



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

**LIFE SCIENCES
CONTROLLED TEST
15 SEPTEMBER 2026**

MARKS: 60

TIME: 1 HOUR

This question paper consists of 08 pages

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions
2. Write ALL the answers in the ANSWER BOOK.
3. Number the answers correctly according to the numbering system used in this question paper.
4. Present your answers according to the instructions of each question.
5. Do ALL drawings in pencil and label them in black or blue ink.
6. Draw diagrams or flow charts only when asked to do so.
7. The diagrams in this question paper are NOT necessarily drawn to scale.
8. Do NOT use graph paper.
9. Only a non-programmable calculator, protractor and a compass must be used where necessary.
10. Write neatly and legibly.

SECTION A

QUESTION 1

1.1. Various options are provided as possible answers to the following questions.

Choose the correct answer and write only the letter (**A to D**) next to the question number (**1.1.1 to 1.1.3**) in the ANSWER BOOK, e.g. 1.1.3. B

1.1.1 Which structure surrounds the glomerulus?

- A Bowman's capsule
- B Medullary pyramids
- C Cortex
- D Renal capsule

1.1.2 The main nitrogenous waste product in humans is:

- A Ammonia
- B Uric acid
- C Amino acids
- D Urea

1.1.3 They are kidney tissues shaped like cones

- A Cortex
- B Medulla
- C Renal pyramids
- D Renal pelvis

(3 x 2)

(6)

1.2. Give the correct biological term for each of the following descriptions. Write only the term next to the question number (**1.2.1 to 1.2.3**).

1.2.1 The movement of organisms to new areas to reduce competition, colonize, and maintain genetic diversity.

1.2.2 The number of births per year per 1,000 women of reproductive age.

1.2.3 An organism that lives in close association with a host and benefit at the expense of the host

1.2.4 Dome-shaped muscle separating the thorax from the abdomen.

(4 x1)

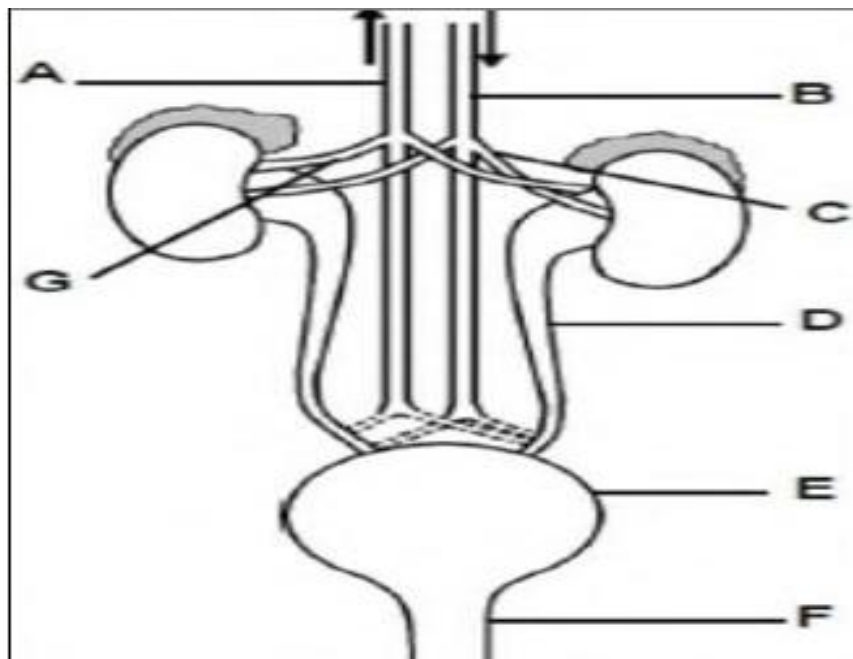
(4)

1.3.	Indicate whether each of the statements in COLUMN 1 applies to A ONLY, B ONLY, BOTH A and B, or NONE of the items in column II . Write A only, B only, Both A and B, or NONE.		
	COLUMN I	COLUMN II	
1.3.1	The hormone(s) secreted by the adrenal gland to regulate the salt concentration of the blood.	A: Aldosterone B: ADH	
1.3.2	Organisms have overlapping niches and compete for the same resources but they coexist because they use the resources slightly differently	A: Resource partitioning. B: Temporal partitioning	

(2 x 2)

(4)

1.4. The diagram below shows the Human Excretory System.



1.4.1 Name the following parts:

- (a) C (1)
- (b) G (1)

1.4.4 Provide the LETTER and NAME of:

- (a) The blood vessel carrying oxygen-rich blood directly to the kidney. (2)
- (b) The tube transporting urine from the kidney to part E. (2)

(6)

TOTAL QUESTION 1: [20]

SECTION A: 20

SECTION B

QUESTION 2

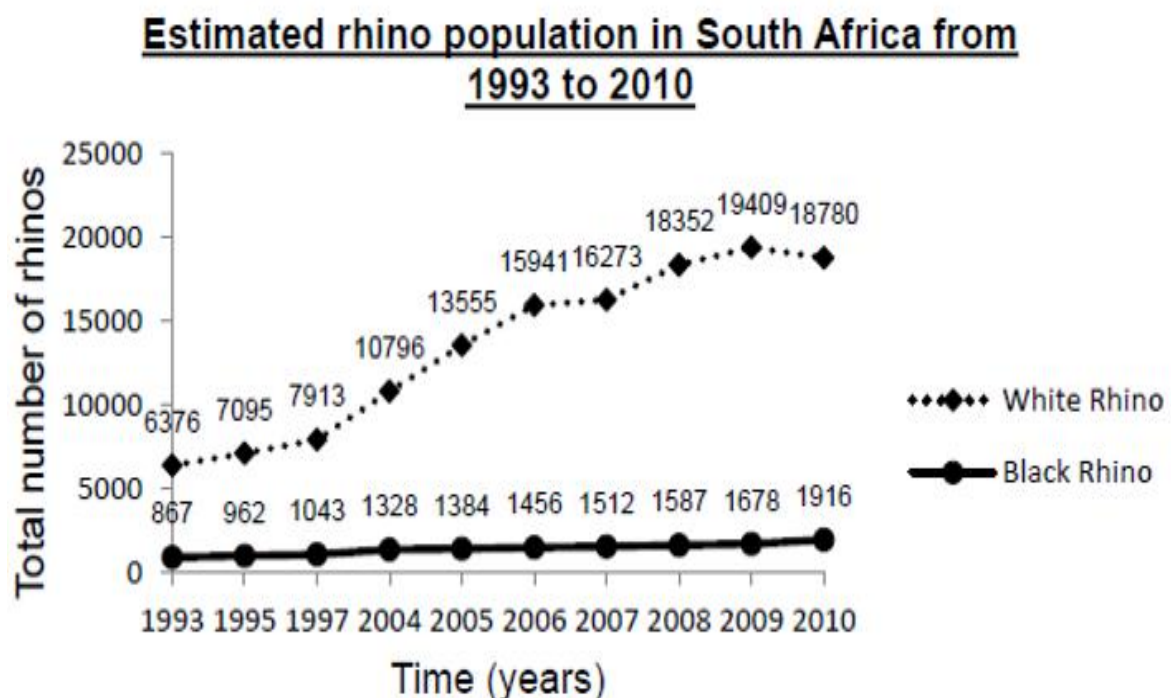
- 2.1. Read the following extract about resource partitioning amongst predators and answer questions below

A study from the late 1990s in the Serengeti found that both lions and hyenas outcompete cheetahs by catching more Thomson's gazelles, the common prey for all three species. The study also showed that cheetahs survive best in areas with fewer gazelles, where there are fewer other predators, and the gazelles numbers are less likely to be affected by cheetah hunting.

- 2.1.1 Define resource partitioning. (2)
- 2.1.2 State the type of competition among lions, cheetahs, and hyenas. (1)
- 2.1.3 What was the initial aim of this investigation? (2)
- 2.1.4 Explain how plants with different root systems show resource partitioning. (3)
- (8)**

- 2.2 Refer to the extract and graph below on rhino populations and answer questions that follow.

The number of rhinos illegally killed in South Africa during the first 134 days of 2013 has reached a staggering 313—just 20 fewer than the total death toll of 333 in 2010. Rhinos are poached for their horns, which fetch high prices in Asia, with rhino horn selling for R400,000 per kilogram in 2011. In Asia, rhino horn is used for medicinal purposes. Because of the trade ban on rhino horn, the black-market price has increased, leading to a rise in poaching.



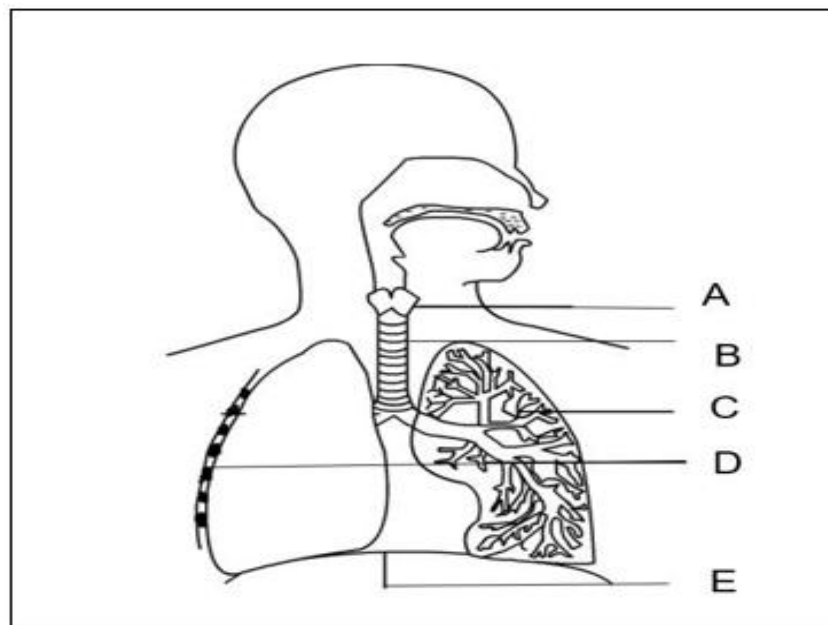
- 2.2.1 Draw a table comparing black and white rhino populations in 1997 and 2010. (3)
- 2.2.2 Describe the trend in white rhino numbers shown in the graph and explain your answer. (3)
- 2.2.3 Suggest TWO measures to protect rhinos from poaching. (2)
- (8)**
- 2.3 The kidneys maintain homeostasis by regulating the water balance, regulating pH and regulating salt content of the blood.

Explain how the kidney regulates sodium ion levels when blood sodium is low. (4)

TOTAL QUESTION 2: [20]

QUESTION 3

3.1. The structure below shows Human Respiratory System.



3.1.1 Identify parts:

- (a) A (1)
- (b) B (1)

3.1.2 Give the LETTERS and NAMES of the muscles involved in inhalation. (4)

3.1.3 Explain why a bowl of water should be placed near a heater in a room. (4)

3.1.4 Describe how a puncture in the thoracic wall affects breathing. (2)

(12)

3.2. Wearing a face mask is recommended to reduce the spread of the corona virus. There are some concerns about the efficiency of breathing when wearing a face mask. Scientists investigated the effect of wearing face masks on the carbon dioxide levels in blood.

The researchers:

- Obtained permission from 150 healthy volunteers, aged 30, to participate in the investigation.
- Applied a sensor to the participants' skin to measure the carbon dioxide levels in the blood.

Asked the participants to:

- Sit still for 10 minutes without wearing a face mask
- Sit still for 10 minutes while wearing a face mask
- Exercise for 10 minutes without wearing a face mask
- Exercise for 10 minutes while wearing a face mask.

- Allowed a 15-minute interval between each 10-minute phase.
- **Ensured that the face mask covered the nose and mouth.**
- Recorded the carbon dioxide levels at the end of each 10-minute phase.

- | | |
|--|-----|
| 3.2.1 Identify the dependent variable. | (1) |
| 3.2.2 State TWO factors considered when selecting participants. | (2) |
| 3.2.3 Give ONE reason why the results may be considered reliable. | (1) |
| 3.2.4 Explain why scientists included a 15-minute interval between phases. | (2) |
| 3.2.5 Formulate the aim for the investigation. | (2) |

(8)

TOTAL QUESTION 3: [20]

SECTION B: 40

GRAND TOTAL: 60