(Pages : 2) SC—1296

SECOND YEAR B.Sc. (RADIOGRAPHY) DEGREE EXAMINATION, 2001

RADIATION PHYSICS AND MEDICAL PHYSICS

Time : Three Hours Maximum : 80 Marks

Your answer shall be specific to the question asked.
Draw neat and labelled diagrams wherever necessary.

I. Long Essays. (Answer any *two*) :

1 Give a brief account of quality control tests done on an X-ray equipment. (10 marks)

2 Draw a net figure of a rotating anode X-ray tube and lable the parts. Explain how ray proofing and shock proofing is done. Explain the physics of target cooling in a rotating anode X-ray tube.

(4 + 3 + 3 = 10 marks)

3 Discuss briefly the biological effects of radiation. Suggest measures to minimise radiation exposure to radiation workers and general public in your department.

(5 + 5 = 10 marks)

[2 × 10 = 20 marks]

II. Short Essays. (Answer any *ten*) :

4 Exposure measurement.

5 Thermo luminiscence dosimeters.

6 Rapid serial changes.

7 Electronic timer.

8 A circuit arrangement to provide overload protection.

9 Advantages of CCTV and image intensifier based fluoroscopy over the conventional fluoroscopy.

10 Subtraction radiography.

11 Maximum permissible exposure limits.

12 Relative ratings for self rectified, half wave rectified, full-wave rectified and 3-phase full-wave rectified power supplied X-ray tubes and also relative ratings for fine focus and broad focus.

13 An interlock system to protect the X-ray tube when the anode is not rotating.

(10 × 5 = 50 marks)

III. Short Answers :

14 Give the advantages of a capacitor discharge X-ray portable equipment.

15 Can we use a solid or liquid dosimeter for exposure measurement ? Give reason for your answer.

Turn over

FR. MULLER CENTRAL LIBRARY

16 Why the target in an X-ray tube is inclined ?

17 What are the functions of the oil which is filled into the tank containing the high tension transformer ?

18 Why do we need to stabilize the filament voltage ?

19 Three-phase supply.

20 Scatter Girds.

21 Electromagnetic relay.

22 What do you understand by "Lead Equivalent" ?

23 Earthing.

(5 × 2 = 10 marks)

FR. MULLER CENTRAL LIBRARY

(Pages : 2) SC—1295

SECOND YEAR B.Sc. (RADIOGRAPHY) DEGREE EXAMINATION, 2001

RADIOGRAPHY—I

Time : Three Hours Maximum : 80 Marks

Your answer shall be specific to the question asked.
Draw neat and labelled diagrams wherever necessary.

I. Long Essays. (Answer any *two*) :

1 Describe radiation hazards. What are the methods to reduce radiation dose to the patient, in particular female/pregnant woman ?

2 Describe care, technique and radiation protection aspects during portable/mobile radiography, in particular bed side radiography/preoperative radiographic procedures.

3 Explain radiological techniques, preparation, views, projections, type of barium contrast used for the following clinical disorders :

(a) Hiatus hernia / Gasooesophagial reflex disorders.

(b) Achalasia-caedia / Oesophagial varices.

(2 × 10 = 20 marks)

II. Short Essays. (Answer any *eight*) :

4 Barium enema and air contrast study.

5 Radiographic views for scaphoid.

6 Radiographic techniques of sterno-clavicular joints (both sides).

7 Apicogram and lateral decubitus chest radiography.

8 Radiography of lumbo-sacral junction-routine and special projections.

9 Routine and special projections for radiographic evaluation of cranium (head).

10 Radiographic evaluation of cranio-vertebral junction (CV Junction radiography).

11 What are X-ray filters ?

12 What is a film badge ? Who are active/passive radiation workers ?

13 What is conedown view ? Mention areas in the human body/clinical situation wherein it is required and its usefulness.

(8 × 5 = 40 marks)

III. Short Answers :

14 Callimater.

15 Radiographic cones.

16 Diaphragm shutters/beam localiser.

Turn over

16 Why the target in an X-ray tube is inclined ?

17 What are the functions of the oil which is filled into the tank containing the high tension transformer ?

18 Why do we need to stabilize the filament voltage ?

19 Three-phase supply.

20 Scatter Girds.

21 Electromagnetic relay.

22 What do you understand by "Lead Equivalent" ?

23 Earthing.

(5 × 2 = 10 marks)

FR. MULLER CENTRAL LIBRARY