



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, APPLIED SCIENCES AND NATURAL RESOURCES
SCHOOL OF HEALTH SCIENCES
DEPARTMENT OF CLINICAL HEALTH SCIENCES

QUALIFICATION: BACHELOR OF MEDICAL LABORATORY SCIENCES	
QUALIFICATION CODE: 08BOHS	LEVEL: 6
COURSE CODE: ANP611S	COURSE NAME: ANATOMICAL PATHOLOGY 2A
SESSION: JUNE 2023	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS	
<ol style="list-style-type: none">1. Answer ALL the questions.2. Write clearly and neatly.3. Number the answers clearly.	

PERMISSIBLE MATERIALS

1. Non programmable calculator is allowed.

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

SECTION A (10 MARKS)

QUESTION 1

(10)

Evaluate the statements in each numbered section and select the most appropriate answer. Write either “True” or “False” next to the corresponding number on the answer sheet.

- 1.1 A biopsy is a surgical procedure that consists of a thorough examination of a corpse by dissection to determine the cause, mode, and manner of death or to evaluate any disease or injury that may be present for research or educational purposes.
- 1.2 A histopathology report is based on the interpretative skill of a medically qualified practitioner known as a histopathologist.
- 1.3 The choice of method for in situ hybridization depends mainly on the sensitivity.
- 1.4 The counterstain used in immunohistochemistry EA 50.
- 1.5 Factors affecting the time taken to generate a histopathology report include the size of tissue, presence of calcium and complexity of the case.
- 1.6 A histopathology report should include the macroscopic description of the specimens such as measurements, gross appearance, except for details of blocks taken for histological assessment.
- 1.7 Quality control slides are not required in histology.
- 1.8 The simple columnar epithelium is found in the lining of the digestive tract.
- 1.9 The most characteristic property of the appendix is the absence of masses of lymphoid tissue in the mucosa and submucosa.
- 1.10 Bowel samples are generally medium and large tissue resections which can originate from anywhere along the length of the gastrointestinal tract.

SECTION B (28 MARKS)

- QUESTION 2** [28]
- 2.1 Describe the action of a fixative on the tissue in a histologic context. (4)
- 2.2 Recommend the most suitable fixative for the following types of tissue:
- 2.2.1 Routine surgical pathology and autopsy tissues (1)
- 2.2.2 Testis, GI tract and endocrine tissue (1)
- 2.2.3 Reticuloendothelial tissues (lymph nodes, spleen, and thymus) (1)
- 2.3 Evaluate six (6) factors affecting the quality of fixation. State the factor and provide a description. (18)
- 2.4 Justify the diagnostic significance of using buffered formalin in histology. (3)

SECTION C (30 MARKS)

- QUESTION 3** [30]
- 3.1 What is the basic principle of tissue processing? (3)
- 3.2 Tissue processing comprises of five (5) steps. Briefly describe each step in a sequential manner, **excluding fixation** and explain the importance of adequately completing each step. **(One (1) mark for each step, two (2) marks for the description and two (2) marks for the explanation under each step, one (1) mark for naming the steps in the correct order.)** (21)
- 3.3 Give a brief description of how a microtome works. (2)

3.4 Suggest one (1) cause and provide a corresponding solution for the following artefacts observed during microtomy.

3.4.1 Vertical striations (2)

3.4.2 Fine cracks or micro-chatter (2)

SECTION D (32 MARKS)

QUESTION 4 [21]

4.1 Compile three (3) critical questions one should be able to answer to understand the theory of staining in histology. (3)

4.2 State the difference between stains and dyes based on the criteria provided below. Draw a table on your answer sheet.

4.2.1 Significance (2)

4.2.2 Colours (2)

4.2.3 Role (2)

4.2.4 Example (2)

4.3 Demonstrate your understanding of basophilic and eosinophilic staining characteristics in the haematoxylin and eosin (H&E) stain by sketching a labelled diagram of a cell depicting components that are affected by this staining theory. Indicate the colour of the labelled components. **(One (1) mark each for: labelling the correct components and indicating the correct colour of each component.)** (4)

4.4 Using the diagram in question 4.3, further elaborate on the histological staining characteristics of the H&E stain. (6)

QUESTION 5

[11]

- 5.1 Outline any five (5) classifications of haematoxylin solutions. (5)
- 5.2 Differentiate between prognostic and predictive biomarkers used in immunohistochemistry and give an example for each type. **(One (1) mark for the description of each biomarker and one (1) mark for giving an example of each type of biomarker.)** (4)
- 5.3 The Gordon Sweet Methenamine Silver special staining method relies on the impregnation of a particular component with silver through oxidation and reduction. Propose this component and suggest the colour it will stain. (2)

**END OF EXAMINATION PAPER
GOOD LUCK!!!**