Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (OLD) - EXAMINATION - SUMMER 2017

Subject Code: 170303 Date: 04/05/2017 **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. What is electromagnetic radiation? Explain wave particle duality nature. 0.1 07 Explain interaction between sonic beams & matter. How it helps for ultrasonic 07 diagnostics. 0.2 Draw the schematic of X-ray tube and explain importance of each components. 07 (a) Discuss various detectors used for x-ray imaging purpose. **07** (b) Draw physical construction of intensifier tube and explain importance of each 07 components. Q.3 (a) Explain detail process of Angiography. 07 Define/Explain following terms 07 1) Grid 2) Line focused principle 3) CT number OR Compare all generation of CT scan in term of performance and hardware Q.307 aspects. Explain iteration algorithm for image reconstruction in CT scan. **(b) 07** Explain ultrasound energy loss mechanism in tissue. **07** 0.4 (a) What is piezoelectric effect? Explain ultrasound transducer's design aspects. 07 **(b)** OR **Q.4** (a) Explain concept of Amplitude mode ultrasonography. Also explain time gain 07 compensation technique. Discuss various clinical application of color Doppler flow imaging. 07 **(b)** Explain various biological effects of radiation & ultrasound with its protection. **Q.5** 07 (a) Explain technical concepts of Magnetic resonance imaging technique. **07 (b)** OR (a) Discuss biological effects and safety aspects of Nuclear medical imaging **Q.5** 07 technique. Write a short note on 07 **(b)** Infrared photography Transillumination
