

- Note: 1) Question no 1 is compulsory  
2) Attempt any three questions from remaining five questions  
3) Figures to right indicate full marks

- Q.1 Justify the following statements 20
- Photoelectric effect increases with increase in atomic number
  - Size of apparent focal spot is greater than actual focal spot
  - Increase in kVp across X-ray tube increases X-ray photon energy
  - As diameter of Ultrasound transducer increases the Fresnel zone increases
  - The shorter the spatial pulse length, the better the axial resolution.
- Q.2
- With suitable diagram explain digital radiography 10
  - Explain the two processes of producing X-rays. 10
- Q.3
- List the technical specifications of X-ray machine 10
  - Explain with the help of a block diagram the Digital Mammography system 10
- Q.4
- List the various types of real time ultrasound scanners. Also, explain steering and focusing 10
  - Explain Doppler shift. Explain Pulsed Doppler system used for blood flow measurements 10
- Q.5
- Explain the role of collimator, filter and grids in X-ray machine. 10
  - Explain any one type of three phase X-ray generator with diagram. 10
- Q.6
- With suitable diagram Explain the principle and construction of Image intensifier tube used in Fluoroscopy machine 10
  - List the different types of Endoscopy. 10
- Q.7 Write short notes on any four: 10
- Applications of Thermography 20
  - Latent Image formation in X-ray film
  - Compton Effect
  - B and TM Mode of Ultrasound Imaging
  - Ultrasound Transducer