

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER 2013****Subject Code: 170303****Date: 28-05-2013****Subject Name: Medical Imaging Technology****Time: 02.30 pm - 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) What is electromagnetic radiation? Explain interaction between x-ray and matter. **07**
(b) Draw and explain construction of stationary anode type x-ray tube. **07**
- Q.2** (a) Explain different circuits of high voltage generation in x-ray machine and distinguish them each other. **07**
(b) Write a note on filters and grids used in x-ray machine. **07**
OR
(b) Write a short note on fluoroscopy with its schematic. **07**
- Q.3** (a) Explain different operational modes of CT-scan machine. **07**
(b) Write a note on following terms:
1) Explain the use of slip rings in CT-Scan machine. **04**
2) Hounsfield Unit **03**
OR
- Q.3** (a) Enlist and explain properties of ultrasound. Brief about characteristic impedance. **07**
(b) Draw and explain block diagram of basic pulse echo system. **07**
- Q.4** (a) Explain the working principle of magnetic resonance imaging. **07**
(b) Explain brightness mode of ultrasonic machine with its applications. **07**
OR
- Q.4** (a) Explain single photon emission computed tomography. **07**
(b) Write a note on infrared imaging. **07**
- Q.5** (a) Enlist and explain different biological effects of radiation. **07**
(b) Explain xeroradiography in detail. **07**
OR
- Q.5** (a) Write a note on color Doppler imaging. **07**
(b) Write a note on microwave thermography. **07**
