Seat No.:	Enrolment No.

Subject Code: 141405

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV • EXAMINATION - SUMMER 2013

Date: 17-06-2013

S	ubject	Name: Principles of Food Engineering	
	ime: 10	0:30am – 01:00pm Total Marks	: 70
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q1	(a)	Explain the effect of radiation on food	(07)
	(b)	Explain physical properties of food materials	(07)
$\mathbf{Q2}$	(a)	Explain the physiological functions of food	(07)
	(b)	Enlist and explain the different process of irradiation.	(07)
		OR	
0.0	(b)	Explain heat and mass balance system.	(07)
Q3		rite the important requirements of food package.	(07)
	(b) D1s	cuss the relationship between the water activity and shelf life of food.	(07)
^2	(a)(i)	OR	(0.4)
Q3	(a)(i) (ii)	What is unit operation? Explain drying process Define / explain the following (any three)	(04)
	(11)	Evaporation, Homogenization, Separation, Distillation	(03)
	(b)	Explain food spoilage due to temperature and moisture	(07)
Q4	(a)	Explain the controlled atmosphere storage for fruits.	(07)
ν.	(b)	Explain the importance and process of aspects packaging of food.	(07)
	(8)	OR	(01)
Q4	(a)	What is heat transfer? Explain heat conduction and convection system.	(06)
	(b)	Answer the following (Any Four)	(08)
	(6)	What is heat transfer coefficient?	(00)
		What is mass transfer?	
		What is heat exchanger?	
		What is freezing?	
		Explain heat penetration in food.	
Q5	(a) De	efine food spoilage. Enlist the causes of food spoilage and explain	(07)
micr	obial spo	ilage in detail.	
	(b) En	list the nutritional constituents and briefly discuss the function of food. OR	(07)
Q5	Write	short notes on the following (Any Two)	(07)
		Food processing by heat application.	(**)
		Mechanical properties of food materials.	
		Sieving separation.	
Q5(I	b)		
	Sugar	cane juice containing 15% solid sugar is concentrated to 70% solid	(05)
		juice in an evaporator. The juice entering rate is 1000 kg/hr calculate the	
conc	entrated	juice produced and moisture removed using mass balance.	
		What are rheological properties?	(02)
