



AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF COMMUNITY HEALTH
BACHELOR OF SCIENCE IN COMMUNITY HEALTH
END OF SEMESTER EXAMINATION AUGUST 2025

UNIT CODE: HRI 103 **UNIT NAME:** HUMAN ANATOMY AND PHYSIOLOGY
DATE: 6 August 2025
TIME: TWO Hours **Start:** 4:30 PM **Finish:** 6:30 PM

INSTRUCTIONS

1. This exam is marked out of 70 marks
2. This Examination comprises TWO Sections
Section A: Compulsory Question (30 marks)
Section B: Long Answer Questions (40 marks)

SECTION A: COMPULSORY (30 Marks)

Short Answer Questions

1. Define the term “internal environment” and Explain its significance in physiology(marks)
2. Differentiate between passive and active transport across cell membranes (4 marks).
3. List any three (3) components of blood and their respective functions (6 marks)
4. List any two (2) types of muscle tissue and give one location for each (4 marks).
5. Outline the genetic basis of protein synthesis (3 marks).
6. State the three (3) roles of nucleotides in cellular function (3 marks).
7. Give two (2) physiological functions of the endocrine system(2 marks)
8. List three (3) ways that the nervous system communicates with other body systems (3 marks).
9. Outline three (3) importance of the pH scale in human physiology(3 marks)

SECTION B: Long Answer Questions

ANSWER ANY TWO (2) QUESTIONS (40 Marks)

Question 10

A 60-year-old woman presents with high blood pressure, fatigue, and swelling in her legs. Laboratory tests show low sodium levels and signs of renal impairment.

- a) Explain the physiological mechanisms involved in maintaining water and electrolyte balance in the human body(10 Marks)
- b) Discuss how homeostatic imbalance in this case could affect multiple organ systems. (10 marks)

Question 11

- a) Explain the biological significance in the human body of acids, alkalis, and buffers. (5 marks)
- b) Describe the structure and function of carbohydrates, proteins, lipids, and nucleotides, and its contribution to cellular function. (10 marks)
- c) Explain how enzymes facilitate metabolic processes. (5 marks)

Question 12

- a) Explain the physiological roles of the nervous and endocrine systems in maintaining homeostasis. (10 marks)
- b) Analyze how the integration of cells, tissues, and organs supports overall body function and survival. (10 marks)