(*University of Choice*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

FIRST YEAR, FIRST TRIMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN SPORTS SCIENCE/ENVIRONMENTAL HEALTH/HUMAN NUTRITION AND DIETETICS

COURSE CODE: PHC 116

COURSE TITLE: GENERAL PHYSIOLOGY I

DATE: THURSDAY 7TH DEC 2023 **TIME: 8:00-10:00 AM**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over

SECTION A: MULTIPLE CHOICE QUESTIONS 10 MARKS

1. In which part of a cell does the process of making ATP from oxygen and glucose take place?
   A. Lysosomes
   B. Ribosomes
   C. Mitochondria
   D. Golgi apparatus
2. Which of the following is a function of membrane proteins?
   A. To process lipids and proteins for secretion through the plasma membrane
   B. To act as receptors for hormones
   C. To synthesise proteins from amino acids
   D. To act as a cytoskeleton to support and shape the cell
3. Which cell organelles contain an acidic environment capable of digesting a wide variety of molecules?
   A. Lysosomes
   B. Ribosomes
   C. Centrosomes
   D. Golgi complex
4. Which form of transport through the plasma membrane requires the expenditure of energy by the cell?
   A. Facilitated diffusion
   B. Osmosis
   C. Active transport
   D. Diffusion
5. A major role for mitochondria is to
   A. Transcribe the information in DNA (deoxyribonucleic acid)
   B. Produce ATP (adenosine triphosphate)
   C. Synthesise proteins from amino acids
   D. Use enzymes to lyse molecules
6. Facilitated diffusion refers to the process of
   A. movement along a concentration gradient assisted by protein carrier molecules.
   B. movement of ions and molecules along a concentration gradient.
   C. transport of molecules and ions against their concentration gradient.
   D. water movement through a semi-permeable membrane
7. What mechanism transports the largest portion of oxygen around the body?
   A. Oxygen is carried bound to plasma proteins
   B. Oxygen is transported in solution dissolved in blood plasma
   C. Oxygen is bound to haemoglobin within red blood cells
   D. Oxygen is transported as bicarbonate after reacting with water to form carbonic acid
8. All of the following are hormones of the anterior pituitary except:
   A. Human growth hormone (GH).
   B. Follicle-stimulating hormone (FSH).

C. Parathyroid hormone(PTH).
D. Thyroid-stimulating hormone (TSH).

9. Blood flow through the heart follows which of the sequences listed below?
   A. From left atrium, then mitral valve, right ventricle, aorta, left ventricle
   B. From right atrium, then mitral valve, right ventricle, pulmonary trunk, left ventricle.
   C. From pulmonary trunk, then tricuspid valve, left atrium, aortic valve, aorta
   D. From vena cava, then right ventricle, pulmonary trunk, left ventricle, aorta.
10. What is the name of the valve between the left atrium and the left ventricle?
   A. Mitral valve
   B. Tricuspid valve
   C. Semi-lunar valve
   D. Aortic valve

SECTION B: SHORT ANSWER QUESTIONS 20 MARKS

1. Discuss the physiology of swallowing mechanisms — 5 marks
2. Explain the similarities between the prokaryotic and eukaryotic cells — 5 marks
3. Discuss the structure of endoplasmic reticulum — 5 marks
4. Explain the Physical properties that affect lung functions — 5 marks

SECTION C: LONG ANSWER QUESTIONS — 30 MARKS

1. Discuss the functions of membrane proteins — 15 marks
2. Discuss the mechanism of ventilation — 15 marks