

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering - SEMESTER-V • Examination – WINTER • 2014****Subject Code: 3350302****Date: 02-12-2014****Subject Name: Medical Imaging Techniques****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

- Q.1** Answer any seven out of ten. **14**
1. Tube current.
 2. X-ray.
 3. Filament current.
 4. Grids.
 5. X-ray tube.
 6. Roentgen.
 7. Larmor frequency.
 8. CT number.
 9. Angular momentum.
 10. Angiography.
- Q.2** (a) Describe the electromagnetic radiations. **03**
- OR
- (a) Explain Line focus principle of X-ray generators. **03**
- (b) Explain factors that affect attenuation coefficient. **03**
- OR
- (b) Define Radiation absorbed dose in brief. **03**
- (c) Explain construction of beam restrictors. **04**
- OR
- (c) Explain need of grids. **04**
- (d) Compare stationary and rotating X-ray tubes. **04**
- OR
- (d) Draw rotating X-ray tube only. **04**
- Q.3** (a) Explain Image intensifier in brief. **03**
- OR
- (a) Explain X-ray films in brief. **03**
- (b) Define the basic components of fluoroscopy. **03**
- OR
- (b) State Angiography procedure in brief. **03**
- (c) Describe the Compton effect in short. **04**
- OR
- (c) Enlist the various pressure waveforms associated with catheterization procedure. **04**
- (d) Draw the layout of catheterization laboratory. **04**
- OR
- (d) State the principle of CT scan. **04**
- Q.4** (a) Describe photo scattering in brief. **03**
- OR
- (a) Describe the 3rd and 4th generation of CT Scan. **03**

	(b) Describe the free induction delay.	04
	OR	
	(b) Explain principle of MRI.	04
	(c) Describe the biological effects of magnetic field in detail.	07
Q.5	(a) Enlist various properties of ultrasound.	04
	(b) Draw the basic block diagram of pulse echo system.	04
	(c) Describe the A-scan method in brief.	03
	(d) Give the disadvantages of ultrasound transducer.	03

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