



BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – B.Sc.(CCT)-2021/B.Sc.(CCT)-2022/B.Sc.(CCT)-2023/B.Sc.(CCT)-2024

Course Name – Basics of Imaging Studies

Course Code - BCCTS404

(Semester IV)

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) Indicate the correct purpose of a grid in X-ray imaging?
 - a) To reduce scatter radiation
 - b) To increase patient dose
 - c) To improve image resolution
 - d) To filter out low-energy X-rays
- (ii) Select the right term for an enlarged heart on a chest x-ray.
 - a) Cardiomegaly
 - b) Artherosclerosis
 - c) Arrhythmia
 - d) Aneurysm
- (iii) Predict, which is the risk factor for pneumothorax?
 - a) Age
 - b) Gender
 - c) Smoking
 - d) All of these
- (iv) Predict the main difference between a CT scan and an MRI of the brain?
 - a) A CT scan uses X-rays and an MRI uses magnets
 - b) A CT scan is better for showing soft tissue and an MRI is better for showing bone
 - c) A CT scan takes longer to perform than an MRI
 - d) A CT scan is more expensive than an MRI
- (v) Choose the part of the X-ray tube that emits electrons.
 - a) Anode
 - b) Glass enclosure
 - c) Cathode
 - d) Lead shield
- (vi) Choose the device used to generate and detect ultrasound waves.
 - a) Cathode ray tube
 - b) Stethoscope
 - c) Barometer
 - d) Ultrasonic transducer
- (vii) Identify the device that produces ultrasound waves:-
 - a) Cathode
 - b) Transducer
 - c) Grid
 - d) Detector
- (viii) Indicate which organ is best examined by USG:-

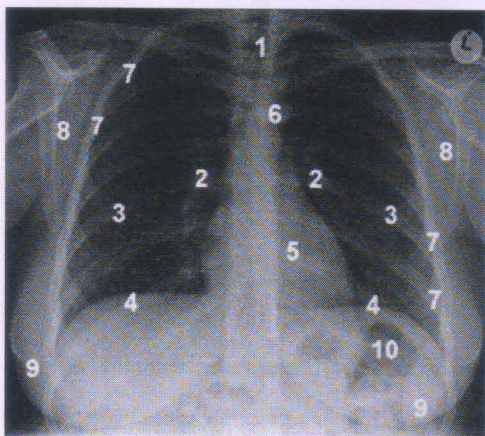
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|--|---|
| <p>a) Lung
c) Liver</p> <p>(ix) Define echocardiography:-
a) X-ray of the heart
c) Ultrasound of the heart</p> <p>(x) Select unit of magnetic field:-
a) Tesla
c) Gray</p> <p>(xi) Choose T1 image shows:-
a) Fluid bright
c) Bone white</p> <p>(xii) Define T2 image:-
a) Fat bright
c) Bone bright</p> <p>(xiii) Define ALARA:-
a) High dose
c) Radiation unit</p> <p>(xiv) Identify MRI contrast:-
a) Barium
c) Gadolinium</p> <p>(xv) Select radiation protection principle:-
a) Time
c) Shielding</p> | <p>b) Bone
d) Air cavity</p> <p>b) CT of the heart
d) MRI of the heart</p> <p>b) Volt
d) HU</p> <p>b) Fat bright
d) Air bright</p> <p>b) Fluid bright
d) Air bright</p> <p>b) As Low As Reasonably Achievable
d) Machine</p> <p>b) Iodine
d) Air</p> <p>b) Distance
d) All of these</p> |
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Group-B

(Short Answer Type Questions)

3 x 5=15

2. Identify the normal anatomy of chest x-ray from the below mentioned image. (3)



3. Describe the differences between a PA (Posteroanterior) and an AP (Anteroposterior) chest X-ray. (3)
4. Describe the basic properties of X-rays. (3)
5. Describe six properties of x-rays. (3)
6. Discuss about the moderate reactions of contrast agent. (3)

OR

- Differentiate between Bremsstrahlung Radiation and Characteristic Radiation. (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Explain the advantages & disadvantages of USG. (5)
8. Explain Echocardiography and classify it. (5)
9. Explain the ALARA principle. (5)
10. Write chest AP view with anatomy, indication, positioning, technical factors. (5)
11. Distinguish the advantage and disadvantage of x-rays. (5)
12. Explain about the Risks/ Contraindications of MRI Scanner. (5)

OR

Differentiate between CT Scan & MRI Scan. (5)

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