

**IV B.Tech I Semester Supplementary Examinations, April/May 2005**  
**MEDICAL IMAGE TECHNIQUES**  
**(Bio-Medical Engineering)**

**Time: 3 hours**

**Max Marks: 70**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

\*\*\*\*\*

1. (a) What is non ionizing and ionizing radiation. Bring out the differences.  
(b) Explain in what ways x-rays are helpful as diagnostic tool.
2. (a) Explain the following:
  - i. Radio graphy
  - ii. Fluoroscopy(b) Explain as to how x-rays are generated using rotating Anode.
3. What do you mean by the following with regard to an x-ray image:
  - (a) Spiral Resolution
  - (b) Image NoiseGive necessary sketches and expressions involved.
4. (a) Explain in detail the following:
  - i. Biological Effects of Ultrasound
  - ii. Pulse Echo systems.(b) Match a comparative study of three types of (A, B, M) ultrasound.
5. (a) What are Axial and Lateral Resolution with regard to sound propagation.  
(b) What do you mean by compensation of phase aberration with regard to Acoustic propagation.
6. (a) Explain about the characteristics of Radio nuclide images.  
(b) WWhat are SPECT and PET? Make a comparative study.
7. (a) Write down about Fourier spectrum of the NMR signal.  
(b) What is sensitivity and resolution with regard to an NMR signal.
8. (a) Write down about the following with respect to NMR signal Imaging methods?
  - i. Data Acquisition
  - ii. Spin-Echo Imaging(b) Write down about Imaging safety.

\*\*\*\*\*