



University of Fort Hare

Together in Excellence

DEGREE AND DIPLOMA EXAMINATIONS: MAIN EXAM: NOV 2025

<u>Faculty</u>	:	Faculty of Health Sciences
<u>Department</u>	:	Department of Human Movement Science
<u>QUALIFICATION</u>	:	BACHELOR OF HEALTH SCIENCES IN HUMAN MOVEMENT SCIENCE
<u>SUBJECT</u>	:	PHYSIOLOGY
<u>SUBJECT CODE</u>	:	HUS 122
<u>EXAMINER/S</u>	:	PM ZIMU
<u>MODERATOR</u>	:	M van Gent
<u>DURATION</u>	:	3 HOURS
<u>MARKS</u>	:	100
<u>ASSESSMENT WEIGHTING</u>	:	50%

SECTION A: MCQs & True/False - Write only the question number and the correct letter for each multiple-choice question (e.g., 1. A).

QUESTION 1: Multiple Choice (20 marks)

1. The correct sequence of the structural organization of the body is:
 - a) Tissues → Cells → Organs → Systems
 - b) Cells → Organs → Tissues → Systems
 - c) Cells → Tissues → Organs → Systems
 - d) Systems → Organs → Tissues → Cells
2. The main function of mitochondria is:
 - a) Protein synthesis
 - b) ATP production
 - c) Lipid storage
 - d) Transport of molecules
3. What is the primary function of the plasma membrane?
 - a) It provides energy to the cell.
 - b) It stores genetic information.
 - c) It regulates transport and separates internal environment from external surroundings.
 - d) It aids in protein synthesis.
4. What is the role of smooth endoplasmic reticulum in the cell?
 - a) DNA replication
 - b) Protein synthesis and transport
 - c) Lipid synthesis and detoxification
 - d) ATP production
5. Which hormone regulates blood glucose by lowering it?
 - a) Insulin
 - b) Glucagon
 - c) Cortisol
 - d) Adrenaline
6. Which organelle is primarily involved in protein synthesis and modification?
 - a) Golgi Apparatus
 - b) Rough Endoplasmic Reticulum (Rough ER)
 - c) Mitochondria
 - d) Smooth Endoplasmic Reticulum (Smooth ER)
7. Which of the following is NOT a function of the respiratory system?
 - a) Gas exchange
 - b) Oxygen transport
 - c) Regulation of blood pH
 - d) Production of red blood cells
8. Which layer of the digestive tract is responsible for peristalsis?
 - a) Mucosa
 - b) Submucosa
 - c) Muscularis externa
 - d) Serosa
9. What defines a eukaryotic cell?
 - a. A cell that possesses a nucleus and membrane-bound organelles.
 - b. A prokaryotic cell type
 - c. A cell without a nucleus
 - d. A cell that only conducts photosynthesis
10. In which phase of the cell cycle does DNA replicate?



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- a. S phase (Synthesis phase)
 - b. G1 phase
 - c. M phase
 - d. G2 phase
11. What is chromatin?
- a. RNA involved in protein synthesis
 - b. Condensed DNA during cell division
 - c. DNA wrapped around histone proteins in a diffuse form.
 - d. Type of lipid found in membranes
12. Which cellular structure is involved in detoxification and lipid synthesis?
- a. Smooth endoplasmic reticulum
 - b. Mitochondrion
 - c. Rough endoplasmic reticulum
 - d. Golgi apparatus
13. What is the primary purpose of mitosis in multicellular organisms?
- a. To facilitate meiosis
 - b. To produce identical daughter cells for growth and repair.
 - c. To create genetic diversity
 - d. To generate energy
14. Which organelle is primarily responsible for the synthesis of ATP?
- a. Lysosomes
 - b. Golgi apparatus
 - c. Mitochondria
 - d. Nucleus
15. Which bond involves sharing of electrons?
- a. Ionic bond
 - b. Covalent bond
 - c. Hydrogen bond
 - d. Peptide bond
16. The powerhouse of the cell is the:
- a. Nucleus
 - b. Mitochondria
 - c. Ribosome
 - d. Endoplasmic reticulum
17. What is the first step in the digestion of carbohydrates?
- a) Fermentation in the large intestine
 - b) Emulsification by bile
 - c) Breakdown by salivary amylase
 - d) Absorption in the intestine
18. What role do bile salts play in the digestive process?
- a) Emulsification of fats
 - b) Digestion of carbohydrates
 - c) Production of insulin
 - d) Absorption of proteins
19. Which of the following is NOT a function of connective tissue?
- a) Providing support
 - b) Transporting substances
 - c) Cushioning organs
 - d) Transmitting electrical impulses
20. What type of muscle tissue is found in the heart?
- a) Striated muscle
 - b) Smooth muscle
 - c) Cardiac muscle
 - d) Skeletal muscle



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True/False Write only the question number and the correct answer (e.g., 1. False).

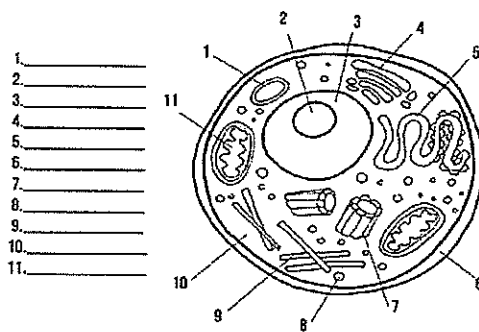
21. Smooth endoplasmic reticulum is responsible for protein synthesis.
22. The pituitary gland is known as the 'master gland' of the endocrine system.
23. Oxygen diffuses from the blood into the alveoli during external respiration.
24. The left ventricle pumps blood to the systemic circulation.
25. The pancreas secretes both endocrine and exocrine substances.
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SECTION B

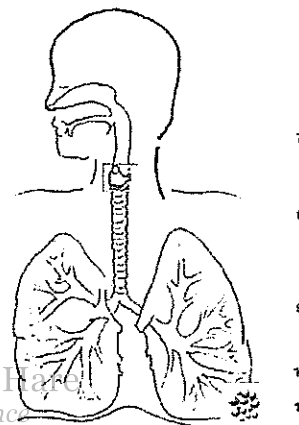
3.2 Label the major organs of the respiratory system. (11)

QUESTION 2 [33 Marks]

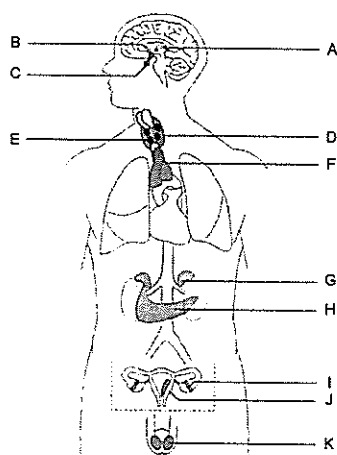
3.1 Label the diagram of a generalized animal cell. (11)



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3.3 Label the major endocrine system glands. (11)



SECTION C

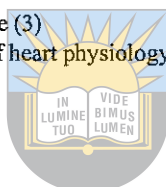
QUESTION 3 [42]

3.1 Match the organelle/hormone/structure in Column A with its correct function in Column B.(7)

Column A	Column B
1. Glycolysis	a) Controls blood sugar increase
2. Insulin	b) Glucose-6-phosphate
3. Hemoglobin	c) Secretes digestive enzymes and hormones
4. Pancreas	d) Transport of oxygen
5. Adrenaline	e) Production of glucose from non-carbohydrates
7. Gluconeogenesis	f) Prepares body for 'fight or flight'

3.2 Describe the physiology of the heart, including the pathway of blood circulation through the chambers, valves, and major vessels. (15)

- Pathway of blood circulation through the chambers (5)
- Role and function of valves (3)
- Major blood vessels and their role (3)
- Integration/overall explanation of heart physiology (4)



3.3 Analyse the processes of digestion and nutrient absorption, highlighting the role of at least three major digestive organs. (10)

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- Description of digestion process (3)
- Explanation of nutrient absorption (3)
- Roles of at least three major digestive organs ($1 \times 3 = 3$)
- Coherence and integration (1)

3.4 Describe the stages of mitosis in the correct sequence, naming each stage and explaining the main event that occurs in each. (5x2= 10)

TOTAL=100



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