Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII • EXAMINATION – SUMMER • 2014

Subject Name: Medical Imaging Technology		Code: 170303 Date: 05-06-201	Date: 05-06-2014 Total Marks: 70	
		2:30 pm - 05:00 pm Total Marks: 7		
		Attempt all questions.		
Q.1	(a)	Explain interaction between sonic beam and matter with the concept of	07	
	(b)	ultrasonic diagnostic. Give the construction of single element ultrasonic transducer with mechanical matching and electrical matching.	07	
Q.2	(a)	Explain amplitude mode of ultrasonic diagnostic method with time gain compensation.	07	
	(b)	Explain construction of mechanical sector scanner with alternative design of mechanical sector scanner.	07	
	(b)	OR Explain determinants of biological effects of ionizing radiation and its short term and long term effects.	07	
Q.3	(a) (b)	Write a short note on x-ray generation. Draw and explain basic components of fluoroscopy. OR	07 07	
Q.3	(a) (b)	Enlist and explain factors that affect intensity of the x-ray beam produced. Compare all generations of computed tomography.	07 07	
Q.4	(a) (b)	Explain interaction of Nuclear Particles and matter. Explain working principle of positron Emission Tomography with schematic diagram.	07 07	
		OR		
Q.4	(a)	Explain clinical use, Biological effects and safety aspects of Nuclear medical imaging.	07	
	(b)	Write a short note on NMR coils.	07	
Q.5	(a)	Explain following terms related to MRI. 1. Magnetic Dipole moment, 2. Free Induction Decay, 3. Inversion recovery.	07	
	(b)	Explain Longitudinal section tomography with neat diagram. OR	07	
Q.5	(a)	Explain principle of iterative reconstruction method for image reconstruction in CT scan.	07	
	(b)	Write a short note on Transillumination and Infrared photography.	07	
