



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

GRADE 11

SEKHUKHUNE EAST DISTRICT-DISTRICT ON THE RISE

LIFE SCIENCES

14 AUGUST 2023

TOPIC TEST: GASEOUS EXCHANGE

MARKS: 60

TIME: 1 Hour

This question paper consists of 7 pages including the cover page

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. Present your answers according to the instructions of each question.
4. ALL drawings MUST be done in pencil and labelled in blue or black ink.
5. Draw diagrams, tables or flow charts ONLY when asked to do so.
6. The diagrams in this question paper are NOT necessarily drawn to scale.
7. You must use a non-programmable calculator, protractor and a compass, where necessary.
8. All calculations to be rounded off to TWO decimal spaces.
9. Write neatly and legibly.

SECTION A**QUESTION 1**

1.1. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A to D) next to the question number (1.1.1 to 1.1.5) in the ANSWER BOOK, for example 1.1.6. D

1.1.1. Cilia are found lining which of the following structures?

- A. Larynx
- B. Alveoli
- C. trachea
- D. pleural membranes. (2)

1.1.2. The lungs of a long-term smoker will have...

- A. constricted bronchioles.
- B. thinner walls.
- C. a larger surface area.
- D. an increased capacity for gaseous exchange. (2)

1.1.3. Which of the following does not occur during inhalation in humans?

- A. Pressure within the thoracic cavity increases
- B. The lungs expand.
- C. The diaphragm contracts.
- D. Pressure in the abdominal cavity increases. (2)

1.1.4. The rate of breathing is regulated by the medulla oblongata, mainly...

- A. under voluntary control.
- B. according to oxygen level of blood.
- C. according to the blood pressure.
- D. according to carbon dioxide level of blood. (2)

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

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

(2)

(5 × 2) = (10)

1.2. Give the correct **biological term** for each of the following descriptions. Write only the correct term next to the question number (1.2.1 to 1.2.5.) in the ANSWER BOOK.

- 1.2.1. The cartilaginous structure that contains the vocal chords. (1)
- 1.2.2. Instrument that measures the rate and depth of breathing. (1)
- 1.2.3. A measure of the height above sea level. (1)
- 1.2.4. Tiny air sacs at the end of each bronchiole. (1)
- 1.2.5. A pigment that transports oxygen in earthworms (1)

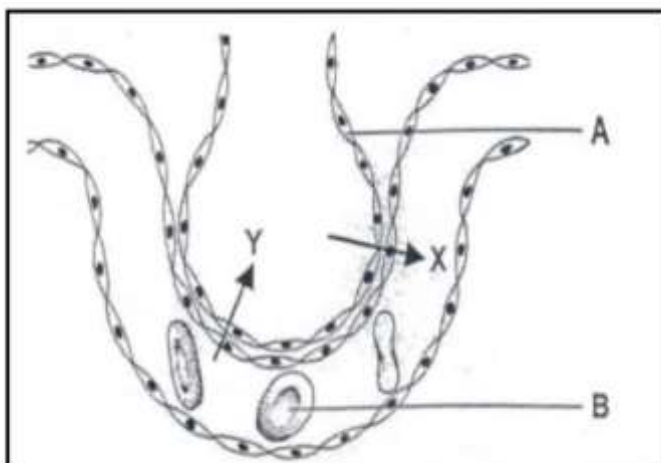
(1X5=5)

1.3. Indicate whether each of the descriptions in **COLUMN I** 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 next to the question number (1.3.1 to 1.3.3) in the ANSWER BOOK.

COLUMN I	COLUMN II
1.3.1. Breathing muscles	A: artificial respiration B: resuscitation
1.3.2. C-shaped cartilaginous rings	A: oesophagus B: bronchioles
1.3.3. Transport of carbon dioxide in the blood	A: calcium carbonate B: bicarbonate ions

(3x2=6)

- 1.4. The diagram represents a section of the internal structure of a part of the human lung.

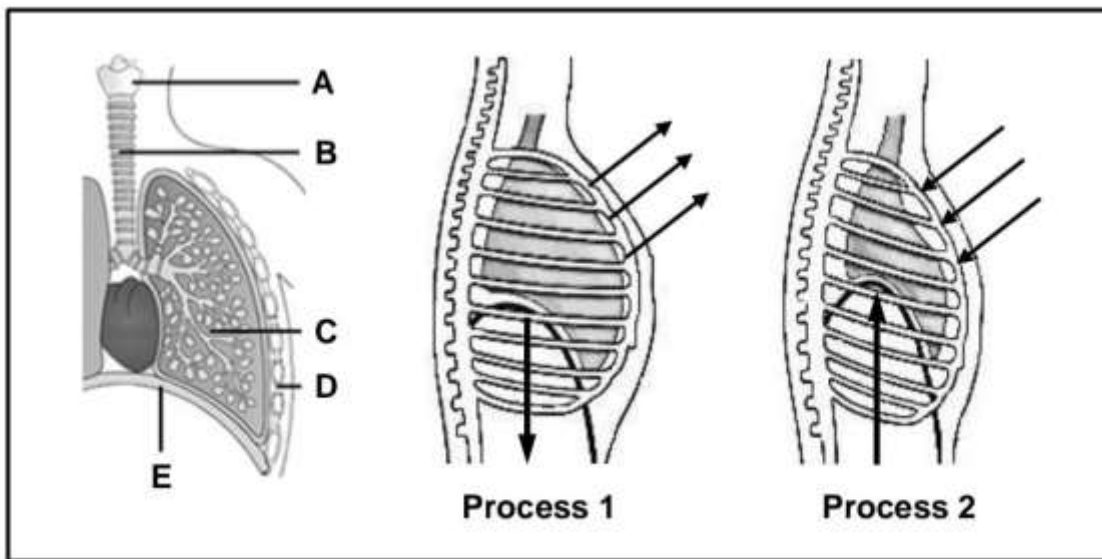


- 1.4.1. Identify the structure labelled B. (1)
- 1.4.2. Name the gas at X and the gas at Y. (2)
- 1.4.3. State TWO forms in which gas X is transported in the body. (2)
- 1.4.4. Explain TWO ways in which structure A is adapted for its function. (2 x 2)(4)
- (9)

Section A= 30 Marks

Section B**Question 2**

2. Study the diagrams below showing some parts of the human respiratory system. Answer the questions that follow.



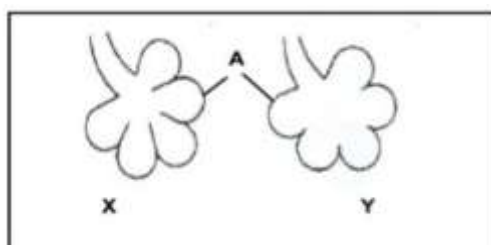
- 2.1. Identify parts A and B (2)
- 2.2. Which process in the above diagram illustrates inhalation (Process 1 or Process 2)? (1)
- 2.3. Give three reasons from the diagrams to support your answer to question 2.2. (3)
- 2.4. Give the letters and the names of the muscles shown in the diagram that are involved in inhalation. (4)
- (10)**

Question 3

3. 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-smokers	10
cigar only	20
Pipes only	22
Mixed	85
Cigarette smoking	110
TOTAL	247

- 3.1. Represent the information in the above table as a pie chart. Show ALL Calculations (6)
- 3.2. State TWO ways in which the reliability of the above investigation can be increased. (2)
- 3.3. Identify TWO factors that were kept constant in the above investigation. (2)
- 3.4. Which habit had the least influence in causing death from lung cancer? (1)
- 3.5. How many times more likely is a cigarette-smoker to die of lung cancer than a non-smoker? Show ALL working. (2)
- 3.6. Smoking destroys the cilia in the breathing tract. Explain the consequence of this to a person. (3)
- 3.7. Diagram X shows the alveoli of a healthy person. Diagram Y shows the alveoli of a person suffering from the disease emphysema.



- Describe the effect of emphysema on part labelled A and explain the consequences in its efficiency to function normally. (4)
- (20)

Section B= 30 marks

GRAND TOTAL= 60 MARKS