



PROVINCIAL EXAMINATION
NOVEMBER 2022
GRADE 9
MARKING GUIDELINES

NATURAL SCIENCES

7 pages

SECTION A**QUESTION 1: MULTIPLE-CHOICE QUESTIONS**

1.1 C ✓

1.2 B ✓

1.3 B ✓

1.4 A ✓

1.5 A ✓

1.6 C ✓

1.7 B ✓

1.8 C ✓

1.9 B ✓

[9]**QUESTION 2: TERMINOLOGY**

2.1 Resistor ✓

2.2 Gravity ✓

2.3 Switch ✓

2.4 Magma ✓

2.5 Lightning ✓

2.6 Ore ✓

[6]**QUESTION 3: MATCHING ITEMS**

3.1 E/Open cast mining ✓

3.2 D/Mesopause ✓

3.3 F/Atmosphere ✓

3.4 C/Planetary nebulae ✓

3.5 A/Pumice ✓

[5]**TOTAL SECTION A: 20**

SECTION B

QUESTION 4: FORCES

- 4.1 4.1.1 To investigate what happens to two similar rods ✓ that are rubbed with the same type of cloth. ✓

OR

To investigate static electricity ✓ through rubbing. ✓

OR

To investigate whether there will be a force of attraction or repulsion ✓ between two glass rods rubbed with the same cloth. ✓ (2)

- 4.1.2 Charges (electrons) move (are transferred) ✓ from the cloth to the rod, making it negatively charged. ✓

OR

Charges are transferred ✓ from the cloth to the glass rod. ✓ (2)

- 4.1.3 The rod on the retort stand will move away ✓ from the rod held by the hand. ✓ (The rod on the retort stand will be repelled./They will repel each other.) (2)

- 4.2 4.2.1 C ✓ D ✓ B ✓ A ✓ (4)

- 4.2.2 Stay away from trees. ✓
Seek shelter inside a building or car. ✓
Stay away from high places.
Crouch in the smallest, lowest possible position with your feet together.
(Accept any other safety measure.)
(Mark any two.) (2)

- 4.3 Weight = Mass in kg x 9,8 N
= 1 485 kg x 9,8 N ✓
= 14 553 ✓ N ✓
Accept 14 850 ✓ N ✓ (3)

[15]

QUESTION 5: CELLS AND ENERGY, RESISTANCE

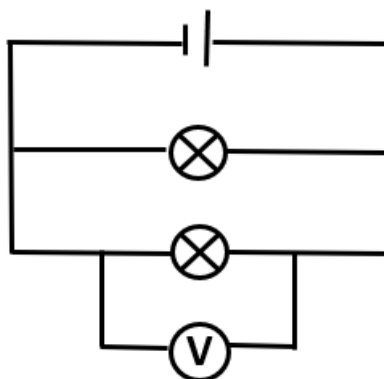
- 5.1 5.1.1 D✓ (1)
- 5.1.2 Battery ✓ (1)
- 5.1.3 It is a source of (electrical) energy.✓ (1)
- 5.1.4 $3 \div 2 \checkmark = 1,5 \text{ V} \checkmark$
(Award 2 marks if a learner wrote 1,5 V only.) (2)
- 5.1.5 B ✓ (1)
- 5.2 Temperature✓ of the resistor.
Type✓ of a resistor.
Thickness✓ of the resistor.
Length✓ of the resistor.
(Mark any two.) (2)
- 5.3 **Temperature of the conductor:** The hotter the conductor, the higher the resistance.✓
Type of material: Different conducting materials have different resistances to an electric current.✓
Thickness of the conductor: Thinner wires have more resistance than thicker wires.✓
Length of the conductor: Longer wires have more resistance than shorter wires.✓
(Mark any two.) (2)
- 5.4 5.4.1 Fuse ✓ (1)
- 5.4.2 Variable resistor **OR** Rheostat ✓ (1)
- 5.4.3 LED **OR** Light bulb ✓ (1)
- 5.5 Circuit breaker/Fuses/Surge protectors/Ground fault interrupters ✓
(Accept any one.) (1)

[14]

QUESTION 6: CURRENT ELECTRICITY

- 6.1 6.1.1 Voltmeter ✓ (1)
- 6.1.2 Equal to ✓ (1)
- 6.1.3 $V = V_x + V_y$ ✓
 $3 = 2 + V_y$ ✓
 $V_y = 1V$ ✓ (3)
- 6.1.4 Light bulb Y will go out/off. ✓ If it blows, because bulb X is connected in series, there will be a gap in the circuit. ✓ (2)
- 6.2 6.2.1 **Marking guidelines for the sketch of circuit diagram drawn.**

Description	Marks
One cell	1 ✓
2 bulbs	2 ✓✓
Connected in parallel	1✓
Voltmeter in parallel	1 ✓



- (4)
- 6.2.2 Remains the same. ✓ (1)
- 6.2.3 Voltmeter has high resistance, ✓ connecting it in parallel will lower the total resistance in a circuit. ✓

OR

Voltmeter has high resistance, ✓ if it is not connected in parallel it will take up the most energy in a circuit ✓

(2)
[14]

- 8.4 8.4.1 Greenhouse ✓ (1)
- 8.4.2 Radiant energy/Heat ✓ (1)
- 8.4.3 The troposphere ✓ (1)
- 8.4.4 Greenhouse effect ✓ (1)
- 8.4.5 The Earth becomes warm (temperature is increased) and becomes habitable for life. ✓ (1)
- [16]**

QUESTION 9: IMPACT OF MINING ON THE ENVIRONMENT

- 9.1 9.1.1 Coal (1)
- 9.1.2 % of possible new gold mines $= 41 \div 192 \times 100$
 $= 21,4\%$ ✓ (2)
- 9.1.3 On the surface ✓ (1)
- 9.1.4 A mixture ✓ that consists of a variety of minerals ✓

OR

It is an impure ✓ substance ✓

(1 mark for mixture and 1 mark for reason.)

(2)

- 9.1.5 Removal of plants causes habitat loss for animals.

ORRemoval of soil or ground, air or water, pollution from chemicals used. ✓
(Any one.)

(2)

[8]**QUESTION 10: BIRTH, LIFE AND DEATH OF STARS**

- 10.1 Nuclear fusion reactions:
 Changes light elements into heavier elements, ✓ releasing a lot of energy in the process. ✓ (2)
- 10.2 The gravitational pull is too strong. ✓ (1)
- [3]**

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