Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII (NEW) - EXAMINATION - SUMMER 2017 Date: 29/04/2017 Subject Code: 2170303 **Subject Name: Medical Imaging techniques** 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. (a) Explain different interactions between x-rays and matter. 0.1 07 How anode angle affects the focal spot size? Explain with line focus principle. 07 **(b)** (a) Explain stationary anode type x-ray tube. Also mention general x-ray tube 07 0.2 ratings with explanation. Explain long term and short term biological effects of ionizing radiation with **07** their determinants. OR (b) Write a note on fluoroscopy with its application, advantages and disadvantages. 07 **Q.3** (a) What is CT number? Explain different generations of CT machine with merits **07** and demerits. Enlist and explain any two modes of ultrasound imaging technique. 07 **(b)** 0.3 (a) Explain iterative method of image reconstruction for CT. 07 Explain color Doppler flow imaging in detail. 07 0.4 (a) Explain in detail Principle of MRI and explain Larmor frequency. 07 State and explain Clinical applications of Thermography. 07 **(b)** OR Explain in detail basic Block diagram of MRI system. **07** 0.4 (a) Write a short note on SPECT. **(b) 07** 07 0.5 (a) Explain the process of generation and detection of NMR signal with schematic. Explain Xeroradiography procedure in detail. 07 (a) State different types of Coil used in MRI and explain it.

Write a short note on Positron Emission Tomography.

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