Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (NEW) EXAMINATION – SUMMER 2021

Subject Code: 3131405 Date:08/09/2021

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1	**(a)**	Define: a. Decimal Reduction Time b. Thermal death time c. Thermal Resistance (Z value)	**03**
	(b)	Write a short note on present status of Indian food industry.	**04**
	(c)	A food mix is to be made that would balance the amount of methionine (MET), a limiting amino acid in terms of food protein nutritional value, by blending several types of plant proteins. Corn, which contains 15% protein, has 1.2 g MET/100 g protein; soy flour with 55% protein has 1.7 g MET/100 g protein; and non fat dry milk with 36% protein has 3.2 g MET/100 g protein. How much of these ingredients must be used to produce 100 kg of formula that contains 30% protein and 2.2 g MET/100 g protein.	**07**
Q.2	**(a)**	Give the classification of nutrients found in food.	**03**
	(b)	State various constraints for development of Indian food processing industry.	**04**
	(c)	Discuss in detail the food deterioration by enzymatic and non-enzymatic chemical reactions.	**07**
		OR	
	(c)	Explain various methods used to determine RDA value.	**07**
Q.3	**(a)**	List out the application of diffusion in food processing.	**03**
	(b)	Differentiate between subjective and objective food evaluation and enlist methods of sensory evaluation.	**04**
	(c)	Milk with 3.8% fat and 8.1% Fat-Free Solids (FFS) is used to produce concentrated canned milk. The process includes the separation of cream in a centrifuge and the partially defatted milk concentration in an evaporator. If the cream produced in the centrifuge contains 55% water, 40% fat, and 5% Fat-Free Solids, calculate how much milk is necessary to produce a can of concentrated milk containing 410g milk with 7.8% fat and 18.1% FFS. How much cream and how much water must be removed in the centrifuge and the evaporation, respectively.	**07**
		OR	
Q.3	**(a)**	What are the guidelines for intake of dietary fat for Indians?	**03**
	(b)	Explain how nutritional variability affects on RDA value?	**04**

	(c)	Give the importance of size reduction process in food products. Discuss Kick's, Rittenger's and Bond's law of size reduction of grains.	**07**
Q.4	**(a)**	Discuss the followings 1. Uses psychometric chart in food industry 2. Relative humidity	**03**
	(b)	Define the followings; 1. Dry bulb temperature 2. Specific volume 3. Drying 4. Diffusion	**04**
	(c)	Give a detailed note on sectors of Indian food industry	**07**
		OR	
Q.4	**(a)**	Write a brief note on PAR and PAL values.	**03**
	(b)	Draw the line diagram of psychometric chart and explain the principle of wet bulb temperature.	**04**
	(c)	What do you understand by overall material balance? State the law of conservation of mass.	**07**
Q.5	**(a)**	What do you mean by dimensions? Discuss Base, Derived and Supplementary units.	**03**
	(b)	Discuss different types of blanching process used in food in	**04**
	(c)	Describe the advantages of processing of food.	**07**
		OR	
Q.5	**(a)**	Discuss the law of conservation of mass and energy.	**03**
	(b)	Why peeling is required during processing? Discuss different process of peeling.	**04**
	(c)	Comment on 'Energy Requirements for Indians'	**07**

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