



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Applied & Health Sciences

DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES

CERTIFICATE IN COMMUNITY ENVIRONMENTAL HEALTH & HIV MANAGEMENT

(CCH 012J)

AMD 1101: HUMAN ANATOMY & PHYSIOLOGY I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer booklet*

This paper consists of **FIVE** questions.

Answer section **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are clearly shown

This paper consists of **THREE** printed pages

Question 1 (COMPULSORY)

- a) Draw a well labeled diagram of a mitochondrion and state its main function (3 marks)
- b) Explain **TWO** functions of each of the following organelles found in a human cell
- (i) Cytoskeleton (2 marks)
 - (ii) Golgi apparatus (2 marks)
- c) (i) Distinguish between mitosis and meiosis (2 marks)
- (ii) Explain **TWO** ways in which cell division brings about variation in humans (2 marks)
- d) (i) Define the term “tissue” (1 mark)
- (ii) Briefly describe the **FOUR** primary tissue types found in a human body (4 marks)
- e) Name **TWO** organs located in each of the following body cavities
- (i) Thoracic cavity (2 marks)
 - (ii) Upper abdominal cavity (2 marks)
- f) State any **TWO** physical characteristics of a human blood (2 marks)
- g) Explain **TWO** main functions of the human ear (2 marks)
- h) (i) List the **TWO** main divisions of the human nervous system and their components parts (2 marks)
- (iii) State **TWO** functions of the following parts of the human brain.
- Cerebellum (2 marks)
 - Medulla oblongata (2 marks)

SECTION B (Answer any **TWO** questions from this section)

Question 2

- a) (i) State **TWO** functions of glial cells (2 marks)
- (ii) Draw a well labeled diagram of a sensory neuron (2 marks)
- (iii) Describe **TWO** structural differences between a motor and a sensory neuron (4 marks)
- (iv) Explain the difference between a chemical and an electrical synapse (2 marks)
- b) State **THREE** events that take place during Interphase of the cell cycle (3 marks)
- c) Explain the importance of the mitotic cell division (2 marks)

Question 3

- a) (i) State any **TWO** characteristic of human muscles (2 marks)
- (ii) Briefly describe the **THREE** main types of human muscles (3 marks)
- (iii) Outline **THREE** functions of human muscles (3 marks)
- b) (i) List any **TWO** types of cells that make up human bones (2 marks)

(ii) Explain **FIVE** functions of human bones (5 marks)

Question 4

- a) (i) Define the term “homeostasis” (2 marks)
(ii) Describe the **THREE** components of a homeostatic control mechanism (3 marks)
(iii) Give **TWO** examples of positive homeostatic control mechanism in a human body (2 marks)

- b) (i) What is anaemia? (1 marks)
(ii) Describe **TWO** causes of anaemia (2 marks)
(iii) Explain **TWO** ways in which anaemia is diagnosed in the laboratory (2 marks)
(iv) Explain **THREE** methods of treating anaemia (3 marks)

Question 5

- a) (i) Distinguish between granulocytes and agranulocytes (2 marks)
(ii) Describe **FIVE** transport functions of the human blood (5 marks)
- b) Explain **TWO** functions of each of the following components of human blood
(i) Erythrocytes (2 marks)
(ii) Eosinophils (2 marks)
- c) Describe the following types of cartilage and state their location in a human body
(i) Hyaline cartilage (2 marks)
(ii) Elastic cartilage (2 marks)
(iii)