

No. of Printed Pages : 03

Roll No.

AA-204

M. Tech. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

(BME)

BME-507

MEDICAL IMAGING AND IMAGE
PROCESSING

Time : 3 Hours]

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. All questions carry equal marks.

(3-52/12)M-AA-204

P.T.O.

1. Describe the nature and properties of an atom and its nuclear and radioactive applications. **20**
2. Explain the generation and characteristics of X-ray beam and its interaction with matter. What are the various X-ray detection techniques ? **20**
3. Explain the principle generations, construction and applications of CT scan. Discuss its pros and cons. **20**
4. Write technical notes on the following : **10×2**
 - (a) NMR
 - (b) SPECT.
5. Describe the following : **10×2**
 - (a) Ultrasound Imaging
 - (b) Thermography Imaging.
6. Discuss the basic physics of image processing and various techniques related to same. **20**

7. Describe the digital image production in PET and the effect of various transform, with suitable examples. **20**
8. Write short notes on any *four* of the following : **5×4**
 - (a) PET Radionuclide
 - (b) Information content of an Image
 - (c) Disadvantages of ultrasound
 - (d) Risks with X-ray imaging
 - (e) Advantages of MRI over CT.