



UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

**FIRST YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF BIOMEDICAL SCIENCE AND
TECHNOLOGY (BMED)**

BMED 122: HUMAN HISTOLOGY AND PHYSIOLOGY

STREAM: R

TIME: 2 HRS

DAY: MONDAY [8.30A.M – 10.30A.M] ***DATE: 08/04/2024***

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTIONS

- i. Answer ALL questions in Section A and ANY TWO questions in Section B**
- ii. Do not write on the question paper**

SECTION A: 40 MARKS

QUESTION ONE

Histology and Cellular Structures

- a. Draw and label the anatomic structures of a typical nerve cell. **(2 Marks)**
- b. Differentiate between the central nervous system (CNS) and peripheral nervous system (PNS) **(2 Marks)**
- c. Explain the structural differences between skeletal, smooth, and cardiac muscles. **(6 Marks)**

QUESTION TWO

Cardiovascular Physiology

- a) State the structural and functional differences between capillaries, aorta, and veins. **(6 Marks)**
- b) Describe cardiovascular system responds to changes in oxygen demand during exercise. **(4 Marks)**

QUESTION THREE

Reproductive Physiology

- a) Outline the differences between mitosis and meiosis. **(4 Marks)**
- b) What are the roles of oxytocin and testosterone in males? **(2 Marks)**

QUESTION FOUR

Digestive System Physiology

- a) Briefly discuss the role of microorganisms in digestion **(5Marks)**
- b) Describe the adaptation of the small intestines towards assimilation of nutrients. **(4 Marks)**

QUESTION FIVE

Homeostasis and Excretory System

- a) Define the following terms **(3 Marks)**
 - i. Homeostasis
 - ii. Passive transport
 - iii. Active transport

- b) Differentiate between positive and negative feedback mechanisms **(2 Marks)**

SECTION B: 30 MARKS

Choose TWO questions only

QUESTION SIX

Reproductive Physiology

- a) Outline the roles of estrogen, progesterone, FSH, and LH. **(4 Marks)**
b) Discuss the process of spermatogenesis and the structure of the testes in males. **(5 Marks)**
c) Explain the physiological changes that occur during pregnancy. **(6 Marks)**

QUESTION SEVEN

Digestive System Physiology

- a) Discuss the role of bile juice in the small intestine during digestion **(5 Marks)**
b) Explain the functions of gastric juice in the stomach during digestion. **(5 Marks)**
c) Discuss the mechanisms of transport involved during the nutrient absorption in the small intestines. **(5 Marks)**

QUESTION EIGHT

Homeostasis and Excretory System

- a) Discuss the regulation of water and electrolyte balance by the kidneys, including the roles of antidiuretic hormone (ADH) and aldosterone. **(10 Marks)**
b) Describe the process of urine formation in the nephron, including filtration, reabsorption, and secretion mechanisms. **(5 Marks)**