



- Q13. For X-rays to travel, it require  
 a) No medium required b) Pressure of water c) Presence of oxygen d) None
- Q14. The particle of discrete bundles of energy released from electromagnetic spectrum is known as  
 a) Radiation b) Frequency c) Angstrom d) Quantum
- Q15. Rectification means  
 a) Change AC to DC b) Increasing in voltage c) Decrease in current d) All of the above
- Q16. Reduction of exposure time, utilization of X-ray in both half cycles and high tube rating are the features of  
 a) Half wave rectification.  
 b) Full wave rectification  
 c) Self-wave rectification  
 d) None of the above
- Q17. Hard X-rays have tube voltage of  
 a) 0-10kV b) 20-60kV c) 150-400kV d) 400-3000kV
- Q18. Which is not correct  
 a) Less than 1% of the amount of kinetic energy utilized in the production of X-rays.  
 b) Most of the time the speed of the modern X-ray tube is 3000rpm  
 c) Less than 5% of the amount of kinetic energy utilized in the production of X-rays  
 d) Quantity of radiation is measured in Gray, Sievert, Becquerel
- Q19. Pair production occur, if energy is of  
 a) 0.08 MeV. b) 0.02 MeV c) 0.10 MeV d) 1.02 MeV
- Q20. The radiation unit to record the radiation received by radiation worker  
 a) Roentgen b) Rad c) Milli-Sievert d) Curie

#### Fill in the blanks

- Q21. In ----- Cassettes, no intensifying screen is used  
 a) Mammography b) Vacuum  
 c) Formatter d) Multisection
- Q22. Gadolinium oxysulphide activated with terbium emits -----light  
 a) Blue b) Green  
 c) White d) Orange
- Q23. Coherent scattering contributes ----- in diagnostic radiology  
 a) Less than 5% b) Less than 90%  
 c) More than 33% d) more than 90%
- Q24. A small focal spot is preferred when ----- is a priority  
 a) Short exposure time b) Larger head loading c) Spatial resolution d) All of the above
- Q25. Anode angle vary from ----- degree  
 a) 6-20 b) 20-30 c) 30-40 d) 40-50
- Q26. ----- allows electron to flow in the only one direction  
 a) Resistor b) Diode  
 c) Ammeter d) Voltmeter

#### True / False

- Q27. Which is not true for green sensitive film?  
 a) Less stable sensitometric response  
 b) Improve image quality & sharpness.  
 c) Low replenishment rates needed  
 d) Better resistance to scratches.
- Q28. Which is true for melting point of tungsten  
 a) 1480° C b) 2800° C  
 c) 3370° C d) 2873° C

Matching Type Question

Q29. Match the following with their frequency

- |                |                         |
|----------------|-------------------------|
| a) Gamma rays  | (i) $3 \times 10^{11}$  |
| b) X-rays      | (ii) $3 \times 10^5$    |
| c) Infra-red   | (iii) $3 \times 10^6$   |
| d) Ultraviolet | (iv) $3 \times 10^{16}$ |

Answer

- a) a-(iv), b-(i), c-(ii), d-(iii)  
b) a-(i), b-(iv), c-(iii), d-(ii)  
c) a-(ii), b-(iii), c-(iv), d-(i)  
d) a-(i), b-(iv), c-(iii), d-(ii)

Q30. Match the following with their respective

- |                 |                                  |
|-----------------|----------------------------------|
| a) 1 Fermi      | (i) $9.46 \times 10^{15}$ meters |
| b) 1 Angstrom   | (ii) $1 \times 10^{-15}$ meters  |
| c) 1 Light Year | (iii) $3.08 \times 10^6$ meters  |
| d) 1 Parsec     | (iv) $10^{-10}$ meters           |

Answer

- a) a-(ii), b-(iv), c-(i), d-(iii)  
b) a-(iv), b-(ii), c-(iii), d-(i)  
c) a-(i), b-(iii), c-(ii), d-(iv)  
d) a-(iii), b-(i), c-(iv), d-(ii)

**PART – B (DESCRIPTIVE TYPE)**

**Short Answer Type Question**

**II Attempt any Four Questions:**

**(4 x 4 = 16)**

- a) Describe the control panel and its accessories  
b) Briefly explain the failure of ohm's law in case of conductors.  
c) Explain mammography tube  
d) Briefly explain Grid  
e) Differentiate between AEC Timer & Photo Timer

**Long Answer Type Question**

**III Attempt any Two Questions:**

**(7 x 2 = 14)**

- a) Describe about X-ray tube and its working with the help of diagram?  
b) Explain Generator.  
c) Explain magnetic flux, ammeter and voltmeter

\*\*\*\*\*

100921/50

Sr. No. 1cc922

Roll No. \_\_\_\_\_

**BRIT 1<sup>st</sup> SEMESTER EXAMINATIONS; JANUARY-2018**  
(SUB: IMAGE ACQUISITION, PROCESSING & ARCHIVING; PAPER CODE:-5260104)

**TIME: 03:00 Hrs.**

**Max Marks:60**

Instructions:-

1. Write your Roll No. on the Question Paper.
2. Candidates should ensure that they have been provided with correct question paper. Complaints in this regard, if any should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. Each Part is compulsory. Marks are indicated against each question.
4. Draw the diagram wherever required.

**PART-A(OBJECTIVE TYPE QUESTIONS OMR SHEETS)**

**ATTEMPT ALL QUESTIONS:**

**Single Response Questions:-**

- Q.1. Non-Screen type film are used for:- (1)  
a) Thin Part of Body b) Thick Part of body c) Less exposure Technique d) None.
- Q.2. Lead equivalent of the cassette back is:- (1)  
a) 0.18mm b) 0.12mm c) 0.20mm d) 0.12mm
- Q.3. Which of the following phosphor is not used in intensifying screen:- (1)  
a) Calcium tungstate b) Terbium  
c) Thulium blue d) Zinc cadmium sulphide.
- Q.4. Which is not true about green sensitive film? (1)  
a) Less stable sensitometric response b) Improve image quality or sharpness  
c) Low replacement rate needed. d) Better resistance of scratches.
- Q.5. Which id is not true about the optical density of the film:- (1)  
a) Density of the film is the sum of the densities on each side.  
b) Inversely proportional to the number of atoms in that area.  
c) Equal to the log 10 transmitted light– incident light  
d) Directly proportional to the weight of silver ions in that area.
- Q.6. Blackness of the exposed film after processing is called:- (1)  
a) Resolution b) Sharpness c) Density d) Contrast.
- Q.7. Characteristic curve signifies about:- (1)  
a) Film gamma  
b) Density of film.  
c) Intensification factor.  
d) All above.
- Q.8. Which is not true about film latitude:- (1)  
a) Is range of exposures to produce useful range of densities?  
b) Normal latitude of film-screen is 40:1.  
c) Film latitude & gamma are directly related.  
d) High film Latitude requires for chest x-rays.

Q.9. Amber safe light is compatible with films having:-  
a) Green Sensitive Film b) Blue Sensitive Film.  
c) Red Sensitive Film d) Blue & Green Sensitive Film.

(1)

P.T.O

(1)

Q.10. Put the processor operation in the correct order:-

- a) Wetting, rinse, washing, fixing, drying. b) Wetting, rinse, fixing, washing, drying.  
b) Rinse, fixing, wetting, washing, drying. d) Fixing, washing, wetting, drying, rinse

(1)

Q.11. Washing:-

Remaining chemicals are washed from the film.

- a) Causes the emulsion to swell so that the chemicals can reach all parts of the emulsion uniformly.  
b) Silver halide that was not exposed to radiation is dissolved and removed from the emulsion.  
c) Film is dried to remove the water and make it acceptable for handling and viewing.

(1)

Q.12. Intensifying screen work is:-

- a) Convert X-rays into gamma rays.  
b) Convert gamma rays into X-rays.  
c) Convert X-ray photon into light photons.  
d) Convert light photon into X-ray photons.

(1)

Q.13. The temperature of the developer solution should be in the range:-

- a) 25<sup>0</sup> C to 45<sup>0</sup> C b) 28<sup>0</sup> C to 34<sup>0</sup> C. c) 10<sup>0</sup> C to 20<sup>0</sup> C d) -25<sup>0</sup> C to -45<sup>0</sup> C.

(1)

Q.14. What role does ammonium thiosulphate have in radiographic processing?

- a) Hardener of the image following development.  
b) Developing agent.  
c) Preservative of developer & fixer.  
d) Clearing agent.

(1)

Q.15. Characteristic curve is the relation between:

- a) Speed and Latitude b) Exposure and density c) Latitude and density d) Long exposure and optical density.

### PART-B (DESCRIPTIVE TYPE)

I. Short Answer Type Question (Attempt any Four):-

(4x4=16)

- Q.1. Explain the structure of X-ray film with diagram.  
Q.2. Discuss the intrinsic & extrinsic factors that affect the speed of the screen.  
Q.3. Write a note on types of Hangers.  
Q.4. Explain different type illuminations in Dark Room.  
Q.5. Write a brief note on luminescence.

II. Long Answer type Question (Attempt any Two):-

(7x2=14)

- Q.1. Explain automatic film Processing Method.  
Q.2. Explain Construction of Cassette & Enumerate Different types of cassette.  
Q.3. Explain Ideal Dark Room.

\*\*\*\*\*

100922/50