Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – SUMMER 2016

Subject Code:170303 **Date:10/05/2016**

Subject Name:Medical Imaging 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)**	Define the following terms: (1) T2*, (2) Rontgen, (3) contrast resolution, (4) radionuclide, (5) Collimator, (6) Hounsfield, (7) Larmor frequency	**07**
	(b)	Explain the parts and working principle of X-ray Tube.	**07**
Q.2	**(a)**	How does X-ray are detected? Explain in detail Image intensifier.	**07**
	(b)	How does Gamma ray Detected? Explain in detail rectilinear scanner.	**07**
		OR	
	(b)	What is the difference between x-rays and gamma rays? Write Einstein's theory of relativity formula.	**07**
Q.3	**(a)**	Write short note on how mA. kVp and added filtration affect the x-ray generation.	**07**
	(b)	Differentiate between grids and collimator.	**07**
		OR	
Q.3	**(a)**	Explain the principle of MRI.	**07**
	(b)	List out the process of angiography. Which diseases can be diagnosed by angiography?	**07**
Q.4	**(a)**	Short note on CT image characteristics.	**07**
	(b)	Explain in detail line-focus principle and heel effect.	**07**
		OR	
Q.4	**(a)**	Explain in detail Generations of CT.	**07**
	(b)	Explain the principle of PET.	**07**
Q.5	**(a)**	Explain A, B and M-mode of ultrasonic diagnostic methods.	**07**
	(b)	Write short note on Infrared imaging.	**07**
		OR	
Q.5	**(a)**	How are ultrasounds generated and detected? Explain Piezoelectric effect and Ultrasonic transducer.	**07**
	(b)	Microwave thermography.	**07**

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