



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

LIFE SCIENCES

PRE-TEST 3

18 SEPTEMBER 2025

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. 1.1.6 B

1.1.1 Which ONE of the following structures protects the kidneys?

- A Pyramid
- B Ureter
- C Bowman's capsule
- D Renal capsule

1.1.2 Air breathed out is different from air breathed in because it...

- A is cooler.
- B contains less carbon dioxide.
- C contains less oxygen.
- D is drier.

1.1.3 The glucose concentration of dialysis fluid is ...

- A the same as that of blood.
- B higher than that of blood.
- C lower than that of blood.
- D always 0g/ml of blood.

(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 1.2.4**).

- 1.2.1 A group of organisms of the same species, occupying a particular habitat and having the ability to interbreed randomly
- 1.2.2 A network of capillary blood vessels inside Bowman's capsule.
- 1.2.3 A chronic medical disorder of the lungs in which the air sacs are dilated or enlarged and lack flexibility.
- 1.2.4 The inherent ability of a population to increase by birth.

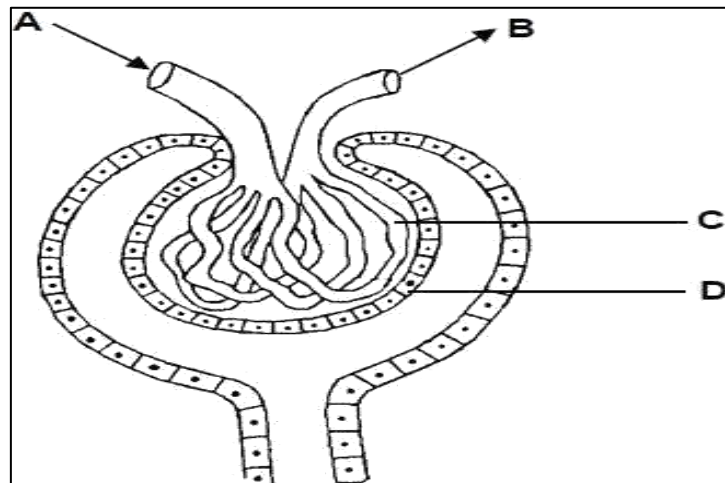
(4 x 1) (4)

- 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 1	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
1.3.3	The structure that prevents food particles entering the lungs	A: Epiglottis B: Glottis

(3 x 2) (6)

- 1.4 Study the diagram below and answer the questions that follow.



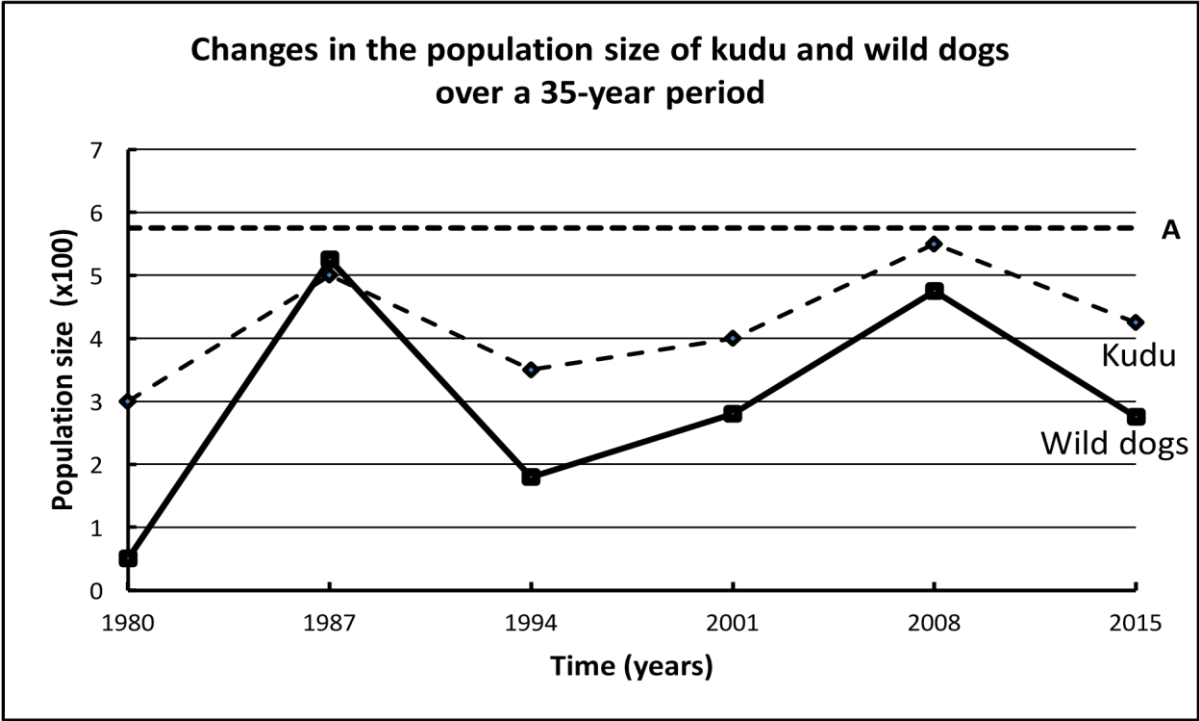
- 1.4.1 In which region of the kidney would you find this structure? (1)
- 1.4.2 Name the process in urine formation that occurs in this structure. (1)
- 1.4.3 Identify the part C. (1)
- 1.4.4 Part A is wider than part B. What is the significance of this difference? (1)
- (4)

TOTAL QUESTION 1: 20

SECTION B

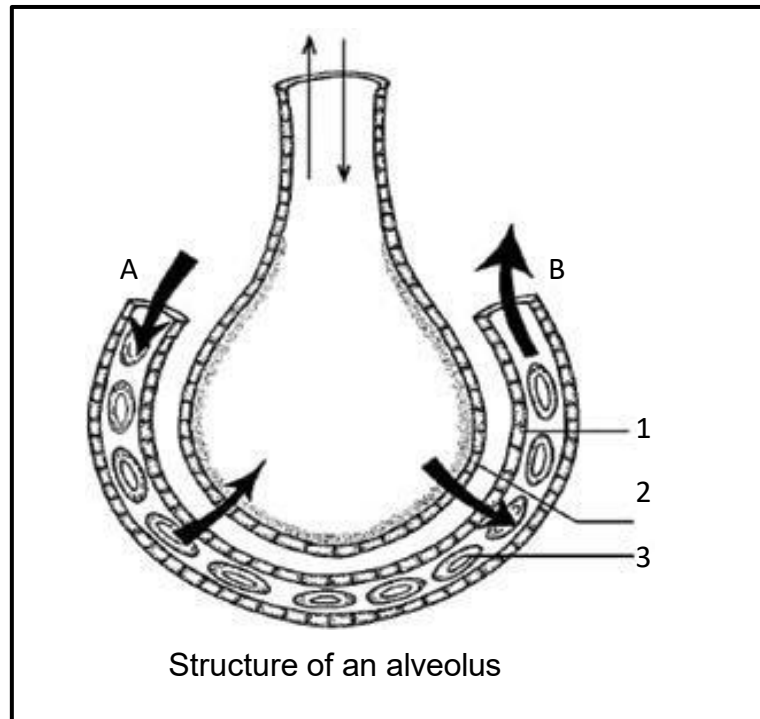
QUESTION 2

2.1 The graph below represents changes in the population size of kudu and wild dogs in a specific closed habitat over a 35-year period.



2.1.1	Identify the relationship shown in the graph.	(1)
2.1.2	What does line A represent?	(1)
2.1.3	Explain the possible consequence for the wild dogs in this habitat if the number of kudu exceeded 700.	(3)
2.1.4	Calculate the percentage increase in the wild dog population from 1980 to 2001. Show ALL working.	(3)
2.1.5	Describe the trend for the kudu population from 1987 to 2015.	(2)

- 2.2 The diagram below represents a section through an alveolus and a surrounding blood capillary in the human body.



- 2.2.1 Name the type of epithelial tissue numbered 1 and 2. (2)
- 2.2.2 Identify the blood cell labelled 3. (1)
- 2.2.3 What pigment is found in the cell mentioned in question 2.2.2? (1)
- 2.2.4 Which type of blood: (1)
- (a) enters the blood capillary at A? (1)
- (b) leaves the blood capillary at B? (1)
- 2.2.5 In which form is most oxygen carried in the blood? (1)
- 2.2.6 Supply THREE structural adaptations of the alveoli which make them well suitable for gaseous exchange. (3)

(10)**TOTAL QUESTION 2: [20]**

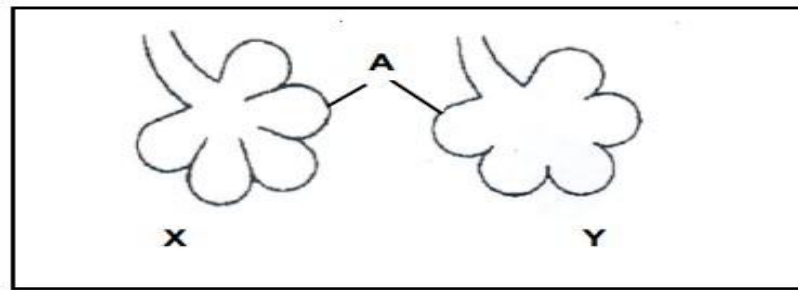
QUESTION 3

- 3.1 The table below shows the results of an investigation showing the smoking habits of men aged 40 – 79 and the number that die from lung cancer.

Smoking habits of men	Number of deaths per 100 000
Non-smoker	10
cigar only	20
Pipes only	22
Mixed	85
Cigarette smoker	110
TOTAL	247

- 3.1.1 Represent the information in the above table as a pie chart. Show ALL calculations. (6)
- 3.1.2 State TWO ways in which the reliability of the above investigation can be increased. (2)
- 3.1.3 Identify TWO factors that were kept constant in the above investigation. (2)
- 3.1.4 Which habit had the least influence in causing death from lung cancer? (1)
- 3.1.5 How many times more likely is a cigarette-smoker to die of lung cancer than a non-smoker? Show ALL working. (2)
- 3.1.6 Smoking destroys the cilia in the breathing tract. Explain the consequence of this to a person. (3)
- (16)**

- 3.2 Diagram **X** shows the alveoli of a healthy person. Diagram **Y** shows the alveoli of a person suffering from the disease called emphysema.



Describe the effect of emphysema on part labelled **A** and explain the consequences in its efficiency to function normally

(4)

QUESTION 3: [20]

SECTION B: 40

GRAND TOTAL: 60