

13047

**16117**

**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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

**1. Define any TEN of the following :**

**10×2 = 20**

- (a) Inherent filtration
- (b) Focusing cup
- (c) Anode heel effect
- (d) Hypo solution
- (e) Cooling of X-ray tube
- (f) Grid ratio
- (g) Filters used in X-ray tube
- (h) Types of X-ray films and uses
- (i) Collimators
- (j) Purpose of Grid
- (k) Types of X-ray tubes and uses
- (l) Latent image
- (m) X-radiation properties

- 2. Attempt any TWO :** **2 × 8 = 16**
- (a) Write briefly with neat labelled diagram of roating anode X-ray tube.
  - (b) Write in detail about Developer Solution.
  - (c) Write on testing of X-ray Timer Accuracy.
- 3. Attempt any THREE :** **3 × 10 = 30**
- (a) Write in detail about fixer solution.
  - (b) What is attenuation ? State the importance and factors affecting attenuation.
  - (c) Write in detail basic interactions between X-ray and matter with diagrams.
  - (d) Write short notes on film contrast and film density.
  - (e) Write about various types of artifacts on the X-ray film.
- 4. Attempt any FOUR :** **4 × 5 = 20**
- (a) Types of Grid used for radiography.
  - (b) Photographic density
  - (c) Monochromatic and polychromatic radiation
  - (d) Latent image formation.
  - (e) Write short notes on Film base and Emulsion.
  - (f) Write short notes on Inherent filtration and Added filtration.
- 5. Attempt any TWO :** **2 × 7 = 14**
- (a) Explain film processing.
  - (b) Discuss radiation hazards.
  - (c) Explain electromagnetic spectrum.
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