



MACHAKOS UNIVERSITY

University Examinations 2019/2020 Academic year

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN PUBLIC HEALTH.

HPH 101: HUMAN ANATOMY AND PHYSIOLOGY I

DATE: 3/12/2019

TIME: 2.00-4.00 PM

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 (30 MARKS)

- a) Explain the importance of the most abundant elements found in the human body (3 marks)
- b) State 3 (three) processes through which substances move across the cell membrane (3 marks)
- c) State 3 (three) glands of the skin (3 marks)
- d) Illustrate the 4 (four) planes through which the human body can be divided (2 marks)
- e) Describe any 3 (three) functions of the skeletal system. (3 marks)
- f) Define a synapse. (1 mark)
- g) Explain "Decussation" and where does this usually happen in the brain. (1 mark)
- h) Explain buffer systems in the human body (3 marks)
- i) State the functions of the lymphatic system (3 marks)
- j) Explain the constituents of the appendicular skeleton (3 marks)
- k) Briefly describe the structure of a lymph node (3 marks)
- l) Outline the general characteristics of connective tissue (2 marks)

SECTION B:

Specific Instructions

- **This section has four (4) question**
- **Answer any two (2) questions**
- **Each question is 20 Marks**

QUESTION TWO (20 MARKS)

- a) Some people have weak bones that break easily while others have strong bones because of varied reasons. Describe the bone cells and their roles in bone development (10 marks)
- b) Labile cells undergo rapid multiplication to replace worn out tissues. Discuss the cell cycle in these cells. (10 marks)

QUESTION THREE (20 MARKS)

- a) The cerebrospinal fluid constantly circulates to cushion the brain. Describe its flow using a diagram. (10 marks)
- b) In order for the human body to maintain a state of balance homeostatic mechanisms are essential. Describe the homeostatic feedback mechanisms (10 marks)

QUESTION FOUR (20 MARKS)

- a) Sodium ions are the most abundant cations in the extra cellular fluid compartment. Discuss mechanisms through which sodium concentration is maintained within this fluid compartment. (10 marks)
- b) Describe the functions of the cerebrum and the hypothalamus. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Describe the structure of the heart and its position within the thorax (12 marks)
- b) The skin plays a key role in nonspecific body defenses. Illustrate and clearly label it's structure. (8 marks)