15801

BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(MRIT)-2022/B.Sc.(MRIT)-2023

Course Name – Radiographic Techniques of CT Including Image Interpretation

Course Code - BMRITC403

(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) Omit the incorrect indication of NCCT brain imaging.

a) Acute ischemic stroke b) Traumatic brain injury
c) DNS d) Detection of intracranial hemorrhage

(ii) Identify the main advantage of using thin slices over thicker slice in NCCT brain imaging.

a) Reduced radiation dose b) Faster image acquisition
c) Improved spatial resolution d) Enhanced contrast resolution

(iii) Select the structures best visualized in a CECT brain protocol, particularly for evaluating lesions such as pituitary adenomas.

a) Optic nerve b) Pineal gland
c) Sella turcica d) Brainstem

(iv) Choose the the purpose of using contrast for CT neck.

a) To increase radiation exposure b) To highlight structures and enhance visibility
c) To reduce imaging time d) To eliminate the need for interpretation

(v) List the anatomical structure commonly assessed during CECT of the neck.

a) Cerebellum b) Submandibular gland
c) Spleen d) Femur

(vi) Enumerate a parameter adjusted in CT protocols to control radiation dose.

a) Increasing tube voltage b) Using thicker slices
c) Lowering tube current d) Expanding the field of view

(vii) Name the common radiation dose metric used in chest CT protocols

a) Gy (Gray) b) Sv (Sievert)
c) mSv (millisievert) d) mGy (milligray)

(viii) Identify the primary advantage of using a low-dose chest CT protocol in pediatric patients.

a) Reduced radiation dose
b) Better image quality
c) Enhanced contrast enhancement
d) Improved spatial resolution

(ix) Name the radiation dose metric commonly used to quantify radiation exposure in abdomen CT protocols.

a) Sievert (Sv)
b) Gray (Gy)
c) Rad (radiation absorbed dose)
d) Dose-length product (DLP)

(x) Cite the primary advantage of using oral contrast in addition to intravenous contrast in abdomen CT protocols

a) Increased radiation dose
b) Improved visualization of bowel structures
c) Shorter scan time
d) Reduced risk of contrast reactions

(xi) Identify the recommended maximum slice thickness for display of CT scans of the abdomen and pelvis.

a) 20mm
b) 2mm
c) 5mm
d) 10mm

(xii) Name one of the major risk factors assessed in CT cardiac scoring.

a) Blood pressure
b) Cholesterol levels
c) Kidney function
d) Bone density

(xiii) Identify the primary advantage of CT Urography over conventional intravenous pyelography (IVP).

a) Lower radiation exposure
b) Higher sensitivity for detecting renal stones
c) Enhanced visualization of urethral strictures
d) Both b and c

(xiv) Select the correct statement regarding CT Cardiac Gating.

a) It is mainly used for brain imaging.
b) It allows imaging only during diastole.
c) It minimizes artifacts caused by cardiac motion.
d) It increases the likelihood of respiratory artifacts.

(xv) Select the main advantage of CT Fluoroscopy in cardiac interventions.

a) Ability to visualize coronary arteries without contrast
b) Real-time monitoring of catheter placement
c) Higher temporal resolution compared to cardiac MRI
d) Lower sensitivity to patient motion artifacts

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Describe the optimal patient positioning for a CT neck examination. (3)
3. Explain the indications for performing Upper and Lower Extremities CT scans in clinical practice. (3)
4. Classify the common indications for performing a CT abdomen examination. (3)
5. write the indications for performing a CT urography and highlight its key parameters. (3)
6. Tabulate the classification of contrast media. (3)

OR

Illustrate the contrast administration and paramters for performing Contrast study of neck. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Describe the key components and considerations involved in the CT Abdominal trauma protocol. (5)
8. Describe the CECT head protocol and its significance in medical imaging. (5)
9. Explain the patient preparation, key indications and parameters of a CECT neck Protocol. (5)
10. Write the contrast administration and patient preparation required during a contrast study. (5)
11. Differentiate between CT Enterography and CECT abdomen protocol. (5)

12. Classify the different types of CT head protocols commonly used in clinical practice, and discuss their respective indications and advantages. (5)

OR

Distinguish between non-contrast CT head and CT head with contrast protocols, highlighting their specific roles in clinical diagnosis and management. (5)

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