SMARTWIZ

GRADE 7 NATURAL SCIENCE EXAM

MARKS: 75

MARKS	

TIME: 1 hour 30 minutes

SCHOOL_____

CLASS (e.g. 4A) _____

SURNAME_____

NAME_____

Instructions for Students:

> Read all instructions carefully before beginning the exam.

> Write your name and student ID clearly on the answer sheet/booklet.

> Answer all questions unless otherwise stated.

> Show all your work/calculations where applicable.

> Write clearly and legibly.

> Use blue or black ink only. * Do not use correction fluid/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 students during the exam.

> Any form of cheating will result in disqualification.

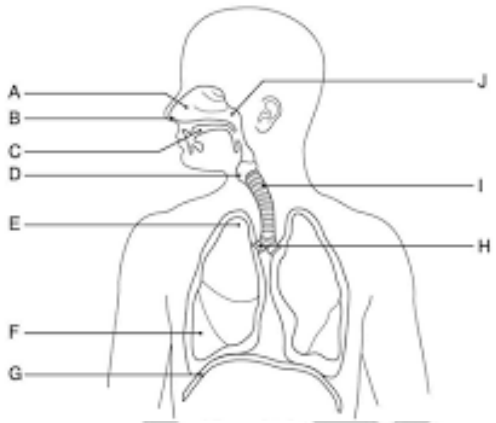
This test consists of 4 pages, excluding the cover page.

SECTION A: HUMAN BODY SYSTEMS (20 marks)

1. **Name the three main types of muscles found in the human body.**

2. **Explain the role of the digestive system in the human body.**

3. **Label the parts of the human respiratory system in the diagram below:**



4. **Describe how oxygen moves from the lungs to the rest of the body.**

5. **What is the function of the heart in the circulatory system?**

SECTION B: PLANT LIFE (15 marks)

6. **What is photosynthesis? Write the word equation for photosynthesis.**

7. **Explain the importance of chlorophyll in plants.**

8. **Name two types of roots and explain their functions.**
   a) _____ Function: _____
   b) _____ Function: _____
9. **Describe how water travels from the roots to the leaves in a plant.**

SECTION C: FORCES AND MOTION (20 marks)

10. **Define the term 'force'.**

11. **Explain how gravity affects objects on Earth.**

12. **Name and describe two types of friction.**
    a) _____
    b) _____
13. **Draw and label a simple diagram to show balanced and unbalanced forces acting on a box.**

14. **How does friction affect the motion of a moving object?**

SECTION D: EARTH AND ATMOSPHERE (20 marks)

15. **What are the layers of the Earth's atmosphere? List them in order from the surface upwards.**

16. **Explain the importance of the ozone layer.**

17. **Describe the water cycle in your own words. Include evaporation, condensation, and precipitation.**

18. **What causes wind?**

19. **Explain two ways humans can reduce air pollution.**
    a) _____
    b) _____

SECTION E: SCIENTIFIC INVESTIGATION (Optional) (Bonus: 5 marks)

20. **Design a simple experiment to test which soil type drains water fastest. Include:**

- Hypothesis
- Materials needed
- Procedure in steps

TOTAL: 75 MARKS

MEMO

SECTION A: HUMAN BODY SYSTEMS (20 marks)

1. **Three main types of muscles:**

- Skeletal muscles
- Smooth muscles
- Cardiac muscles

2. **Role of the digestive system:**

- Breaks down food into smaller nutrients that the body can absorb and use for energy, growth, and repair.

3. **Label parts of respiratory system:**

- Nose
- Trachea
- Lungs
- Diaphragm

4. **How oxygen moves from lungs to body:**

- Oxygen passes from the alveoli in the lungs into the blood in the capillaries and is transported by red blood cells to the rest of the body.

5. **Function of the heart:**

- Pumps blood throughout the body, delivering oxygen and nutrients to cells and removing waste products.

SECTION B: PLANT LIFE (15 marks)

6. **Photosynthesis and word equation:**

- Photosynthesis is the process by which green plants make their own food using sunlight, carbon dioxide, and water.
- Word equation: Carbon dioxide + Water → Glucose + Oxygen (in presence of sunlight and chlorophyll)

7. **Importance of chlorophyll:**

- Chlorophyll absorbs sunlight, which provides the energy needed for photosynthesis.

8. **Two types of roots and their functions:**

- Taproot: anchors the plant and absorbs water/nutrients from deep soil.
- Fibrous root: spreads out to absorb water and nutrients from the surface soil.

9. **Water transport in plants:**

- Water is absorbed by roots, travels up the xylem vessels to the leaves, where it is used in photosynthesis or released through transpiration.

SECTION C: FORCES AND MOTION (20 marks)

10. **Definition of force:**

- A push or pull that can change the motion of an object.

11. **Gravity's effect on objects:**

- Gravity pulls objects towards the centre of the Earth, giving them weight and causing them to fall when dropped.

12. **Two types of friction:**

- Static friction: friction that prevents motion when objects are at rest.
- Sliding friction: friction that occurs when one object slides over another.

13. **Diagram showing balanced and unbalanced forces:**

- Balanced forces: arrows of equal size in opposite directions (object stays still or moves at constant speed).
- Unbalanced forces: arrows of different sizes causing movement or acceleration.

14. **Effect of friction on motion:**

- Friction slows down or stops moving objects by opposing their motion.

SECTION D: EARTH AND ATMOSPHERE (20 marks)

15. **Layers of the atmosphere (from surface upwards):**

- Troposphere
- Stratosphere
- Mesosphere
- Thermosphere

- Exosphere

16. **Importance of the ozone layer:**

- Protects living things by absorbing harmful ultraviolet (UV) rays from the Sun.

17. **Water cycle description:**

- Water evaporates from oceans, lakes, and rivers into the air.
- Water vapour condenses to form clouds (condensation).
- Water falls back to Earth as rain or snow (precipitation).

18. **What causes wind:**

- Wind is caused by the movement of air from high-pressure to low-pressure areas due to uneven heating of the Earth's surface by the Sun.

19. **Ways to reduce air pollution:**

- Use cleaner energy sources (solar, wind).
- Reduce, reuse, recycle to limit waste and emissions.

SECTION E: SCIENTIFIC INVESTIGATION (5 marks - Bonus)

20. **Sample answer for experiment design:**

- Hypothesis: Sandy soil drains water faster than clay soil.
- Materials: Different soil samples, water, container, stopwatch.
- Procedure:
    1. Place equal amounts of each soil type in separate containers.
    2. Pour the same amount of water onto each soil.
    3. Measure how long it takes for the water to drain through each soil.
    4. Record the results and compare.

END OF MEMO

75 MARKS