NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OFAPPLIED SCIENCES

DEPARTMENT OF RADIOGRAPHY

BSc HONOURS IN RADIOGRAPHY PART II

IMAGING OF THE SKELETAL SYSTEM

SRA 2109

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 : **Miss N Gertrude 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. When using x-ray modality there is radiation protection regulations to consider,

a) define the following terms;

i. IR(ME)R Practitioner [1]

ii. ALARA [1]

iii. Inverse Square law [1]

iv. LMP [1]

b) With reference to radiography of a patient presenting with a tib/fib trauma, explain what projections one would undertake and precautions of ensuring you don't cause further damage. [5]

c) Describe the positioning technique undertaken for a patient presenting with a lumbar spine request [6]

d) Name and justify what accessories, that may be needed in the X-ray department for radiography of the skeletal system. [4]

e) Describe two (2) radiographic projections that can be employed to inform diagnosis when there is suspected injury to the cervical vertebral bodies C_1 and C_2 before sending patient for CT. [6]

f) Describe what anatomy is to be included when you x-ray the femur and the TIB/Fib, for this to be a complete image, an name the projections. [5]

g) Explain the modification in technique to demonstrate fracture neck of femur. [5]

h) Describe stages in SALTER HARRIS and the 5 types of fractures it refers to. [5]

SECTION B

2. a) Justify the radiographic projection that can be undertaken to demonstrate suspected fracture of the thoracic and lumbar region. [4]

b) Describe the patient positioning, beam centring, FFD and image characteristics for the projection in question (a). [10]

c) Describe the radiation protection measure that can be employed for the projection in a female patent of child bearing age and a pregnant patient. [6]

3.a) Compare the role of CT and plain radiography in the imaging of the elbow system. [10]

b) Outline the evaluation of a paediatric elbow using CRITOL and bone age of each stage. [6]

c) State at least 4 things x-rays are ideal for in the role of imaging. [4]

4 With reference to the imaging of the cervical spine, explain the importance of clearing (C_7-T_1);

a) Describe two (2) projections at right angles to each other that can be taken to demonstrate this area including position of patient, beam centring and essential image characteristic for the projections. [12]

[12] [8]

(b) Explain the precautions and modification of technique that you would take in a patient with suspected fracture of C1.

5.a) Describe the shoulder girdle bones and its other bone anatomy relations. [6]

b) Describe three (3) projections to demonstrate the humerus including position of patient and beam centring. [12]

c) Explain why and what point would you angle the tube to project a clavicle. [2]

6. a) Describe two (2) projections to demonstrate a Colle's or a Smith's fracture including position of patient and beam cantering. [10]

b) Justify the projections undertaken to demonstrate a scaphoid fracture [5]

c) State, why would the scaphoid reimage after 10 to 14 days? [3]

d) Discuss the role of CT in the imaging of a comminated fracture wrist fracture. [2]

END OF EXAMINATION