Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Date: 18/11/2016

Subject Code:2170303

Subject Name: Medical Imaging techniques Time: 10.30 AM to 1.00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. (a) Explain Photoelectric effect. Differentiate between Elastic and Inelastic **Q.1** 07 Scattering. **(b)** Write a short note on various types of Radiation Detectors. 07 **Q.2** Explain Fluoroscopy as imaging technique with necessary Diagram. 07 (a) (b) Draw & explain stationary anode type x-ray tube with schematic diagram 07 OR **(b)** Explain single photon emission computed tomography. 07 0.3 Explain different operational modes of CT Scan machine. 07 (a) Write a short note on Positron Emission Tomography. 07 **(b)** OR **Q.3** (a) Write a note on following terms: **07** 1) Explain the use of slip rings in CT-Scan machine. 2) Hounsfield Unit **(b)** Explain Xeroradiography as imaging technique with necessary Diagram. 07 (a) Explain working Principle of MRI Machine. 07 0.4 Explain working of real time Brightness mode scanners of Ultrasound. **(b)** 07 OR What is Piezoelectric effect? Explain construction of Single element Ultrasonic 0.4 **07** (a) transducer with the concept of Mechanical matching. **(b)** Explain A-scan system of ultrasonography with block diagram. **07** 0.5 What is Thermal Imaging? Explain Infrared Thermography in detail. 07 (a) Write a Short note on Gamma camera. 07 **(b)** OR Describe advantages of MRI over CT Imaging systems. And Explain Biological **Q.5 07** (a) effects of NMR imaging system. (b) Draw block diagram of color Doppler flow mapping system and explain it **07**
