

17673

11718

3 Hours / 100 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

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| 1. (A) Attempt any THREE : | 12 |
| (a) State the basic principle of working of nuclear imaging. | |
| (b) State the steps involved in maintenance of ultrasound machine. | |
| (c) State the types of magnets used in MRI. | |
| (d) Draw and describe Geiger Muller Tube. | |
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(B) Attempt any ONE : |
6 |
| (a) Draw block diagram of angiography system and describe it. | |
| (b) Write advantages (3 points) and disadvantages (3 points) of X-ray. | |

2. Attempt any FOUR :**16**

- (a) Enlist the techniques of image reconstruction. Describe any one in detail.
- (b) Draw and label block diagram of an Ultrasound B Scanner Machine.
- (c) Draw block diagram of thermography machine and describe each block.
- (d) Draw the construction of SCR and describe its working.
- (e) Write the steps involved in maintenance of angiography machine.
- (f) State the steps involved in installation of CT Machine.

3. Attempt any FOUR :**16**

- (a) With neat diagram, describe working of Ultrasonic Transducer.
- (b) Draw and label any one nuclear imaging transducer.
- (c) Draw image intensifier and describe it.
- (d) Write steps of installation of X-ray machine.
- (e) Write principle of MRI system with diagram.

4. (A) Attempt any THREE :**12**

- (a) Write basic components of MRI systems.
- (b) Draw construction of an endoscope and describe it.
- (c) Write medical application of X-rays.
- (d) Write steps in installation of angiography machine.

- (B) Attempt any ONE :** **6**
- (a) Write steps involved in maintenance of X-ray machine.
 - (b) Write the difference between Fluoroscopy and Radiography.
- 5. Attempt any FOUR :** **16**
- (a) With neat diagram explain working of Gamma camera.
 - (b) Draw and label Ultrasonic A Scanner Machine and explain it in detail.
 - (c) Write biological effects of MRI imaging.
 - (d) Enlist risks involved in handling an X-ray equipment.
 - (e) Draw block diagram of X-ray machine. Describe each block.
 - (f) State significance of CT number and list any two medical applications of CT machine.
- 6. Attempt any FOUR :** **16**
- (a) Draw construction of X-ray tube. Describe it.
 - (b) Describe CT machine with neat labelled diagram.
 - (c) Write properties of ultrasound.
 - (d) Write steps involved in maintenance of thermography machine.
 - (e) Write stepwise installation procedure for ultrasound machine.
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