

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

APPLIED PHYSICS DEPARTMENT

SRA 3101 – RADIOGRAPHIC IMAGING II

BSc HONOURS PART III: JULY 2014 DURATION: 3 HOURS
SUPPLEMENTARY EXAMINATION

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) Evaluate two methods that could be used for storage and archiving of radiographic images. [10]
- b) Explain the effect of fog on image contrast. [5]
- c) Indicate the functions and explain the advantages of microprocessor control in a modern automatic processor. [5]
- d) Justify the need for standardising radiographic viewing conditions throughout the hospital. [5]
- e) Explain why the selection of a small focal spot size in exposure factors might not reduce visible image unsharpness even when the patient is adequately immobilised. [5]
- f) Justify the action you would take in solving the following processing faults in radiographs;
- i) Film coming out of the processor wet, [2]
- ii) Overall high density and [2]
- iii) Brown stain on storage. [1]
- g) Explain why the radiographer should assume responsibility of identifying radiographs. [5]
- h) Discuss how the factors below have contributed to reducing patient radiation dose and/or improving image quality in radiography;
- (i) advancements in film grain technology
- (ii) cassette designs. [5]
- i) With reference to radiographic image quality, discuss any two handling and storage artefacts [5]

SECTION B

2. a) Discuss the impact of automated film handling on the operation of an imaging department. [5]
b) Evaluate the methods that could be used to recover silver from used fixer in a busy Central hospital imaging department. [15]
3. a) Discuss the main features of a modern automatic processor which help reduce wastage of processing resources and maintain consistent image quality. [12]
b) Discuss the different ways by which adequate washing of the film in an automatic processor may be achieved. [8]
- 4 a) Discuss your considerations in coming up with an appropriate radiographic image processing darkroom in a district hospital in Zimbabwe. [10]
b) Discuss health and safety considerations in the radiographic processing area. [10]
5. You have employed a new lady to work in the darkroom.
a) Justify the orientation you would give the new employee. [10]
b) Discuss the factors to be taken into account in coming up with the safe film handling time of a particular darkroom. [10]
6. Discuss the effect of the following exposure factors on image quality
i) kV_p
ii) mAs
iii) focus size
iv) intensifying screens [4x5]

END OF EXAMINATION