



# MACHAKOS UNIVERSITY

## SCHOOL OF HEALTH SCIENCES

### DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

**First Year First Semester Supplementary/Special University Examination for the Degree in  
Bachelor of Science in Public Health**

**CODE: HPH 101**

**UNIT NAME: HUMAN ANATOMY AND PHYSIOLOGY 1**

**Date:**

**Time:**

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#### **Instructions:**

This paper consists of two sections A and B

Section A is compulsory

Section B choose any two (2) questions

#### **SECTION A (30 Marks) Compulsory**

##### **Question one**

- a) Explain the functions of body water (3marks)
- b) Identify 6 (six) essential amino acids (3marks)
- c) Outline body fluids that constitute the extra cellular fluid compartment (3marks)
- d) Explain the functions of the membrane proteins (3marks)
- e) State 2 two functions of the cytoskeleton (3marks)
- f) Explain the constituents of the axial skeleton (3marks)
- g) Briefly describe the sinusoids (3marks)
- h) Briefly describe functions of connective tissue (2 marks)
- i) Explain the functions of three (3) interdependent components of homeostatic control. (3 marks)
- j) Differentiate between cardiac muscles cells and skeletal muscle cell (3 marks)
- k) Compare and contrast transmission of a nerve impulse in myelinated and unmyelinated fibres. (3 marks)

- 1) Explain factors that delay the healing of fractures (4 marks)

**SECTION B: CHOOSE ANY TWO (2) QUESTIONS. EACH QUESTION IS 20 MARKS**

**QUESTION TWO**

- a) Describe the physiology of olfaction (8 marks)  
b) Discuss the cell cycle in reproductive cells (12 marks)

**QUESTION THREE**

- a) With the aid of a diagram describe the conducting system of the heart (10 marks)  
b) Describe epithelial tissues in the human body (10 marks)

**QUESTION FOUR**

- a) Describe the main factors determining heart rate and cardiac output. (10 marks)  
b) Describe the lymphoid organs and their roles in body defenses (10 marks)

**QUESTION FIVE**

- a) With the aid of a well labelled diagram of the skin, describe the layers of the epidermis of the skin. (12 marks)  
b) Describe the development of long bones (8 marks)