



education

Department of
Education
FREE STATE PROVINCE

GRADE 9

NATURAL SCIENCES

NOVEMBER 2019

MARKS: 100

MARKING GUIDELINES

This marking guidelines consists of 8 pages.

Note: Penalise only ONCE per question if units are omitted.

SECTION A

QUESTION 1

1.1.1	D ✓	(1)
1.1.2	D ✓	(1)
1.1.3	A ✓	(1)
1.1.4	C ✓	(1)
1.1.5	B ✓	(1)
1.1.6	A ✓	(1)
1.1.7	C ✓	(1)
1.1.8	D ✓	(1)
1.1.9	D ✓	(1)
1.1.10	A ✓	(1)
1.2.1	C ✓	(1)
1.2.2	I ✓	(1)
1.2.3	G ✓	(1)
1.2.4	H ✓	(1)
1.2.5	F ✓	(1)
1.3.1	Newton ✓ (Must give the WORD)	(1)
1.3.2	Tension ✓	(1)
1.3.3	Friction OR Frictional (force) ✓	(1)
1.3.4	Voltmeter ✓	(1)
1.3.5	Volcano OR Volcanic eruption ✓	(1)
TOTAL SECTION A		[20]

SECTION B

QUESTION 2

- 2.1 Hydroelectric✓ power station (1)
- 2.2 Water **OR** Falling water✓ (1)
- 2.3 X - Transformer✓
It changes the voltage of electricity.✓
Accept: It steps up the voltage. **OR** It steps down the voltage. (2)
- 2.4 Wind, solar energy, sea waves, sun-heated steam, geothermal energy.✓✓
(Do not accept water since it was given in the question.) (ANY TWO) (2)
- [6]**

QUESTION 3

- 3.1 What is the effect of different types of wires on resistance?

OR

How does different types of wires affect resistance?

Independent AND dependent variables mentioned (underlined words).	✓
A question is asked on the relationship between the variables.	✓

(2)

- 3.2 Type of wire✓ (1)
- 3.3 Z✓ (1)
- 3.4 A better conductor will allow more current✓ to pass through due to a lower resistance.✓

OR

The lower the resistance✓ the more current flows✓, the better the conductor.

(2)

- 3.5 Temperature **OR** Length **OR** Thickness✓ (of a wire/conductor).
(Do not accept type of conductor; it was given in the question.) (ANY ONE) (1)
- [7]**

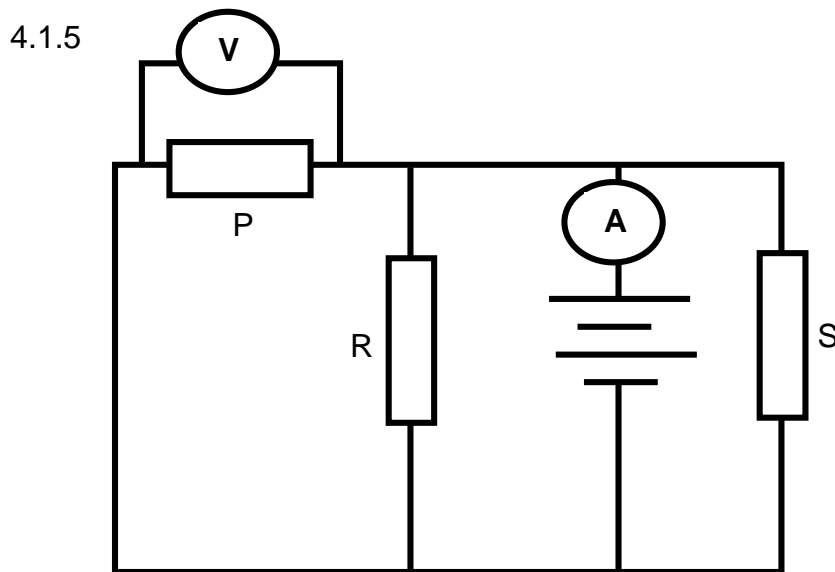
QUESTION 4

4.1.1 Parallel✓ (1)

4.1.2 Resistor✓ (1)

4.1.3 It restricts/controls/resists the flow of current.✓ (1)

4.1.4 $2 \times 1,5 \text{ V}$ ✓
= 3 V ✓ **Note: Award 2 marks if a learner only wrote 3 V.** (2)



Ammeter connected in series with the battery.	✓
Voltmeter connected in parallel across resistor P.	✓

(2)

4.2.1 $\frac{3V}{3}$ ✓ = 1 V ✓ **Note: Award 2 marks if a learner only wrote 1 V.** (2)

4.2.2 (Resistors in series) are potential dividers. ✓

OR

The total potential difference (voltage) is divided between resistors in series. ✓

OR

The sum of the voltages across the individual resistors in series adds up to the voltage across the battery. ✓ (1)

4.2.3 Decrease ✓ (1)

4.2.4 Adding one more resistor in series will cause the total voltage/ V_{battery} ✓
to be shared amongst more resistors/4 resistors, instead of 3.✓ (2)

[13]

QUESTION 5

5.1 Kilowatt/kW **OR** Watt/W ✓

Note: Accept Joule per second **OR** J/s **OR** J.s⁻¹ (1)

5.2 3,25 ✓ x 20 ✓ (Note: 15 minutes = 0,25h)
= 65 h ✓

(3)

5.3 $45 \checkmark \times \frac{120}{1000} \checkmark$ **OR** $45 \checkmark \times 120 \checkmark$
= 5,4 kW ✓ = 5 400 W ✓

(3)

Apply positive marking from 5.2 and 5.3.

5.4 Cost = 5,4 x 65 x 0,91 ✓
= R319,41 ✓

(2)

5.5 2,5 ✓ x 24 ✓
= 60 h

(2)

5.6 Y ✓

(1)

5.7 Cost = 5,4 x 60 x 0,91 ✓
= R294,84

(1)

[13]

QUESTION 6

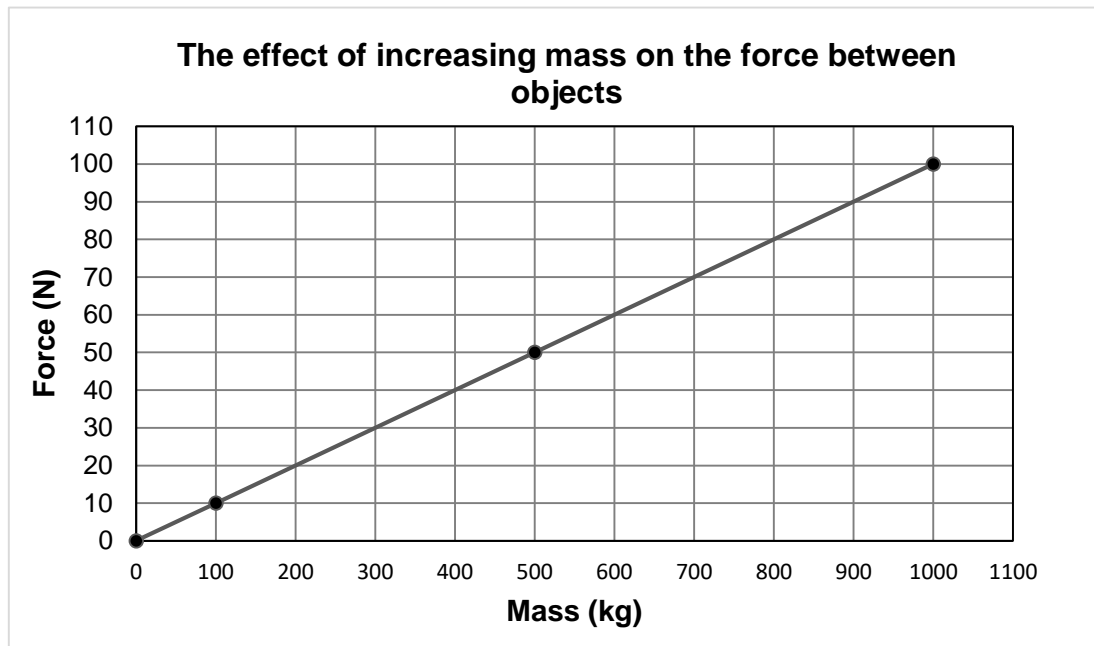
6.1 Gravitational force **OR** Force of gravity ✓ (1)

6.2 Distance (between objects) ✓ (1)

6.3 1 ✓ (1)

6.4 Bigger ✓ (1)

6.5



Marking criteria	Marks
Correct scale on x-axis with title and units included.	✓
Correct scale on y-axis with title and units included.	✓
Plotting first two points correctly.	✓
Plotting last two points correctly.	✓

NOTE: Subtract 1 mark if axes are swopped. (4)

6.6 The greater the masses of two objects, the greater/bigger/stronger ✓
the force between the objects. (1)
[9]

QUESTION 7

- 7.1.1 A – Thermosphere ✓
C – Stratosphere ✓ (2)
- 7.1.2 C ✓ **Note:** Accept a LETTER only. (1)
- 7.1.3 Mesosphere ✓ (Must give the NAME.) (1)
- 7.1.4 (a) Temperature in B(mesosphere) is lower/colder✓ than in D(troposphere).✓
OR
Temperature in D is higher/warmer✓ than the temperature in B.✓ (2)
- (b) Air pressure in B is lower✓ than in D.✓
OR
Air pressure in D is higher✓ than the air pressure in B.✓ (2)
- 7.2.1 Carbon dioxide/Water vapour/Methane ✓✓ (ANY TWO) (2)
- 7.2.2 Food shortage✓ **OR** Mass extinction✓ (ANY ONE) (1)
- 7.2.3 Floods, water shortage/drought, poor water quality, rising sea levels.✓✓✓
(ANY THREE) (3)
[14]

QUESTION 8

- 8.1 **Hydrosphere** consists of water in all its forms on the earth.✓
Lithosphere consists of solid rock and soil.✓
Atmosphere is a layer of gases around the Earth.✓
Biosphere consists of all living plants and animals.✓
OR
Biosphere consists of all living things and their interactions with rocks, soil, air and water.✓ (4)
- 8.2.1 Roots (of tree) absorb minerals from soil **OR** roots grow/anchor in soil.✓ (1)

8.2.2 Gas exchange between leaves (of the tree) and the atmosphere.✓

OR

Oxygen is given off by the tree to the atmosphere.✓

OR

Carbon dioxide from the atmosphere is absorbed by the tree.✓ (1)

8.2.3 Roots absorb water from the ground (soil).✓

OR

Leaves give off water (transpiration).✓ (1)

[7]

QUESTION 9

9.1.1 Granite forms when magma cools down✓ in the crust of the earth,✓ whilst lava forms when magma cools down above✓ the earth's surface. (2)

9.1.2 Lava✓

The cooling down of lava occurs faster above the earth's surface✓ than within the Earth/crust, as in the case of granite. (2)

9.2.1 Melting ✓ (1)

9.2.2 1 ✓ and 3 ✓ (2)

9.2.3 Igneous ✓ (1)

9.2.4 Sedimentary ✓ (1)

9.2.5 2 (1)

[11]

**TOTAL SECTION B: 80
GRAND TOTAL: 100**