Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – WINTER 2015

Subject Code: 170303 **Date: 09/12/2015**

Subject Name: Medical Imaging Technology

Time: 10:30am to 1:00pm **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)**	Give explanation of Line focus principle, Heel effect and filters used in X-ray.	**07**
	(b)	Compare X-ray, CT scan and MRI imaging techniques with necessary schematic diagram.	**07**
Q.2	**(a)**	Explain all process that occur when X-ray interact with orbital electrons.	**07**
	(b)	Explain process of reflection and refraction when acoustic wave meets an interface between two different media.	**07**
		OR	
	(b)	Explain Attenuation, Absorption and scattering phenomena of Ultrasonic wave.	**07**
Q.3	**(a)**	Explain any one image reconstruction technique in CT scan.	**07**
	(b)	Write a technical note on positron emission tomography.	**07**
		OR	
Q.3	**(a)**	Draw block diagram of color Doppler flow mapping system and explain it.	**07**
	(b)	Compare all generation of CT scan.	**07**
Q.4	**(a)**	Explain working of real time Brightness mode scanners.	**07**
	(b)	Define piezoelectric effect. Draw and explain single element piezoelectric transducer.	**07**
		OR	
Q.4	**(a)**	Enlist and explain biological effects of ultrasound.	**07**
	(b)	Write a brief note on longitudinal section tomography with necessary schematic.	**07**
Q.5	**(a)**	Discuss Biological effects and safety aspects of Nuclear medical imaging.	**07**
	(b)	Write a brief note on detectors used in Nuclear radiation imaging techniques.	**07**
		OR	
Q.5	**(a)**	Explain interaction of Nuclear Particles with matter.	**07**
	(b)	Write a short note on role of Infrared imaging technique in Diagnostic filed.	**07**

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