

**GUJARAT TECHNOLOGICAL UNIVERSITY****DIPLOMA ENGINEERING - SEMESTER-V • EXAMINATION – SUMMER 2013****Subject Code: 350302****Date: 14-05-2013****Subject Name: MEDICAL IMAGING TECHNOLOGY****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
- (a) Explain rotary X-ray tube with advantages over stationary X-ray tube. **07**
  - (b) Draw and explain block-diagram of X-Ray machine. **07**
- Q.2
- (a) Enlist the properties of X-ray. Explain X-ray generation techniques. **07**
  - (b) Explain Pulse Echo System. **07**
- OR
- Q.3
- (b) Explain Angiography technique with its application in medical field. **07**
- Q.3
- (a) Explain different generation of CT scan. **07**
  - (b) Draw the construction of Image intensifier. Explain it in detail. **07**
- OR
- Q.3
- (a) Define CT number and Voxel. Compare X-ray and CT scan techniques. **07**
  - (b) Explain basic principle of Magnetic Resonance Imaging technique. **07**
- Q.4
- (a) Draw and explain the block-diagram of MRI machine. **07**
  - (b) Explain the basic principle of computed tomography. **07**
- OR
- Q. 4
- (a) Compare X-ray and MRI techniques. Explain FID (Free Induction Decay). **07**
  - (b) Explain fluoroscopy technique with its basic principle. **07**
- Q.5
- (a) Enlist different modes of imaging in ultrasound scanning. Explain A-mode Ultrasound scanning technique. **07**
  - (b) Explain ultrasound transducer with neat diagram. **07**
- OR
- Q.5
- (a) Enlist advantages and disadvantages of ultrasound sonography technique. Describe any one ultrasound property in brief. **07**
  - (b) Explain the use of Grids and Collimator. **07**

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