



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

DEPARTMENT OF RADIOGRAPHY

BSc HONOURS IN RADIOGRAPHY PART II

IMAGING OF THE RESPIRATORY AND CARDIOVASCULAR SYSTEM

SRA2111

First Semester Examination Paper

March 2025

This examination paper consists of 3 pages

Time Allowed : 3 hours
Total Marks : 100
Special Requirements : None
Examiner's Name : Mr M Makonese

INSTRUCTIONS

ANSWER ALL PARTS OF QUESTION 1 IN SECTION A AND ANY THREE QUESTIONS FROM SECTION B. SECTION A CARRIES 40 MARKS AND SECTION B CARRIES 60 MARKS.

MARK ALLOCATION

QUESTION	MARKS
1.	40
2.	20
3.	20
4.	20
5.	20
6.	20
Maximum possible mark	100

SECTION A

1. (a) Describe the radiological appearance of the following pathologies:
 - i. Pneumothorax, [3]
 - ii. Pneumonia, [3]
 - iii. Haemopneumothorax, [3]
 - iv. Pleural effusion and [3]
 - v. Dextrocardia. [3]
- (b) (i) Define the term Cardiomegaly. [3]
- (ii) Describe the radiological appearance of the condition on plain X-ray [3]
- (c) Explain the importance of a lateral chest X-ray. [3]
- (d) Describe postero-anterior projection of a chest X-ray including;
 - i. Position of the patient and film [3]
 - ii. Direction and centring of the X-ray beam. [3]
- (e) Describe the evaluation criteria for a PA Chest X-ray. [5]
- (f) Outline the disadvantages of a CT scan chest using contrast agent. [5]

SECTION B

2. You are a manager of a modern imaging department and you are required to purchase a modern Angiography unit. Specify and justify the equipment specification you would recommend. [20]
3. (a) Outline the role of plain X-ray and ultrasound in the imaging of the heart. [12]
- (b) With the aid of a diagram describe the anatomy of the heart chambers. [8]
4. With reference to Angiography;
 - a) Define the term cerebral angiography. [2]
 - b) Distinguish the term cerebral and coronary angiography. [4]
 - c) Outline five (5) indications and five (5) contraindications for cerebral angiography. [10]
 - d) Discuss four (4) radiation protection measures to be undertaken during cerebral angiography. [4]
5. Discuss the role of the following imaging modalities in the imaging of the respiratory system;
 - a) Ultrasound, [5]
 - b) MRI, [5]

- c) RNI and [5].
 - d) Bronchoscopy. [5]
6. (a) Outline six (6) steps involved in the Seldinger technique. [15]
- (b) Explain two (2) complications associated with the technique above. [5]

END OF EXAMINATION