



BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – B.Sc.(MRIT)-2019/B.Sc.(MRIT)-2021

Course Name – Modern Radiological & Imaging Equipment

Course Code - BMRIT304

(Semester III)

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) Predict In which technique, detector system remains stationary while X-ray tube moves in an arc during multiple low dose exposures given from various angles ?
 - a) Dual energy imaging
 - b) Automatic image stitching
 - c) Mobile DR
 - d) Tomosynthesis
- (ii) Choose the correct option, Digital tomosynthesis utilizes restructuring of multiple tomographic images from the data acquired during.
 - a) Isocentric Rotational (IR) motion of the gantry
 - b) Linear motion of the tube
 - c) Both a & b
 - d) None of these
- (iii) Determine Which individual is responsible for ensuring a continuous QC program is being completed and is completed on all new imaging equipment when installed?
 - a) director of imaging
 - b) medical physicist
 - c) QC technologist
 - d) staff technologist
- (iv) Identify the video signal of the TV camera is directly proportional to the
 - a) Intensity of light
 - b) Electron beam
 - c) Target
 - d) Amount of electrons
- (v) Identify, in DR where are the electrical charges stored ?
 - a) Thin Plate Transistors TPTs
 - b) Titanium Film Transistors TFTs
 - c) Thin Film Transistors TFTs
 - d) Thin Photodiode Transistors TPTs
- (vi) Express the main components of PACs
 - a) Digitization
 - b) Memory
 - c) Network
 - d) All of these
- (vii) Identify the principal advantage of image-intensified fluoroscopy over conventional fluoroscopy is the increased _____
 - a) Speed at which dynamic images move
 - b) Overall result of finished product

- c) Visuality because of the illumination of cone vision
- d) None of these
- (viii) Identify two most often used TV camera tubes available for television monitoring fluoroscopy are the ?
- a) TV monitor & Grid
- b) OP & II
- c) Optical monitor & Plumbicon
- d) Videocon & Plumbicon
- (ix) Identify the anode use in portable X-ray tube is
- a) Rotating anode
- b) Stationary anode
- c) Both
- d) None of these
- (x) Identify which X ray unit is capable of being carried from place to place?
- a) Mobile X-ray
- b) Portable X-ray
- c) Both of these
- d) None of these
- (xi) Identify the correct option for beam limiting device which is used in dental radiography.
- a) Collimator
- b) Cone
- c) Cylinder
- d) All of these
- (xii) Identify the Effective focus size of portable X-ray unit?
- a) 1.0 mm
- b) 10.0mm
- c) 3.00mm
- d) 4.00mm
- (xiii) Tell the function of amorphous selenium photoconductor in digital mammography is ?
- a) X-ray into light
- b) Light into digital signal
- c) X-ray into digital signal
- d) All of these
- (xiv) Tell as mAs increases?
- a) Exposure time decreases
- b) Exposure time will not change
- c) Exposure time increases
- d) None of these
- (xv) Select the correct option, cephalometric radiography the distance between the subject and the source of X ray is
- a) 2 feet
- b) 48 inches
- c) 4.8 metres
- d) 5 feet

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe Mammographic X-ray tube filament. (3)
3. Explain Beam alignment test (3)
4. Write a short note on T score and Z score. (3)
5. Write short note on P-DEXA scan. (3)
6. Explain RIS (3)

OR

Write the advantages of PACS (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Evaluate digital subtraction technique. (5)
8. Evaluate various components of PACS? (5)
9. Describe various components of mobile X-ray unit. (5)
10. Explain Mammographic equipments. (5)
11. Explain various quality control procedure of dental unit. (5)
12. Evaluate and compare the advantages & disadvantages of PACS? (5)

OR

Explain various uses of PACS. (5)