

17673

21819

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any THREE of the following: 12
- (i) Draw Geiger Muller tube. Describe it.
- (ii) Write steps in installation of ultrasound machine.
- (iii) Write working principle of MRI.
- (iv) What are radio isotopes? Give its significance.
- b) Attempt any ONE of the following: 6
- (i) Draw diagram of angiography machine and describe it.
- (ii) List the limitations of stationary anode X ray tube?
Draw stationary anode tube. Write materials used as target and filament.

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) Write four medical applications of CT.
 - b) Write four properties of ultrasound
 - c) Draw block diagram of endoscopy machine.
 - d) Draw symbol and construction of SCR. Draw V-I characteristics of it.
 - e) State the steps carried out in installation of angiography machine.
 - f) Enlist the risks involved in handling MRI machine.
- 3. Attempt any FOUR of the following:** **16**
- a) Draw and describe linear and phased array.
 - b) Draw and describe gamma camera.
 - c) Draw and describe image intensifier tube.
 - d) Write steps in installation of X ray machine.
 - e) Describe the types of magnets used in MRI.
- 4. a) Attempt any THREE of the following:** **12**
- (i) Describe the term RF shielding and skimming in MRI machine.
 - (ii) Describe maintenance procedure of thermography machine.
 - (iii) Draw and describe HV (High Voltage) circuit in X ray machine.
 - (iv) Write steps in maintenance of angiography machine.

- b) **Attempt any ONE of the following:** **6**
- (i) Write risks involved in handling X ray machine.
 - (ii) Differentiate between fluoroscopy and radiography on the basis of:
 - 1) Diagram
 - 2) Principle
 - 3) Applications
 - 4) Viewing media
 - 5) Advantages
 - 6) Disadvantages
5. **Attempt any FOUR of the following:** **16**
- a) Describe maintenance procedure of NMI machine.
 - b) Draw and describe A scan machine.
 - c) Enlist biological effect of MRI
 - d) State installation procedure of X ray machine.
 - e) Write two advantages and disadvantages of X ray machine.
 - f) Name the image reconstruction techniques in CT. Describe any one.
6. **Attempt any FOUR of the following:** **16**
- a) Draw and describe rotating anode tube in X ray machine.
 - b) Describe spiral CT scan with diagram.
 - c) Draw and describe B scan machine.
 - d) Draw block diagram of thermography machine and describe it.
 - e) State maintenance produce in ultrasound machine.
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