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## BRAINWARE UNIVERSITY

Term End Examination 2023

Programme – B.Sc.(MRIT)-2022

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) Select the incorrect statement about darkroom
- a) Wet and Dry area should be located near to each other      b) Darkroom should be well ventilated
- c) Limited access to darkroom      d) Good housekeeping
- (ii) Indicate the correct procedure of processor operation chronologically
- a) Wetting, rinse, washing, fixing, drying      b) Rinse, fixing, wetting, washing drying
- c) Wetting rinse, fixing, washing, drying      d) Fixing, washing, wetting drying, rinse
- (iii) Identify which among the following is not true for the latent image of X-ray film to form?
- a) Sensitivity specks      b) Silver ion is reduced to silver atoms
- c) Latent image forms after exposure of film      d) Latent image forms after development of film
- (iv) Identify accelerator in the developer
- a) Sodium carbonate and sodium hydroxide      b) Potassium carbonate
- c) Ammonium bromide      d) None of these
- (v) Select the component of an X-ray film cassette that converts X-rays into light
- a) The film      b) The lead foil
- c) The screen      d) The dark slide
- (vi) Select the range of concentration of pH in the developing chemicals are
- a) 10.0 to 11.5      b) 7.0 to 10.0
- c) 5.0 to 7.0      d) 12.0 to 15.0
- (vii) Identify the material commonly use to make the substratum layer or binding layer of X-ray film.
- a) Silver bromide crystals      b) Gelatin plus acetone and water
- c) Gelatin      d) None of these
- (viii) 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
- (ix) 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
- (x) Infer the result of very low humidity in the dark room  
 a) Crinkle marks  
 b) Static electric discharges  
 c) Excessive emulsion swellings  
 d) Chemical fog
- (xi) Select the adequate ceiling height in the dark room  
 a) 41 feet  
 b) 31 feet  
 c) 21 feet  
 d) 11 feet
- (xii) Select the purpose of the lead lining at the back of the cassettes  
 a) Prevent back scatter of radiation  
 b) To decrease the radiation dose of the patient  
 c) None  
 d) Both
- (xiii) Select the correct function of the cassettes  
 a) To hold intensifying screens and protect them from damage  
 b) To exclude all lights from entering the cassette and fogging the film  
 c) To maintain a close and uniform contact between film and screen  
 d) All
- (xiv) Estimate the minimum working distance from the safe light to the film  
 a) 0.10 meter  
 b) 1.2 meters  
 c) 5 meters  
 d) 15 meters
- (xv) Describe the term \"light-tight.\  
 a) The ability of a material to block X-rays  
 b) The ability of a material to prevent light from entering or exiting  
 c) The ability of a material to withstand heat and pressure  
 d) The ability of a material to be easily cleaned

**Group-B**

(Short Answer Type Questions)

3 x 5=15

2. Explain the structure of intensifying screen (3)  
 3. Explain basic instruction to be followed inside darkroom (3)  
 4. Determine how film screen contact test run for QA. (3)  
 5. Develop a flow chart for steps included in Manual processing (3)  
 6. How do you plan for the cleaning and maintenance of Manual Processing unit. (3)

**OR**

Describe the construction of dryer used in automatic processing (3)

**Group-C**

(Long Answer Type Questions)

5 x 6=30

7. Write the process of the Conversion of latent image to visible image (5)  
 8. Describe various instructions to be followed while handling Chemicals in darkroom (5)  
 9. Describe the Cleaning and maintenance of the conventional image processing room (5)  
 10. Illustrate the Constituent of developer (5)  
 11. Explain shelving of films in darkroom (5)  
 12. Distinguish between dry bench and wet bench in darkroom (5)

**OR**

Compare various factors affecting safelight performance. (5)

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