



**PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

Faculty of Health, Applied Sciences and Natural Resources

Department of Health Sciences

QUALIFICATION: BACHELOR OF MEDICAL LABORATORY SCIENCES	
QUALIFICATION CODE: 08BMLS	LEVEL: 7
COURSE: ANATOMICAL PATHOLOGY	COURSE CODE: ANP611S
DATE: JULY 2022	SESSION: THEORY
DURATION: 3 HOURS	MARKS: 100

SUPPLEMENTARY / SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Ms Roselin Tsauses
MODERATOR:	Ms Vanessa Tjijenda

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer all questions.2. Please write neatly and legibly.3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.4. No books, notes and other additional aids are allowed.5. Mark all answers clearly with their respective question numbers.

Permissible material

Non programmable calculator is allowed.

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Excluding this front page)

Section A (10 marks)

Question 1

[10]

1. Evaluate the statements in each numbered section and select the most appropriate answer. Correct each false statement.
(Two (2) marks are allocated for each false statement and one (1) mark is allocated for each true statement.)
- 1.1 Phenols are a type of disinfectants used for viruses, frozen section equipment like cryostats and safety cabinets.
 - a) True
 - b) False, aldehydes.
- 1.2 Un-neutralized formalin may not be disposed down the drain.
 - a) True
 - b) False
- 1.3 All pieces of tissue to be discarded should be collected in red bags, however, should not be incinerated.
 - a) True
 - b) False
- 1.4 Explosive chemicals are not common in histology.
 - a) True
 - b) False
- 1.5 MSDS stands for Medical Safety Data Sheet.
 - a) True
 - b) False, stands for Materials Safety Data Sheet.
- 1.6 Always add acid slowly to water when making solutions.
 - a) True
 - b) False
- 1.7 Acid spills should first be neutralised with a stronger alkali e.g., sodium bicarbonate or soda ash.
 - a) True
 - b) False

Section B (30 marks)

Question 2

[20]

- 2.1 Fixation is a “two-fold” process. Explain the meaning behind this statement. (4)
- 2.2 Discuss six (6) factors that effects the speed and effectiveness of fixation. (12)
- 2.3 Explain formalin as the cause and effect of the key artefacts that can occur due to fixation under the following headings:
- 2.3.1 Appearance (1)
- 2.3.2 Cause (1)
- 2.3.3 Solution (1)
- 2.3.4 Prevention (1)

Question 3

[10]

- 3.1 Define decalcification and give two (2) examples of tissue that may require to be calcified during grossing. (3)
- 3.2 Name three (3) factors that can affect the rate of decalcification of tissue. (3)
- 3.3 Briefly discuss three (3) advantages of using chelating agents for decalcification of tissue and give one (1) example of a chelating agent. (4)

Section C (31 marks)

Question 4

[20]

- 4.1 Demonstrate your understanding of histological steps involved in preparing a tissue sample by:
- 4.1.1 Illustrating all the steps in the correct sequence, starting from **fixation**. (9)

4.1.2 Extracting the steps that form part of tissue processing from your answer in question 4.1.1. (5)

4.2 Compare and contrast the three (3) advantages and three (3) disadvantages of automated and manual tissue processing. Present your answer in a table. (6)

Question 5 [11]

5.1 What is the significance of dehydrating tissue samples slowly? Explain how this is achieved. (6)

5.2 Name at least four (4) dehydrating agents and identify the one that is commonly used in histopathology. (5)

Section D (29 marks)

Question 6 [17]

6.1 Name five (5) factors prohibiting stains from being taken up into every part of the tissue? (5)

6.2 What is the difference between progressive and regressive staining? (2)

6.3 Discuss five (5) histology classification of dyes. Give a relevant example of each. (10)

Question 7 [12]

7.1 Troubleshoot the following problems relating to hematoxylin and eosin (H & E) stains. For each problem identify the cause and propose a solution.

7.1.1 Difficulty bringing some areas of tissue on focus with light microscopy. (2)

- 7.1.2 Nuclei overstained - hematoxylin too dark. (2)
- 7.1.3 Nuclei too pale – hematoxylin too light. (2)
- 7.2 Describe three (3) types of staining artefacts in histopathology. (6)

Good luck!

7.3 Discuss five (5) uses of frozen sections in histology.

(5)

Good luck!