

# 315344

**12526**

**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 answer 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 any two properties of X-rays.
  - b) List the types of fluoroscopy.
  - c) List any four properties of ultrasound.
  - d) List any two artifacts of image intensifier.
  - e) State methods of radioactive waste disposal.
  - f) List any two clinical applications of ultrasonic imaging.
  - g) State the principle of nuclear imaging.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Draw a neat labelled diagram of Thermography.
  - b) Draw the labelled block diagram of CT machine.
  - c) Write the safety tips for 'C' arm fluoroscopy. (Any four points)
  - d) List any four medical applications of X-ray machine.
- 3. Attempt any THREE of the following: 12**
- a) Describe the risk involved for SPECT scan.
  - b) Draw labelled diagram of X-ray tube and explain its operation controls in the X-rays.
  - c) Describe Piezoelectric ultrasound transducer with neat diagram.
  - d) Enlist Radio isotopes used for nuclear imaging. (Any four points)
- 4. Attempt any THREE of the following: 12**
- a) State the function of :-
    - i) Filter
    - ii) Collimator
    - iii) X-ray table
    - iv) Bucky tray.
  - b) Explain linear phased array in ultra sound machine.
  - c) List clinical applications for CT machine and MRI machine. (Two each)
  - d) Draw Geiger Muller tube and explain its working.
  - e) Define RF shielding and shimming.
- 5. Attempt any TWO of the following: 12**
- a) Compare Digital fluoroscopy and 3D imaging. (Any six points)
  - b) Draw block diagram of angiography. Describe the working of it. List different displays of ultrasound.
  - c) Draw and describe A scan display of ultrasound machine.

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**Marks**

**6. Attempt any TWO of the following:**

**12**

- a) Draw the block diagram of X-ray machine and state function of each part.
  - b) Explain the following with respect to imaging :-
    - i) Analog to digital conversion.
    - ii) Image reconstruction algorithm.
  - c) Describe the risks involved in handling MRI machine and CT machine. (Three each)
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