

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: MULTIPLE CHOICE & MATCHING ITEMS (20 MARKS)**QUESTION 1: MULTIPLE CHOICE (10 x 1 = 10)**

Choose the correct answer. Write only the letter (A–D) next to the number.

1.1 Which organelle is responsible for producing energy in a cell?

- A. Nucleus
 - B. Chloroplast
 - C. Ribosome
 - D. Mitochondrion
-

1.2 Which of the following is a plant tissue?

- A. Xylem
 - B. Alveoli
 - C. Neuron
 - D. Muscle
-

1.3 Which process occurs in the chloroplasts of plant cells?

- A. Respiration
 - B. Digestion
 - C. Photosynthesis
 - D. Transpiration
-

1.4 What is the function of red blood cells?

- A. Fight infection
 - B. Carry oxygen
 - C. Form blood clots
 - D. Produce hormones
-

1.5 Which part of the brain controls voluntary movements?

- A. Medulla oblongata
 - B. Cerebellum
 - C. Cerebrum
 - D. Brainstem
-

1.6 Which reproductive structure produces eggs in females?

- A. Testes

- B. Vas deferens
 - C. Ovaries
 - D. Urethra
-

1.7 What is the function of the stem in a plant?

- A. Absorbs water
 - B. Anchors plant
 - C. Transports substances
 - D. Performs photosynthesis
-

1.8 Which system includes the skin, hair, and nails?

- A. Circulatory
 - B. Digestive
 - C. Skeletal
 - D. Integumentary
-

1.9 Which part of the flower contains the ovules?

- A. Stamen
 - B. Petal
 - C. Ovary
 - D. Anther
-

1.10 Which waste product is removed by the lungs?

- A. Water
 - B. Urea
 - C. Carbon dioxide
 - D. Oxygen
-

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

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

Column A	Column B
2.1 Photosynthesis	A. Transports oxygen
2.2 Xylem	B. Produces eggs
2.3 Ovary (human)	C. Removes waste from blood
2.4 Red blood cells	D. Occurs in green leaves
2.5 Kidney	E. Transports water in plants

- 2.1 _____
 - 2.2 _____
 - 2.3 _____
 - 2.4 _____
 - 2.5 _____
-

SECTION B: STRUCTURED QUESTIONS (40 MARKS)

QUESTION 3: CELLS AND ORGANELLES (10 MARKS)

3.1 Define the term "cell". (2)

3.2 List any three differences between plant and animal cells. (3)

3.3 State the functions of:

3.3.1 Nucleus (2)

3.3.2 Cell membrane (3)

QUESTION 4: TISSUES (10 MARKS)

4.1 Define a tissue. (2)

4.2 Give two examples of animal tissues and their functions. (4)

4.3 State two functions of xylem tissue. (2)

4.4 Why is phloem important for plant survival? (2)

QUESTION 5: RESPIRATORY SYSTEM (10 MARKS)

5.1 Name two organs in the human respiratory system. (2)

5.2 Briefly explain how gas exchange occurs in the alveoli. (4)

5.3 List two effects of smoking on the respiratory system. (2)

5.4 Suggest two ways to maintain healthy lungs. (2)

QUESTION 6: PLANT STRUCTURES AND FUNCTIONS (10 MARKS)

6.1 Name two parts of the leaf involved in photosynthesis. (2)

6.2 Describe the role of stomata in plants. (2)

6.3 Explain how water moves from roots to leaves. (3)

6.4 State three reasons why photosynthesis is important. (3)

SECTION C: ESSAY (40 MARKS)

Answer ONE of the following essays.

QUESTION 7: DIGESTIVE SYSTEM

Discuss the structure and functions of the human digestive system. Include:

- Main organs and their functions
- The process of digestion
- Importance of enzymes
- Role of the small intestine in absorption
- Healthy habits for a good digestive system

Structure: Introduction (4), Body (6x6), Conclusion (2)
TOTAL: 40 MARKS

OR

QUESTION 8: PHOTOSYNTHESIS VS. RESPIRATION

Compare photosynthesis and cellular respiration. Include:

- Definitions and equations
- Locations in the cell
- Raw materials and products
- Energy transfer
- Importance for life on Earth

Structure: Introduction (4), Body (6x6), Conclusion (2)
TOTAL: 40 MARKS

END OF EXAM

TOTAL : 100

MYST PATHWORKS

MEMO

SECTION A: MULTIPLE CHOICE & MATCHING ITEMS (20 MARKS)

QUESTION 1: MULTIPLE CHOICE (10)

- 1.1 D. Mitochondrion
- 1.2 A. Xylem
- 1.3 C. Photosynthesis
- 1.4 B. Carry oxygen
- 1.5 C. Cerebrum
- 1.6 C. Ovaries
- 1.7 C. Transports substances
- 1.8 D. Integumentary
- 1.9 C. Ovary
- 1.10 C. Carbon dioxide

QUESTION 2: MATCHING ITEMS (5)

- 2.1 D. Occurs in green leaves
- 2.2 E. Transports water in plants
- 2.3 B. Produces eggs
- 2.4 A. Transports oxygen
- 2.5 C. Removes waste from blood

SECTION B: STRUCTURED QUESTIONS (40 MARKS)

QUESTION 3: CELLS AND ORGANELLES (10)

- 3.1 The cell is the basic structural and functional unit of life. (2)
- 3.2

- Plant cells have a cell wall, animal cells do not.
- Plant cells have chloroplasts, animal cells do not.
- Plant cells have a large vacuole, animal cells have small vacuoles. (3)
- 3.3.1 Controls cell activities and contains genetic material. (2)
- 3.3.2 Controls movement of substances in and out of the cell; provides protection and support; maintains homeostasis. (3)

QUESTION 4: TISSUES (10)

- 4.1 A tissue is a group of similar cells working together to perform a specific function. (2)
 - 4.2
- Muscle tissue: responsible for movement.

- Nervous tissue: transmits impulses. (4)
- 4.3
- Transports water and minerals.
- Provides structural support. (2)
- 4.4 Transports nutrients made during photosynthesis to other parts of the plant. (2)

QUESTION 5: RESPIRATORY SYSTEM (10)

5.1 Lungs, trachea. (2)

5.2 Oxygen diffuses from the alveoli into the blood, and carbon dioxide diffuses from the blood into the alveoli. (4)

5.3

- Damage to lung tissues.
- Reduced oxygen intake. (2)

5.4

- Avoid smoking.
- Exercise regularly. (2)

QUESTION 6: PLANT STRUCTURES AND FUNCTIONS (10)

6.1 Leaf blade, chloroplasts. (2)

6.2 Regulate gas exchange and water loss. (2)

6.3 Water is absorbed by roots and moves upward through the xylem via capillary action, root pressure, and transpiration pull. (3)

6.4

- Produces oxygen.
- Produces glucose.
- Removes carbon dioxide from the air. (3)

SECTION C: ESSAY (40 MARKS)

QUESTION 7: DIGESTIVE SYSTEM (Example answer guideline)

Introduction (4): Define the digestive system and its overall role.

Body (6x6 = 36):

- Mouth: Chewing and enzyme action.
- Stomach: Digests proteins.
- Small intestine: Main site for digestion and absorption.
- Liver and pancreas: Produce digestive enzymes and bile.
- Importance of enzymes in breaking down macronutrients.
- Healthy habits: Fibre, water, hygiene, balanced diet.

Conclusion (2): Recap key points and importance of a healthy digestive system.

OR

QUESTION 8: PHOTOSYNTHESIS VS. RESPIRATION (Example answer guideline)

Introduction (4): Define both processes.

Body (6x6 = 36):

- Photosynthesis: Occurs in chloroplasts, uses sunlight, produces glucose and oxygen.
- Respiration: Occurs in mitochondria, uses glucose and oxygen, produces energy.
- Equations for each.
- Inputs and outputs.
- Energy transformation.
- Interdependence of both processes.

Conclusion (2): Summarise importance of these processes for life.

END OF MEMO

TOTAL : 100