GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL EXAMINATION

JUNE 2022

GRADE 9

MARKING GUIDELINES

NATURAL SCIENCES

EXEMPLAR

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)

EXEMPLAR

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

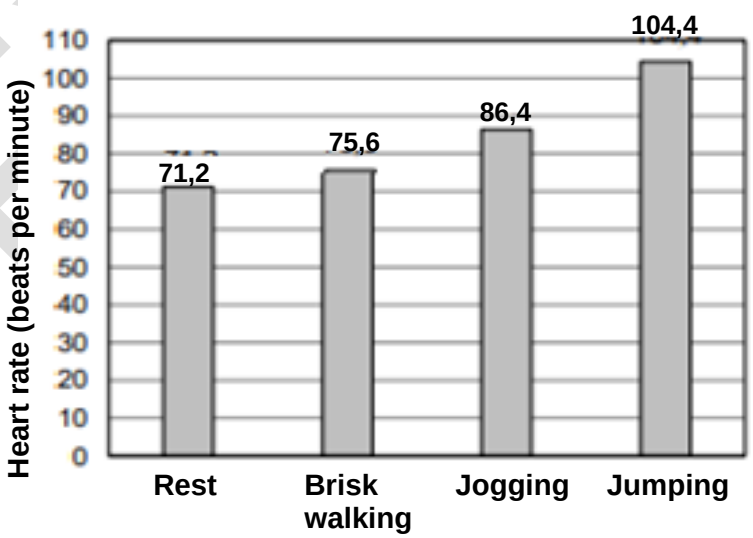
3.1 Heart rate ✓ (1)

3.2 X = Total of readings for jumping ÷ 5 ✓ = 522 ÷ 5 = 104,4 ✓ **OR**
(98 + 100 + 108 + 96 + 120) ÷ 5✓ = 104, 4✓ (2)

3.3

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 4th bar	3

Graph of heart rate versus types of exercise



EXEMPLAR

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]

EXEMPLAR

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)

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EXEMPLAR

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 – $MgCl_2$ ✓ (2)

6.5.2 Cl_2 ✓ (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) $4Na$ ✓ + O_2 → $2Na_2O$ ✓ (2)

(b) $2H$ ✓ + O_2 → $2H_2O$ ✓ (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. ✓

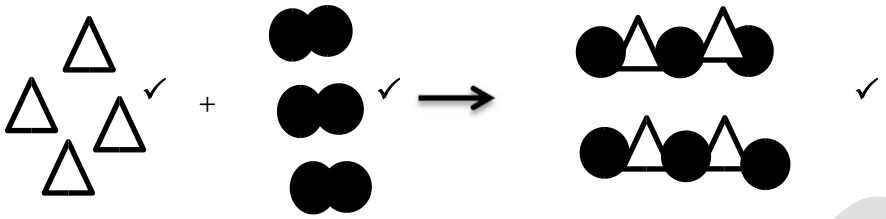
(Mark one only) (2)

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)

EXEMPLAR

6.7.3 $4Fe + 3O_2 \rightarrow 2Fe_2O_3$



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 $Ca(OH)_2$ ✓ (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

EXEMPLAR