectors of Indian food industry	**07**
Q.4	**(a)**	List out the equipments used for temperature measurement, flow measurements and pressure measurements.	**03**
	(b)	Differentiate between	**04**
		1. Abrasion peeling and Caustic peeling	
		2. Dry bulb temperature and Wet bulb temperature	
	(c)	Describe the reasons for processing of food into different processed products	**07**
		OR	
Q.4	**(a)**	A food is initially at a moisture content 65% dry basis. Calculate the moisture content in wet basis. Convert moisture content of 85% wet basis to moisture content dry basis.	**03**
	(b)	Discuss the followings in brief;	**04**
		1. Relative humidity	
		2. Diffusion	
	(c)	Explain various methods used to determine RDA value.	**07**

Q.5 **(a)** Draw the line diagram of psychometric chart and explain the principle of wet bulb temperature. **03**

(b) Explain the followings; **04**
1. Formation of superheated steam
2. Peeling

(c) Justify the statement "Food processing is inter-disciplinary subject" **07**

OR

Q.5 **(a)** Explain the physiological functions of food **03**

(b) What are the initiatives taken by government for growth Indian food processing sector? **04**

(c) A fresh Apple juice with 9% soluble solids content is concentrated to 50% in a multiple effect evaporator. To improve the quality of the final product, the concentrated juice is mixed with an amount of fresh juice so that the concentration of the mixture is 40%. Calculate how much water per hour must be evaporated in the evaporation? How much fresh juice per hour must be added back and how much final product will be produced if the inlet feed flow rate is 8000 kg/h fresh juice. **07**

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