

# 17673

**11920**

**3 Hours / 100 Marks**

Seat No.

--	--	--	--	--	--	--	--

- 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) 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) State the working principle at nuclear imaging.
  - (ii) Give any four maintenance step's for ultrasound m/c.
  - (iii) Define the terms.
    - 1) RF sheilding
    - 2) RF shimming
  - (iv) Define
    - 1) Thermography
    - 2) Endoscopy
- b) Attempt any ONE of the following: 6
  - (i) State the meaning of angiography with neat block diagram explain its working.
  - (ii) Draw block diagram of X-ray machine. Define X-ray tube ratings.

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) List different image reconstruction techniques and also explain any one technique.
  - b) List any four properties of ultrasound. Draw neat labelled block diagram at thermography.
  - c) Draw Symbol and characteristics of following:
    - (i) SCR
    - (ii) TRIAC
  - d) List out any eight installation steps of angiography.
  - e) Explain risk in handling CT and MRI.
- 3. Attempt any FOUR of the following:** **16**
- a) List out any four clinical application at ultrasound.
  - b) Draw a neat labelled diagram at any one nuclear imaging transducer.
  - c) Draw neat labelled diagram at IIT (Image Intensifier tube) explain its working.
  - d) List out steps for installation at X-ray m/c (Any eight)
  - e) Explain principle at MRI.
- 4. a) Attempt any THREE of the following:** **12**
- (i) With neat diagram explain the working at MRI detection system.
  - (ii) With neat diagram explain working at endoscopy.
  - (iii) State the different types of X-ray tubes and explain any one of them.
  - (iv) List our steps for maintenance at angiography (any eight),
- b) Attempt any ONE of the following:** **06**
- (i) Define the term maintenance. List out steps to be carried out for maintenance of X-ray m/c (8 steps).
  - (ii) Give the comparison between Fluroscopy and Radiography (Six points).

**5. Attempt any FOUR of the following:****16**

- a) List out any four step's for maintenance at endoscopy.
- b) Draw B/D of ultrasound scanner and also list its any two applications.
- c) List any four advantages of MRI over CT.
- d) Give the risk involved in handling of X-ray equipment.
- e) Draw any two control circuits of X-ray Machine.
- f) Define computed tomography and draw its working principle diagram.

**6. Attempt any FOUR of the following:****16**

- a) List advantages and disadvantages of X-ray (Two of each).
  - b) Define CT number and also mention CT numbers for water and air.
  - c) List different types of ultrasonic transducer and also explain any one.
  - d) List any two applications of each
    - (i) Endoscopy
    - (ii) Thermography.
  - e) Draw B/D at ultrasound machine and list its any four technical specifications.
-