



TECHNICAL UNIVERSITY OF MOMBASA

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**School of Applied and Health Sciences**  
**DEPARTMENT OF PURE AND APPLIED SCIENCES**  
**UNIVERSITY EXAMINATION FOR:**  
**BACHELOR OF SCIENCE IN BIOCHEMISTRY**  
**ABC 4203: HISTOLOGICAL TECHNIQUES**  
**SPECIAL/SUPPLEMENTARY EXAMINATION**  
**SERIES: JULY 2025 SERIES**  
**TIME: 2 HOURS**  
**DATE: JULY 2025**

**Instructions to Candidates**

You should have the following for this examination

*Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt **question ONE (Compulsory) and any other TWO questions.**

**Do not write on the question paper.**

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**Question One (25 Marks)**

- a) Outline TWO (2) key functions of the epithelial tissue (3 marks)
- b) Illustrate the structure of the following types of epithelial tissue
  - i) stratified columnar epithelium (1 mark)
  - ii) pseudostratified columnar epithelium (1 mark)
- c) Sketch the outline of the types of muscle tissue based on appearance of contractile cells (3 marks)
- d) Give an illustration of the basic types of neurons based on structure (3 marks)
- e) Outline the advantages of cryoprotected tissue freezing (3 marks)
- f) Describe briefly the histology of the oesophagus (4 marks)
- g) Fill in the table information about the epithelial tissue of the gastrointestinal tract (4 marks)
- h) Outline the microscopic layers of the kidney (4 marks)
- i) Explain the advantages of permanent preparations of samples on microscope slides (4 marks)

## **Question Two (25 Marks)**

- a) Explain the principle behind Cryostat sectioning and its application (8 marks)
- b) Describe the procedure for Cryostat sectioning (6 marks)
- c) Differentiate between Cryostat and freeze Microtome sectioning (6 marks)

## **Question Three (25 Marks)**

Describe the types animal connective tissue based on structure and function (20 marks)

## **Question Four (25 Marks)**

Describe the histology of;

- a) Histopoetic system (8 marks)
- b) Lymphoid tissues (12 marks)

## **Question Five (25 Marks)**

Discuss the histology of the skin as an integumentary system (20 marks)