

Seat No.: _____

Enrolment

No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – SUMMER • 2015

Subject code: 170303

Date: 12/05/2015

Subject Name: Medical Imaging Technology

Time: 02.30pm-05.00pm

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) Explain the interaction of Electron with target in x-ray tube. **07**

(b) Explain Grid Construction and performance aspects. **07**

Q.2 (a) Give details of Factors that affecting X-ray emission spectrum. **07**

(b) Explain associated parts of Fluoroscopy. **07**

OR

(b) Explain physical construction and working of Xeroradiographic system. **07**

Q.3 (a) Write a short note on system components of CT scanner system. **07**

(b) Write a short note on Digital Radiography. **07**

OR

Q.3 (a) Give the technical differences between Operational modes of CT scan. **07**

(b) Explain Image reconstruction method used in CT scan. **07**

Q.4 (a) What is Piezoelectric effect? Explain construction of Single element Ultrasonic transducer with the concept of Mechanical matching. **07**

(b) Explain Brightness mode of ultrasonography with block diagram. **07**

OR

Q.4 (a) Explain Schlieren system for visualizing Ultrasonic beam. **07**

(b) Explain A-scan system of ultrasonography with block diagram. **07**

Q.5 (a) How radionuclide imaging is different from Computed tomography? Explain basic principle of Single photon emission computed tomography. **07**

(b) Write a short note on Infrared Imaging. **07**

OR

Q.5 (a) Explain following terms with necessary diagram **08**

1. Resonance
2. Magnetic dipole moment
3. Precession

4. Doppler effect

- (b) Give Clinical uses, biological effects and safety aspects of Nuclear medical Imaging. **06**
