



GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL EXAMINATION

JUNE 2022

GRADE 9

MARKING GUIDELINES

NATURAL SCIENCES

7 pages

SECTION A

QUESTION 1

- | | | | |
|-----|--------|----|-------------|
| 1.1 | 1.1.1 | D✓ | (1) |
| | 1.1.2 | C✓ | (1) |
| | 1.1.3 | C✓ | (1) |
| | 1.1.4 | A✓ | (1) |
| | 1.1.5 | C✓ | (1) |
| | 1.1.6 | D✓ | (1) |
| | 1.1.7 | A✓ | (1) |
| | 1.1.8 | A✓ | (1) |
| | 1.1.9 | C✓ | (1) |
| | 1.1.10 | D✓ | (1) |
| | | | [10] |

- | | | | |
|-----|-------|---------------------|------------|
| 1.2 | 1.2.1 | Cell membrane✓ | (1) |
| | 1.1.2 | Chemical digestion✓ | (1) |
| | 1.1.3 | Pulmonary artery✓ | (1) |
| | 1.2.4 | Umbilical cord✓ | (1) |
| | 1.2.5 | Combustion ✓ | (1) |
| | 1.2.6 | Noble gas ✓ | [6] |

- | | | | |
|-----|-------|----|------------|
| 1.3 | 1.3.1 | C✓ | (1) |
| | 1.3.2 | E✓ | (1) |
| | 1.3.3 | G✓ | (1) |
| | 1.3.4 | H✓ | (1) |
| | 1.3.5 | B✓ | (1) |
| | 1.3.6 | D✓ | (1) |
| | | | [6] |

TOTAL SECTION A: 22

QUESTION 2

- | | | | |
|-----|-------|--|-----|
| 2.1 | 2.1.1 | Chloroplast ✓ | (1) |
| | 2.1.2 | Mitochondrion ✓ | (1) |
| 2.2 | 2.2.1 | Photosynthesis✓ | (1) |
| | 2.2.2 | Respiration✓ | (1) |
| | 2.2.3 | Carbon dioxide✓ | (1) |
| | 2.2.4 | Oxygen ✓ | (1) |
| | 2.2.5 | It helps humans' cells to break down carbohydrates (food) to release energy ✓ for growth, reproduction, and other metabolic processes OR Humans need it for breathing ✓ OR Living organisms need oxygen to survive ✓ | |
| | | (Mark only one) | (1) |

2.3

Organelle or component	Present in:		
	PLANT CELL ONLY	ANIMAL CELL ONLY	BOTH PLANT AND ANIMAL CELLS
Cell wall	X✓		
Cell membrane			X✓
Cytoplasm			X✓
A few small vacuoles or none		X✓	

(4)
[11]

QUESTION 3

3.1 Heart rate ✓

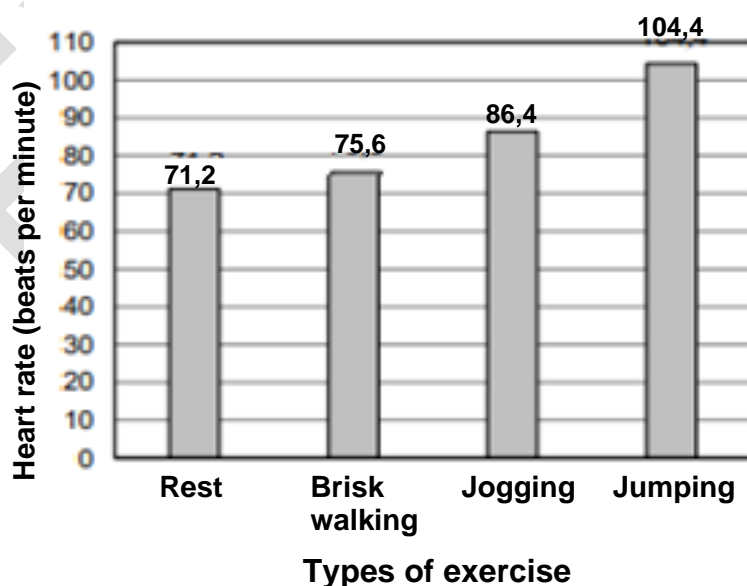
(1)

3.2 $X = \text{Total of readings for jumping} \div 5 \checkmark = 522 \div 5 = 104,4 \checkmark$ **OR**
 $(98 + 100 + 108 + 96 + 120) \div 5 \checkmark = 104,4 \checkmark$

(2)

Criteria	Marks
Heading/Title must contain both variables	1
Label of x-axis	1
Label of y-axis (label and unit of measurement)	1
Plotting of data: 1 or 2 bars correct ✓; 3 bars correct ✓✓; 4 bars correct ✓✓✓; Apply positive marking from Question 3.2 for the value of the 4 th bar	3

Graph of heart rate versus types of exercise



- 3.4 Jumping ✓ (1)
- 3.5 The heart must beat faster during exercise, ✓ increasing the heart rate to deliver the necessary blood flow to the muscles. ✓

OR

The body's muscles increase their activity ✓ and consume/need more blood. ✓

(Mark only one)

(2)
[12]

QUESTION 4

- 4.1 4.1.1 A Female reproductive system (Do not accept any other term.) ✓ (1)
- B Male reproductive system (Do not accept any other term.) ✓ (1)
- 4.1.2 (a) Part 1 – sperm duct ✓ (1)
- (b) Part 6 – scrotum ✓ (1)
- 4.1.3 (a) Part 3 ✓ – urethra ✓ (2)
- (b) Part 4 ✓ – testes ✓ (2)
- 4.1.4 Part 3 – Uterus ✓ (1)
- 4.1.5 Fallopian tube/Oviduct ✓ (1)
- [10]

QUESTION 5

- 5.1 B: Stomach – Digestion ✓ (1)
- C: Small intestine – Absorption ✓ (1)
- D: Anus – Egestion ✓ (1)
- 5.2 B: Process where large food molecules are broken into smaller soluble food molecules ✓ which are then absorbed in the bloodstream. ✓ (2)
- C: The movement of digested, soluble food molecules through the wall of the digestive system into the bloodstream ✓, from where it is carried to all cells in body. ✓ (2)
- D: When any undigested or unwanted particles ✓ pass through the digestive tract as faeces to the end of the digestive tract. ✓ (2)
- 5.3 5.3.1 Anorexia Nervosa ✓ (1)
- 5.3.2 Crash diets or starvation diets can be harmful to one's health/causing loss of muscle mass, brittle bones, organ damage. ✓

OR

The BMI needs to be determined for effective weight loss ✓
Some diets encourage you to cut out certain food groups, – before doing this consult your doctor. ✓
Seek advice on how not to put on lost weight again. How to maintain your weight. ✓

(Mark only one)

(1)
[11]

QUESTION 6

6.1 35,45 ✓ g/mol (1)

6.2 17 ✓ (1)

6.3 Non-metal ✓ (1)

6.4 Group 17 ✓ (1)

6.5 6.5.1 NAME – Magnesium chloride ✓
Formula – MgCl₂ ✓ (2)

6.5.2 Cl₂ ✓ (1)

6.6 6.6.1 A mixture is a combination of two or more substances that have not reacted chemically. ✓
A pure substance is a substance that contains only one type of atom or molecule. ✓ (2)

6.6.2 (a) $4\text{Na} \checkmark + \text{O}_2 \rightarrow 2\text{Na}_2\text{O} \checkmark$ (2)

(b) $2\text{H} \checkmark + \text{O}_2 \rightarrow 2\text{H}_2\text{O} \checkmark$ (2)

6.7 6.7.1 Rusting is a slow chemical reaction of iron metal with oxygen and moisture (water) to form a reddish-brown product, part of which is iron oxide. ✓

Its undesirable effects are - Loss of Metal/Corroded structures such as bridges, buildings, cars ✓ and machinery are weakened and become dangerous. ✓

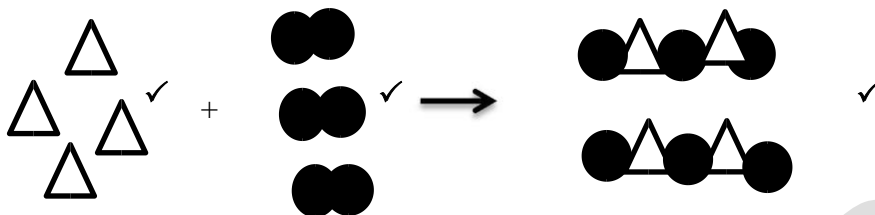
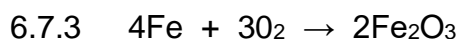
OR

Electrical connections often corrode ✓ and reduce proper contact between terminals and leads. ✓

(Mark one only) (2)

6.7.2 Painting ✓ Greasing or oiling ✓ Coating iron and steel with a thin layer of chromium or zinc ✓ Electroplating ✓ Galvanizing ✓

(Mark any two) (2)



Balancing ✓

(4)
[22]

QUESTION 7

- 7.1 7.1.1 5 – 5,5 ✓ (1)
- 7.1.2 Beetroot/Mint ✓ (Mark only one) (1)
- 7.1.3 Cauliflower ✓ and lettuce ✓ (2)
- 7.1.4 The farmer can change the pH of the soil or neutralise the soil ✓ by adding limestone or more alkaline substances. ✓ (2)
- 7.1.5 acid + metal hydroxide ✓ → salt + water ✓
Accept
 acidic soil + calcium hydroxide ✓ → Neutral soil ✓ (Mark only one) (2)
- 7.1.6 $\text{Ca}(\text{OH})_2$ ✓ (1)
- 7.1.7 (a) Blue/Violet/Purple ✓ (Mark only one) (1)
- (b) Red/Orange/Yellow ✓ (Mark only one) (1)
- (c) Green ✓ (1)
- [12]

TOTAL SECTION B: 78

TOTAL: 100