

**B.Tech Sem – VI (2007 Course) (Biomedical Engg.) : WINTER -  
2017**

**SUBJECT: MEDICAL IMAGING & PROCESSING**

Day: **Wednesday**  
Date: **22/11/2017**

Time: **10.00 AM TO 01.00 PM**  
Max. Marks: **80**

**W-2017-2535**

**N.B.:**

- 1) **Q.No.1** and **Q.No. 5** are **COMPULSORY**. Out of the remaining attempt any two questions from each Section.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Answer to both the sections should be written in **SEPARATE** answer book.
- 4) Use of non- programmable **CALCULATOR** is allowed.
- 5) Assume suitable data if necessary.

**SECTION-I**

- Q.1** a) Mention the various parts of a digital X-ray imaging system and state various applications where digital X-ray are used? [05]
- b) Give the various applications of A-scan, M-scan and B-scan ultrasonic system? [05]
- c) Write a short note on single photon emission computed tomography. [04]
- Q.2** a) Write a short note on production on of X-rays and X-ray tubes? [07]
- b) What are the safety specification of X-ray equipment? [06]
- Q.3** a) Write about the various generation in the development of computed tomography? [07]
- b) Explain the different type of detectors used in CT with the help of a neat diagram? [06]
- Q.4** a) Explain in detail multielement linear array scanners used in ultrasound imaging? [07]
- b) Write a short note on echocardiography? [06]

**SECTION-II**

- Q.5** a) Write a short note on scintillation detectors? [05]
- b) Write about the physics of thermography? [05]
- c) Mention and explain the various digital imaging formats? [04]
- Q.6** a) With the help of neat block diagram explain rectilinear scanning system? [07]
- b) Draw explain the block diagram of a single channel pulse height analyzer? [06]
- Q.7** a) Give the principle applications of magnetic resonance imaging system? [07]
- b) Write short note on thermographic equipment? [06]
- Q.8** a) State and explain the various methods of image enhancement in digital images? [07]
- b) Write a short note on image restoration techniques? [06]