



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

December 2024

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

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SECTION A

1. (a) With reference to Imaging of the Respiratory and Cardiovascular system, explain the following pathological terms and for each term describe the radiological appearance of the condition;
- i. Atelectasis, [3]
 - ii. Bronchitis, [3]
 - iii. Aneurysm, [3]
 - iv. Vascular stenosis and [3]
 - v. Pneumonia. [3]
- (b) (i) With reference to dextrocardia, describe the radiological appearance of the condition. [4]
- (ii) Outline the disadvantages of using CT in the demonstration of the condition in (i). [4]
- (d) Explain why a PA erect chest is preferred compared to the AP chest. [4]
- (e) Describe a projection to demonstrate left side posterior rib fractures including;
- i. Position of the patient and film [5]
 - ii. Direction and centring of the X-ray beam. [5]
- (f) Explain the evaluation criteria for a postero-anterior chest X-ray. [3]

SECTION B

2. (i) Compare and contrast the following imaging modalities in the imaging of the chest;
- a) Ultrasound and CT, [6]
 - b) MRI and RNI (radionuclide imaging), [6]
 - c) Brochoscopy and plain X-ray, [6]
- (ii) Describe two disadvantages of using CT in the imaging of the chest. [2]

3. You have been called to do a chest radiography in a high dependent unit using a mobile imaging unit;
- a) Discuss the precautionary measures to be taken for successful completion of this examination. [15]
 - b) Recommend the equipment to be used for successful completion of this examination. [5]
4. With reference to the imaging of the cardiovascular system;
- a) Define the term angiography. [2]
 - b) Justify the need for carrying out this procedure. [5]
 - c) Explain five (5) risks and complications for this procedure. [10]
 - d) Outline the radiation protection measures that you would employ during angiography. [3]
5. The commonly used method of accessing blood vessels is the seldinger technique;
- a) Outline six steps involved in this technique. [12]
 - b) Explain the post procedural care that you render to this patient. [8]
6. You are the manager of a newly established Angio Unit and you are required to purchase equipment for this unit;
- a) Recommend the special equipment consideration you would propose for this unit. [10]
 - b) Define the term cerebral angiography. [3]
 - c) Outline indications for the procedure in (b). [5]
 - d) State and justify the contrast media of choice that you would use for the examination in (b). [2]

END OF EXAMINATION