



## BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – B.Sc.(MRIT)-2022/B.Sc.(MRIT)-2023

Course Name – Radiographic Image Processing Techniques

Course Code - BMRITC203

( Semester II )

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify, which of the following is not true double-coated film
- |                                    |   |
|------------------------------------|---|
| a) Crystal is 1 micrometer in size | b) Each crystal can have 10 to the power 6 silver atoms |
| c) Effected by mechanical pressure | d) Emulsion is not sensitive to visible light           |
- (ii) Select the correct modality that use Single coated film
- |                |               |
|----------------|---------------|
| a) Mammography | b) Ultrasound |
| c) CT          | d) All        |
- (iii) Select the incorrect statement about true film latitude.
- |   |   |
|---|---|
| a) Is range of exposures to produce useful range of densities | b) Normal latitude of film screen is 40:1       |
| c) Film latitude and gamma are directly related               | d) High film latitude requires for chest X-rays |
- (iv) Select the incorrect use of intensifying screens
- |                       |                                  |
|-----------------------|----------------------------------|
| a) Improve film gamma | b) Improves quantum mottle       |
| c) Resolution is less | d) Base is made-up of card board |
- (v) Select the interaction the X-rays undergo after transmission through the film screen combination in the back cover of the cassette
- |                    |                    |
|--------------------|--------------------|
| a) Compton         | b) Photoelectric   |
| c) Elastic scatter | d) Pair production |
- (vi) Generalize the function of the accelerators in the developer is
- |  |  |
|--|--|
| a) To stop the development                 | b) To decrease the rate of the development |
| c) To increase the rate of the development | d) None of these                           |
- (vii) Predict the function of preservative in the developing solution

- a) To stop the development  
 c) To prolong the effective life span of the developer
- b) To decrease the rate of the development  
 d) None of these
- (viii) Interpret the reason for film agitation during development
- a) To increase the development  
 c) To maintain the uniform temperature of solution
- b) To maintain uniform development of film  
 d) All
- (ix) Select the ideal temperature for dark room (processing room)
- a) 70° to 80° F  
 c) 16° to 22° C
- b) 23° to 27° C  
 d) None of these
- (x) Identify the types of illumination inside darkroom
- a) General illumination  
 c) Both A and B
- b) Radiographic illumination  
 d) Viewbox
- (xi) Identify the incorrect statement about doors in darkroom
- a) Capable of excluding light  
 c) Inexpensive
- b) Can be opened frequently  
 d) Linked with door locking mechanism
- (xii) predict the untrue fact about film contrast
- a) Inversely proportional to object film distance  
 c) Inversely proportional to film size
- b) Inversely proportional to filtration  
 d) Inversely proportional to focal spot size
- (xiii) Determine the number of colour that can expose monocromatic films
- a) One color  
 c) Three color
- b) Two color  
 d) All colors
- (xiv) Choose the ideal material for making front surface of the cassette
- a) Plastic  
 c) Lead
- b) Copper  
 d) Iron
- (xv) Select the component of an X-ray film cassette that converts X-rays into light
- a) The film  
 c) The screen
- b) The lead foil  
 d) The dark slide

### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe the use of Gelatin as binder. (3)
3. Describe subject contrast and film contrast (3)
4. Write a short note on general practice of the maintenance of Intensifying screen. (3)
5. Determine how film screen contact test run for QA. (3)
6. Classify various types of cassette (3)

OR

- Illustrate construction of cassette with diagram. (3)

### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Describe the Cleaning and maintenance of the conventional image processing room (5)
8. Describe storage conditions for x-film. (5)
9. Describe the functions and key features of an X-ray cassette (5)
10. Explain the characteristic curve with a proper diagram. (5)
11. Explain x-ray cassette and its types (5)

12. Summarize various instructions to be followed while handling cassettes in darkroom (5)

**OR**

Distinguish between film viewing area and film dispensing area. (5)

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