

# **LEJWELEPUTSWA DISTRICT**

**CONTROL TEST**

**GRADE 9**

**NATURAL SCIENCES**

**MEMORANDUM**

**SEPTEMBER 2019**

**MARKS: 50**

**TIME: 1 HOUR**

**This memorandum consists of four pages.**

**Note: Penalise ONCE per question if units are missing.**

## SECTION A

### QUESTION 1

- 1.1.1 C ✓
- 1.1.2 B ✓
- 1.1.3 A ✓
- 1.1.4 D ✓
- 1.1.5 B ✓

- 1.2.1 B ✓
- 1.2.2 A ✓
- 1.2.3 I ✓
- 1.2.4 D ✓
- 1.2.5 J ✓

[10]

## SECTION B

### QUESTION 2

- 2.1.1 D ✓ (1)
- 2.1.2 Battery ✓ (1)
- 2.1.3 It is a source of (electrical) energy. ✓ (1)
- 2.1.4  $1,5 \div 3 \checkmark = 0,5 \text{ V} \checkmark$  (Award 2 marks if a learner wrote 0,5 V only.) (2)
- 2.1.5 B ✓ (1)
- 2.2 Temperature ✓ of the resistor.  
Type ✓ of a resistor.  
Thickness ✓ of the resistor.  
Length ✓ of the resistor. (ANY TWO) (2)

- 2.3 **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. ✓  
**(FOR ANY ONE OF THE FACTORS MENTIONED IN Q2.2)** (1)

[9]

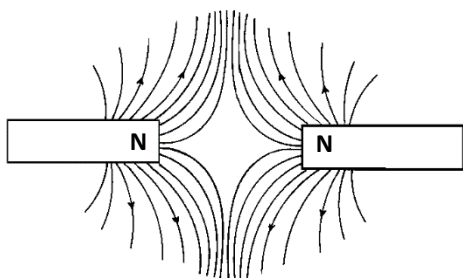
### QUESTION 3

- 3.1 Parallel ✓ (1)
- 3.2  $V_1 = 3 \times 1,5$  ✓  
 $= 4,5 \text{ V}$  ✓ (Award 2 marks if a learner only wrote 4,5 V.) (2)
- 3.3 **Positive marking from question 3.2.**  
 4,5 V ✓ (1)
- 3.4 S ✓ (1)
- 3.5 Reading on  $A_1$  will decrease. ✓ (1)
- 3.6 If T is switched off, there are less resistors in parallel, therefor the total resistance in the circuit will increase, ✓ and the total current will decrease. ✓ (2)
- [8]**

### QUESTION 4

- 4.1.1 Field force ✓ (1)

4.1.2



- ✓ Shape of the magnetic field.
- ✓ Direction of the magnetic field.  
 (Away from north **OR** north to south.)

(2)

- 4.2.1 0,1 N ✓ (Value AND unit for 1 mark.) (1)

- 4.2.2 3 cm ✓ (Accept 2,9 cm to 3,1 cm) (1)

- 4.2.3 Force decreases as distance between magnets increases.

**OR**

As the distance between the magnets increases, the magnetic force between the magnets decreases.

**OR**

As the distance between the magnets decreases, the magnetic force between the magnets increases.

#### Marking criteria:

Both variables mentioned. (Distance and Force) ✓

Relationship between variables. ✓

(2)

- 4.3.1 Electrostatic✓(force) (1)
- 4.3.2 Electrons✓ (1)
- 4.3.3 Yes✓ (1)
- 4.3.4 The spheres carry the same charge / spheres have like charges,✓  
they repel one another / push each other way.✓ (2)
- [12]

**QUESTION 5****5.1.1 Cost = power rating x number of hours x unit price of electricity****Bulb A**

$$\text{Cost} = 0,06 \times 5 \times 1,13 \checkmark$$

$$= R0,34 \text{ or } 34 \text{ c} \checkmark$$

**Bulb B**

$$\text{Cost} = \frac{11}{1000} \checkmark \times (5+7) \checkmark \times 1,13$$

$$= R0,15 \text{ or } 15 \text{ c} \checkmark$$

(5)

**5.1.2 Positive marking from 5.1.1 for bulb A.**

$$\text{Saving} = \text{Cost for bulb A} - \text{Cost for bulb B}$$

$$= R0,34 - R0,06 \checkmark$$

$$= R0,28 \text{ or } 28 \text{ cents} \checkmark$$

(2)

$$5.2 \quad \text{Number of hours flat iron is used} = \frac{30}{60} \times 20 \checkmark$$

$$= 10 \text{ h} \checkmark$$

(2)

5.3.1 Overload / demand for electricity is too high.✓

**OR**

Electricity usage is too high.

(1)

5.3.2 Load shedding / electricity supply will be interrupted or cut.✓

(1)

**[11]**

**TOTAL SECTION A: 10**  
**TOTAL SECTION B: 40**  
**GRAND TOTAL: 50**