



GRADE 9
TIME: 2 HOURS

NATURAL SCIENCES

JUNE 2019
MARKS: 100

MEMORANDUM

SECTION A

QUESTION 1.1

- 1.1.1 A✓
- 1.1.2 A✓
- 1.1.3 D✓
- 1.1.4 D✓
- 1.1.5 C✓
- 1.1.6 D✓
- 1.1.7 C✓
- 1.1.8 B✓
- 1.1.9 B✓
- 1.1.10 A✓

[10]

QUESTION 1.2

- 1.2.1 tissue✓
- 1.2.2 tendon✓
- 1.2.3 puberty✓
- 1.2.4 condom✓
- 1.2.5 digestion✓

[5]

QUESTION 1.3

- 1.3.1 B ✓
- 1.3.2 H ✓
- 1.3.3 F ✓
- 1.3.4 A ✓
- 1.3.5 C ✓

[5]

TOTAL SECTION A: 20

SECTION B**QUESTION 2**

- 2.1 Animal cell ✓ (1)
- 2.2 Have an irregular shape. / Does not have a fixed shape. ✓
Only has a cell membrane. / No cell wall is present. ✓
Small vacuoles. ✓
No chloroplasts present. ✓
Give 2 marks for first 2 visible reasons. (2)
- 2.3 Many chemical reactions take place within the cytoplasm. ✓
OR
Many cellular activities take place within the cytoplasm. ✓ (1)
- 2.4 B - cell membrane ✓
D - nucleus (accept nucleoplasm) ✓ (2)
- 2.5 Animal cells do not contain chloroplasts for photosynthesis. ✓ (1)
- 2.6 In animal cells, organelle A / mitochondria are the main power generators,
converting oxygen and nutrients into energy. ✓
There must be many mitochondria to ensure that enough energy is
produced for all the life processes. ✓ (2)
- [9]**

QUESTION 3

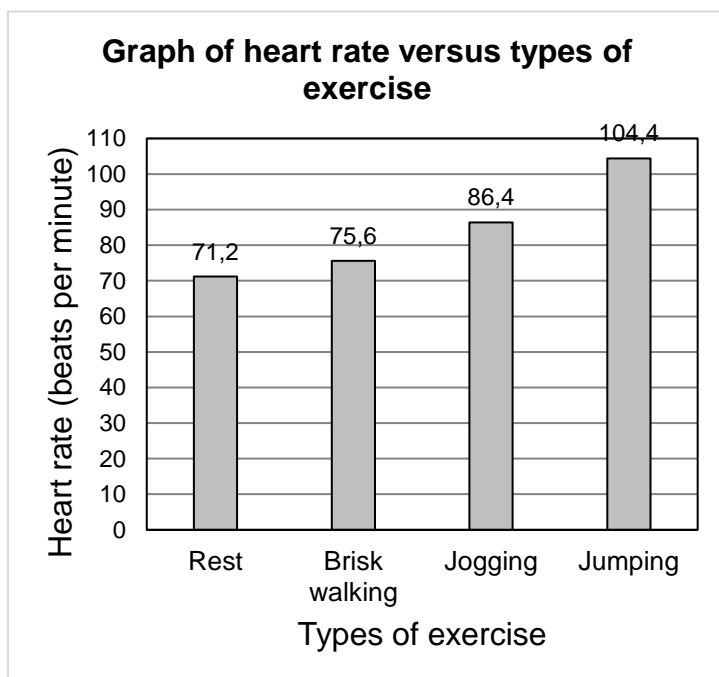
- 3.1 X- trachea ✓
Y - alveolus ✓ (**accept** alveoli) (2)
- 3.2 Alveoli are folded to increase their surface area, so more air is diffused. ✓
OR
Walls of the alveoli are moist so gases can dissolve easily. ✓
OR
Alveoli have very thin walls (one cell thick) for diffusion to easily take place. ✓
OR
Alveoli are surrounded by a network of capillaries so diffusion takes place
easily. ✓ (1)
- 3.3 Circulatory system ✓ (1)

- 3.4 Circulation of blood between the heart and the lungs. ✓
Circulation of blood between the heart and the rest of the body. ✓ (2)
- 3.5 Lung cancer / Bronchitis / Asbestosis / Emphysema ✓ (ANY TWO) (2)
- 3.6 False ✓
The body systems are interdependent, and one system cannot function without the others. ✓
OR
Our bodies are made up of many systems that work together for us to perform our daily activities. ✓ (2)
[10]

QUESTION 4

- 4.1 Heart rate ✓ (1)
- 4.2 $X = \text{Total of readings for jumping} \div 5$
 $= 522 \div 5$ ✓ (instead of 522, accept $98 + 100 + 108 + 96 + 120$)
 $= 104,4$ ✓ (2)

4.3



Criteria	Marks
Heading/Title Must contain both variables	1
Label of x-axis	1
Label of y-axis Label and measuring unit	1
Plotting of data: 1 or 2 bars correct ✓ 3 bars correct ✓✓ 4 bars correct ✓✓✓ Apply positive marking from q 4.2 for value of 4th bar.	3

(6)

- 4.4 The heart must beat faster during exercise, increasing the heartrate to deliver the necessary blood flow to the muscles. ✓
OR
 The body muscles increase their activity and consume/need more blood. ✓ (1)
[10]

QUESTION 5

- 5.1 B - scrotum ✓
 D - penis ✓
 E - urethra ✓ (3)
- 5.2.1 C ✓ **Accept LETTERS only** (1)
 5.2.2 A ✓ (1)
- 5.3 Fertilization is the fusion of the sperm and egg, producing a zygote. ✓ (1)

[6]**QUESTION 6**

- 6.1 B - oesophagus ✓
 C - stomach ✓
 E - large intestine ✓ (**Accept colon**) (3)
- 6.2 Undigested or unwanted particles that travel through the digestive track which are passed out as faeces. ✓
OR
 Undigested food and waste products get passed out of the body. ✓
OR
 The discharge or expulsion of undigested material (food) from the digestive tract (via the anus). ✓ (1)
- 6.3 The bigger nutrient molecules are **broken down** to a size small enough to enter the bloodstream or be absorbed by the bloodstream. ✓
 The bloodstream then **carries the nutrients** to all the body cells. ✓ (2)

[6]**QUESTION 7**

- 7.1 Oxygen ✓ (1)
 7.2 8 ✓ (1)
 7.3 Non-metal ✓ (1)
 7.4 6 **OR** 16 ✓ (1)
 7.5 Sulphur dioxide ✓ (1)
 7.6 $S + O_2 \rightarrow SO_2$ ✓Reactants ✓Products (2)

[7]

QUESTION 8

- 8.1.1 In pure oxygen, the combustion/chemical reaction takes place much faster,✓
therefore the iron wool glows with a brighter colour and sparks are caused.
OR
The reaction in pure oxygen is more vigorous.✓
OR
The oxygen concentration in the air is lower and the rate of the reaction is lower.✓ (1)
- 8.1.2 Iron oxide✓ (1)
- 8.1.3 Fe_2O_3 ✓ (1)
- 8.1.4 Combustion is the reaction of a substance✓ (metal or non-metal) with oxygen.✓ (2)
- 8.1.5 Water / H_2O ✓
Oxygen / O_2 ✓ (2)
- 8.1.6 Iron and steel can be painted / coated with oil✓ to keep away moisture and oxygen.
Iron and steel can be coated (through electroplating) with a thin layer of chromium or zinc or metals which do not rust.✓ (2)
- 8.2.1 Carbon burns with a bright orange / yellow flame.✓
A suffocation gas / white fumes are formed. ✓ (2)
- 8.2.2 Carbon dioxide✓ (1)
- 8.2.3 The pH of the water will decrease / decrease to below 7.✓ (1)
- 8.2.4 $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$ (reactants✓ products✓) (2)
- [15]**

QUESTION 9

- 9.1.1 Gas bubbles / Effervescence✓
OR
The solution gets hot.✓ (1)
- 9.1.2 Hydrogen✓ (1)
- 9.1.3 $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$ ✓ Balancing✓ (2)

- 9.2.1 When the length of the magnesium ribbon increases, the amount of hydrogen gas that forms increases.

OR

If a longer piece of Mg ribbon is used, then more hydrogen gas will form.

Criteria	Marks
Both variables are mentioned. Length of Mg ribbon; Amount of gas	1
The relationship between them are mentioned.	1

(2)

- 9.2.2 (a) Independent variable - length of Mg/magnesium ribbon✓
(b) Dependent variable - amount of H₂/hydrogen gas✓

(2)

[8]

QUESTION 10

- 10.1 Calcium chloride✓ (1)

- 10.2 H₂O✓ (1)

- 10.3 Carbon dioxide / CO₂✓ (1)

- 10.4 CaCO₃ + 2HCl → CaCl₂ + CO₂ + H₂O
(both reactants✓ CaCl₂✓ CO₂ **and** H₂O✓ balancing✓) (4)

- 10.5 When the gas (CO₂) is bubbled through clear lime water,✓
it will turn milky.✓ (2)

[9]

TOTAL SECTION B: 80
GRAND TOTAL: 100