

SMARTWIZ

GRADE10 LIFE SCIENCE EXAM

MARKS: 100

MARKS	

TIME: 2 hours

SCHOOL _____

CLASS (e.g. 4A) _____

SURNAME _____

NAME _____

Instructions for Learners:

- Read all the instructions carefully before you begin the exam.
- Write your name and learner number clearly on the answer sheet/booklet.
- Answer all the questions unless otherwise instructed.
- Show all your work/calculations where applicable.
- Write neatly and legibly.
- Use only blue or black ink. *Do not use correction fluid or tape.*
- No electronic devices (calculators, phones, etc.) are allowed unless explicitly permitted.
- Raise your hand if you have any questions.
- Do not talk to other learners during the exam.
- Any form of cheating will lead to disqualification.

This test consists of 6 pages including the cover page.

SECTION A: COMPULSORY (20 MARKS)**QUESTION 1: MULTIPLE CHOICE (10 x 1 = 10)**

Choose the correct answer and write only the letter (A–D) next to the question number.

1.1 Which part of the ear is responsible for balance?

- A. Cochlea
- B. Auditory nerve
- C. Semicircular canals
- D. Eardrum

1.1 _____

1.2 The smallest structural and functional unit of life is a:

- A. Tissue
- B. Cell
- C. Organ
- D. System

1.2 _____

1.3 What type of joint is found in the shoulder?

- A. Hinge joint
- B. Pivot joint
- C. Ball and socket joint
- D. Fixed joint

1.3 _____

1.4 The enzyme that breaks down starch in the mouth is:

- A. Lipase
- B. Protease
- C. Amylase
- D. Lactase

1.4 _____

1.5 Which part of a plant cell gives it shape and support?

- A. Cytoplasm
- B. Cell wall
- C. Nucleus
- D. Membrane

1.5 _____

1.6 Which organ system transports nutrients and oxygen?

- A. Respiratory system
- B. Digestive system
- C. Circulatory system
- D. Nervous system

1.6 _____

1.7 What part of the flower contains the ovules?

- A. Petal
- B. Ovary
- C. Stigma
- D. Filament

1.7 _____

1.8 Which of the following is NOT an excretory product?

- A. Sweat
- B. Urine
- C. Oxygen
- D. Carbon dioxide

1.8 _____

1.9 The spinal cord is part of the:

- A. Peripheral nervous system
- B. Central nervous system
- C. Autonomic system
- D. Reflex system

1.9 _____

1.10 In which organ does absorption of nutrients mainly occur?

- A. Stomach
- B. Large intestine
- C. Small intestine
- D. Liver

1.10 _____

QUESTION 2: MATCHING ITEMS (5 x 1 = 5)

Match the items in Column A with the correct description in Column B. Write only the letter (A–E).

Column A	Column B
2.1 Ligament	A. Connects muscle to bone
2.2 Tendon	B. Connects bone to bone
2.3 Stomata	C. Pores for gas exchange in leaves
2.4 Villi	D. Finger-like projections in intestines
2.5 Cartilage	E. Soft connective tissue at joints

2.1 _____

2.2 _____

2.3 _____

2.4 _____

2.5 _____

QUESTION 3: TRUE OR FALSE (5 x 1 = 5)

Write TRUE or FALSE. If the statement is false, correct it.

3.1 The pancreas secretes insulin to regulate blood sugar.

3.2 The heart has four chambers – two atria and two ventricles.

3.3 Platelets are responsible for carrying oxygen.

3.4 The retina focuses light onto the lens.

3.5 The kidney filters blood and produces urine.

SECTION B: STRUCTURED QUESTIONS (40 MARKS)**QUESTION 4: CELLS & ORGANELLES (10 MARKS)**

4.1 What is an organelle? (2)

4.2 Name TWO organelles found in plant cells but not animal cells. (2)

4.3 State the function of the nucleus. (2)

4.4 Draw a labelled diagram of a plant cell. Label FOUR parts. (4)



QUESTION 5: DIGESTION IN HUMANS (10 MARKS)

5.1 What is the function of the small intestine? (2)

5.2 Name TWO digestive enzymes and their functions. (4)

5.3 Explain peristalsis. (2)

5.4 Which part of the digestive system produces bile? (2)

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QUESTION 6: RESPIRATION & EXCRETION (10 MARKS)

6.1 Define cellular respiration. (2)

6.2 Explain the difference between aerobic and anaerobic respiration. (4)

6.3 Name TWO organs involved in excretion and their functions. (4)

QUESTION 7: PLANT ANATOMY (10 MARKS)

7.1 Name THREE parts of a typical dicot root. (3)

7.2 State ONE function of root hairs. (2)

7.3 What is the function of xylem tissue? (2)

7.4 Draw and label TWO structures found in a leaf cross-section. (3)

SECTION C: ESSAY (40 MARKS)

Answer ONE of the following questions.

QUESTION 8: PLANT TRANSPORT SYSTEM

Write an essay explaining the transport system in plants. Include:

- The roles of xylem and phloem
- The process of transpiration
- How water and minerals move through a plant
- Factors affecting transpiration

(Use the space below – at least one full page)

OR

QUESTION 9: THE SKELETAL SYSTEM

Write an essay about the human skeletal system. Include:

- The functions of the skeleton
- Different types of bones and joints
- The role of ligaments and cartilage
- Importance of posture and bone health

(Use the space below – at least one full page)

TOTAL: 100 MARKS



MEMO**SECTION A: (20 MARKS)****QUESTION 1: MULTIPLE CHOICE (10)**

- 1.1 C ✓
- 1.2 B ✓
- 1.3 C ✓
- 1.4 C ✓
- 1.5 B ✓
- 1.6 C ✓
- 1.7 B ✓
- 1.8 C ✓
- 1.9 B ✓
- 1.10 C ✓

QUESTION 2: MATCHING ITEMS (5)

- 2.1 B ✓
- 2.2 A ✓
- 2.3 C ✓
- 2.4 D ✓
- 2.5 E ✓

QUESTION 3: TRUE OR FALSE (5)

- 3.1 TRUE ✓
- 3.2 TRUE ✓
- 3.3 FALSE – Red blood cells carry oxygen. ✓
- 3.4 FALSE – The lens focuses light onto the retina. ✓
- 3.5 TRUE ✓

SECTION B: STRUCTURED QUESTIONS (40 MARKS)**QUESTION 4: CELLS & ORGANELLES (10)**

- 4.1 A structure within a cell that performs a specific function. ✓ (2) 4.2 Chloroplast, Cell wall ✓ (2) 4.3 Controls cell activities and contains genetic material. ✓ (2) 4.4 Neatly labelled diagram with any four of: cell wall, nucleus, vacuole, chloroplast, cytoplasm ✓ (4)

QUESTION 5: DIGESTION IN HUMANS (10)

5.1 Absorbs nutrients into the blood ✓ (2) 5.2 Amylase – breaks down starch ✓ ; Protease – breaks down protein ✓ (4) 5.3 Wave-like muscle contractions moving food ✓ (2) 5.4 Liver ✓ (2)

QUESTION 6: RESPIRATION & EXCRETION (10)

6.1 The breakdown of glucose to release energy ✓ (2) 6.2 Aerobic – uses oxygen ✓ ; Anaerobic – without oxygen ✓ (4) 6.3 Kidney – removes urea ✓ ; Lungs – remove carbon dioxide ✓ (4)

QUESTION 7: PLANT ANATOMY (10)

7.1 Epidermis, Cortex, Vascular bundle ✓ (3) 7.2 Absorb water and minerals ✓ (2) 7.3 Transport water and minerals ✓ (2) 7.4 Any two: stomata, mesophyll, xylem, phloem ✓ (3)

SECTION C: ESSAY (40 MARKS)

QUESTION 8: PLANT TRANSPORT SYSTEM (OR)

Introduction: Defines transport system and structures ✓ (4) **Body:**

- Xylem transports water and minerals ✓ (6)
- Phloem transports food ✓ (6)
- Transpiration: evaporation of water from leaves ✓ (6)
- Water/mineral uptake via root hairs, capillary action, transpiration pull ✓ (6)
- Factors: temperature, humidity, wind, light ✓ (6) **Conclusion:** Importance to plant survival ✓ (2) **TOTAL: 40 MARKS**

OR

QUESTION 9: THE SKELETAL SYSTEM

Introduction: Defines the skeletal system ✓ (4) **Body:**

- Functions: support, protection, movement, blood production ✓ (6)
- Bone types: long, short, flat, irregular ✓ (6)
- Joint types: hinge, ball and socket, pivot ✓ (6)
- Ligaments – connect bones; cartilage – cushions joints ✓ (6)
- Importance of posture and nutrition ✓ (6) **Conclusion:** Promotes movement and health ✓ (2) **TOTAL: 40 MARKS**

TOTAL: 100 MARKS

MAP

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