

# 22547

**23124**

**3 Hours / 70 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answers with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Assume suitable data, if necessary.  
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following :** **10**
- a) Write two properties of X ray.
  - b) Write two medical applications of X ray
  - c) Define radiography and fluroscopy.
  - d) Define CT Number ? Write CT number for water and air.
  - e) Write two clinical application of ultrasound machine.
  - f) Write the purpose of SPECT scan.
  - g) Draw Geiger Muller tube and label it.
- 2. Attempt any THREE of the following :** **12**
- a) Write risk involved in handling X ray machine.
  - b) Write safety tips in handing C arm fluroscopy.
  - c) Draw the block diagram of CT machine and describe it.
  - d) Write four technical specifications of ultrasound machines.

P.T.O.

- 3. Attempt any THREE of the following :** **12**
- a) Draw block diagram of fluroscopy machine and describe.
  - b) Draw the block diagram of X ray machine and describe it.
  - c) Identity the image reconstruction techniques used in CT which is used to reconstruct 2D and 3D images.
  - d) X ray having KVp rating of 40 KVp, mA rating of 50 mA and X ray emits for 20 seconds. Calculate the heat unit value (HU) for this tube.
- 4. Attempt any THREE of the following :** **12**
- a) Draw the diagram of rotating anode X ray tube and describe.
  - b) Draw and describe linear phased array in ultrasound machine.
  - c) Write the maintence steps in X ray machine.
  - d) Draw the block diagram of MRI and describe it.
  - e) Write installation steps in angiography machine.
- 5. Attempt any TWO of the following :** **12**
- a) Write risk involved in handling CT and MRI machine.
  - b) Draw and describe A scan display of ultrasound machine.
  - c) Draw and describe Gamma Camera.
- 6. Attempt any TWO of the following :** **12**
- a) Write risk involved in handling PET and SPECT SCAN.
  - b) Write the Principle of Doppler ultrasound machine.
  - c) Differentiate between radiography and fluroscopy.
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