

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

APPLIED PHYSICS DEPARTMENT

SRA 1204 - THE APPENDICULAR SKELETON

BSc HONOURS PART I: MAY 2005

DURATION: 3 HOURS

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

SECTION A

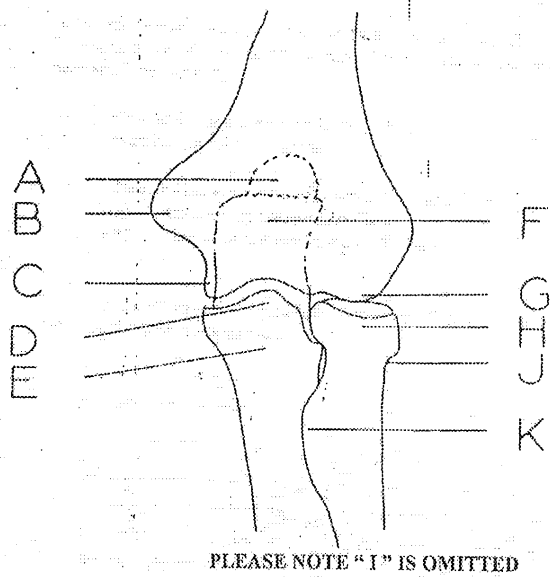
1. (a) (i) Differentiate primary and secondary ossification centres. [2]
(ii) Describe the effects of ageing on bone tissue [3]
- (b) Compare and contrast Colles' and Smith's fractures. [5]
- (c) Explain the difficulties encountered in achieving an Antero Posterior radiograph of the elbow when a supra condylar fracture is suspected. [5]
- (d) List five features of an x-ray table suitable for a general radiography room. [5]
- (e) (i) What is the centring point for a dorsi-plantar oblique foot. [1]
(ii) State four reasons why lateral foot radiography may be requested. [4]
- (f) State five accessories found in a general x-ray room for use in radiography of the appendicular skeleton. [5]
- (g) State five evaluation criteria of the technical quality of Antero-Posterior ankle joint. [5]
- (h) List ten anatomical features of the innominate (coxal) bone. [5]

SECTION B

2. (a) Explain how two radiographic projections of the ankle are performed. [10]
- (b) Explain two ways by which x-rays are produced at the target of an x-ray tube. [10]

3. An elderly patient is brought to the x-ray department on a stretcher. His right foot is rotated outwards. Discuss radiography of this patient to rule out injuries to the pelvic region. [20]

4. (a) With the aid of a diagram, describe the gross (macroscopic) structure of a long bone [5]
- (b) Identify the features, A to K, in the diagram of the elbow below. [5]



- (c) With reference to radiographic examination of the elbow, describe the antero-posterior projection including :
- position of the patient and film, [3]
 - direction and centering of the beam. [2]
- (d) A patient presents for radiography of a possible foreign body in the *right* fore-arm. Discuss fully, *two problems* that you may encounter and methods of overcoming them. [5]
5. (a) Explain:-
- anode heel effect [8]
 - line focus principle
- (b) Compare and contrast the anode assemblies of a stationary anode and a rotating anode x-ray tube. [12]

6. (a) Describe the gross anatomy of the scapula. [10]
(b) Describe a lateral projection of the scapula. [10]

- END OF EXAMINATION -