

NSC



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

LIFE SCIENCES
Practical Task T3 MARKING GUIDE
14 August 2025

MARKS: 40

TIME: 1 hour

This question paper consists of 4 pages including the cover page

QUESTION 1

1.1 The balloons inflate / expand✓ (1)

1.2 Pulling the rubber sheet down increases the volume inside the bell jar.✓

This decreases the air pressure inside the jar.✓

Air flows into the balloons due to the pressure difference (higher outside, lower inside).✓ (3)

1.3 Large surface area✓

Thin walls (one cell thick)✓

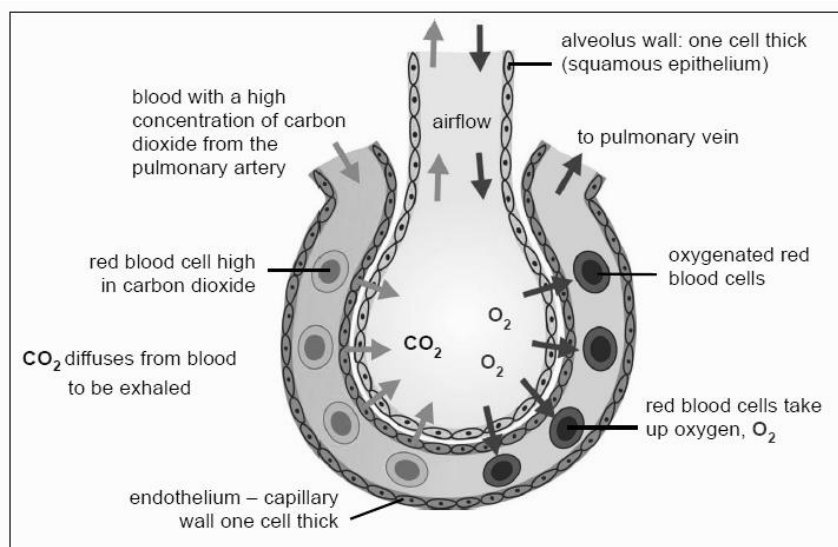
Surrounded by a dense network of capillaries✓

Moist surface✓

Good ventilation and blood supply✓

(Any TWO) (2)

1.4



Criterion	Mark
Correct shape of alveolus	1
One capillary drawn in contact	1
Label: alveolus	1
Label: capillary with arrows showing gas exchange	1

(4)

(10)

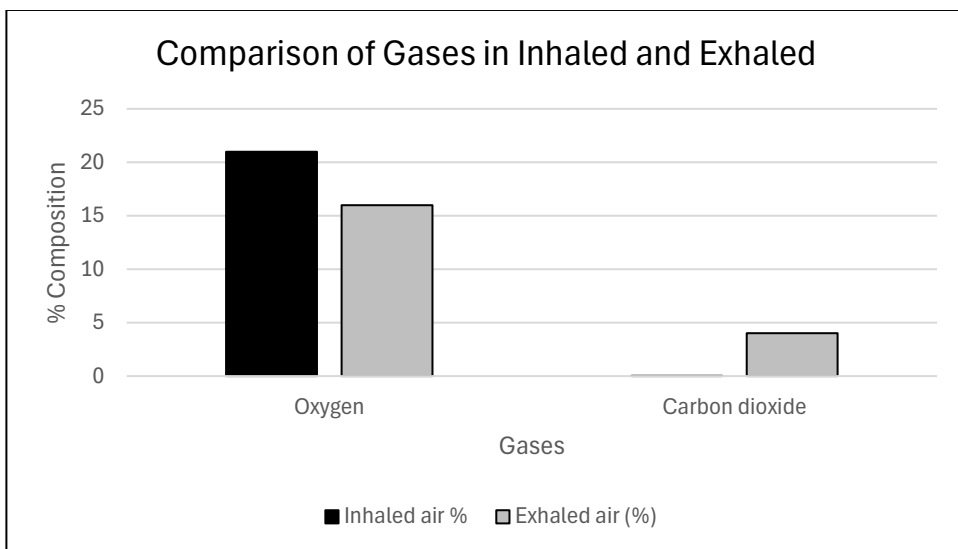
QUESTION 2

2.1. Carbon dioxide (CO₂)✓ (1)

2.2 Carbon dioxide is produced during cellular respiration✓ in body cells and transported in the blood to the lungs where it is exhaled✓. (2)

2.3.

2.3.1



Criterion	Explanation	Mark
Bar graph drawn	Bar graph drawn	1
Correct title	Comparison of Gases in Inhaled and Exhaled	1
Correct and labelled axes	x-axis: gases; y-axis: % composition	1
Two Bars for each gas drawn accurately	Oxygen and Carbon dioxide	2
Legend indicated	Inhaled and exhaled	1

(6)

2.3.2 Inhaled = 0,03%, Exhaled = 4%

$$\% \text{ Increase} = \frac{4 - 0,03}{0,03} \checkmark \times 100 \checkmark$$

$$= 13233.33\% \checkmark$$

(3)

2.3.3 Smoking damages the alveoli walls✓ and reduces their surface area, making gas exchange less efficient.✓ This leads to reduced oxygen uptake and carbon dioxide removal✓

(3)

(15)

QUESTION 3

3.1. If a person do exercise✓ then the breathing rate of a person will increases✓ (2)

3.2 a) Independent variable: Exercise ✓ (1)

b) Dependent variable: Breathing rate ✓ (1)

c) Constant: Duration of exercise / environment / same person (any one valid) ✓ (1)

3.3 Count the number of breaths by putting your hand on your chest or stomach and count the number of raising and falling as one breath for 30 seconds and multiply by 2 to get breaths per minute.✓ (1)

3.4 To improve reliability of results✓ (1)

3.5 Present results in a bar graph✓ or line graph✓

Use a data table✓ with before and after exercise values

(Any 1) (1)

3.6 3.6.1

Activity	Breathing rate
Sitting down/ resting	16 (any number excepted)
After jumping for 1 min	36 (number must be higher than the one above)

Criterion	Explanation	Mark
Table	Drawn	1
Heading	Activity & Breathing Rate	1
Rows labels	Sitting down/ resting After jumping or after exercise	1
Breathing rate	After exercise, it must be higher that resting	2

(5)

3.6.2 Breathing rate increases after exercise✓

Due to increased oxygen demand and carbon dioxide production by muscles✓ (2)

(15)

GRAND TOTAL: 40