

# MOTHEO DISTRICT

GRADE 8

NATURAL SCIENCES MEMORANDUM

SEPTEMBER 2019

## SECTION A

### QUESTION 1

1.1.1 D✓

1.1.2 C✓

1.1.3 B✓

1.1.4 B✓

1.1.5 B✓

1.1.6 A✓

1.1.7 D✓

1.1.8 B✓

1.1.9 C✓

1.1.10 B✓

(10)

1.2.1 C✓

1.2.2 F✓

1.2.3 B✓

1.2.4 H✓

1.2.5 E✓

(5)

**TOTAL SECTION A:[15]**

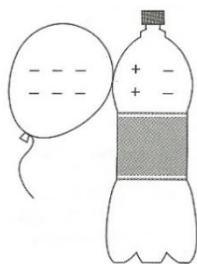
## SECTION B

### QUESTION 2

2.1.1 The friction between the balloon and the girl's hair caused electrons to be transferred from her hair to the balloon. The balloon became negatively charged and the hair became positively charged.✓ Since the hair and the balloon now have opposite charges they will be attracted to one another.✓ (2)

2.1.2.1 The plastic bottle has an **equal number**✓ of positive charges OR protons AND negative Charges OR electrons, which makes the bottle neutral (1)

2.1.2.2



**Marking criteria:**

Excess negative charges on balloon✓

The charges on the plastic bottle is polarized (electrons are pushed to the far side of the bottle by the negatively charged balloon) ✓The negatively charged balloon is attracted to the positive side of the bottle✓

(3)

**[6]**

**QUESTION 3**

3.1.1 Number of bulbs✓ (connected in series)

(1)

3.1.2 Ammeter reading✓ OR Current strength✓

(1)

3.1.3 No.✓ The results show that as the number of resistors connected in series increases✓ the current in the circuit decreases.✓

(3)

**[5]**

**QUESTION 4**

4.1.1 Circuit B✓ as the current will take the path of least resistance thus bypassing the bulb.✓

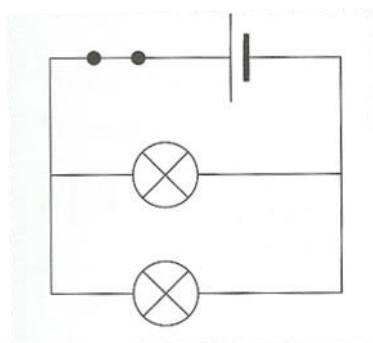
(2)

4.1.2 Circuit C✓

(1)

4.2.1

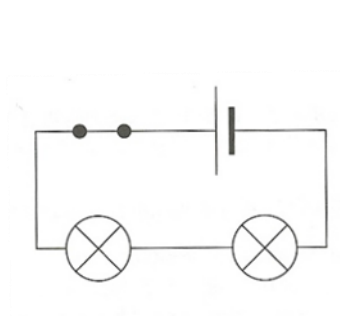
**Circuit A**



**Circuit A:** One cell✓  
(switch not necessary but, do not penalise if inserted)  
two bulbs in parallel✓

(4)

**Circuit B**



**Circuit B:** one cell with switch✓  
two bulbs in series✓

4.2.2 Circuit A✓

(1)

4.2.3 Circuit A✓, because in a parallel circuit if one bulbs fuses (burn out) it will not affect the other bulbs in the circuit.✓

(2)

**OR** – All the bulbs in your home can burn with the same brightness.✓✓  
when connected in parallel

**[10]**

### QUESTION 5

- 5.1.1 Connect the wire (windings) to an electrical supply ✓ (Eg. Battery) (1)
- 5.1.2 Electromagnet ✓ (1)
- 5.1.3 It can be switched on and off ✓  
An electromagnet can be made to be much stronger than a permanent magnet ✓ (2)
- 5.1.4 Increase the number of turns OR winding of wire around the magnet ✓  
Increase the current strength OR increase the number of cells in series ✓  
Use a ferromagnetic OR soft iron core ✓ [Any 2 for 2 marks] (2)
- 5.1.5 Cranes uses electromagnets to lift heavy metal objects such as scrap metal ✓  
In electric motors, generators, relays, OR any other relevant answer. [Any 1 for 1 mark] (1)
- [7]**

### QUESTION 6

- 6.1.1 spectrum ✓ (1)
- 6.1.2 dispersion ✓ (1)
- 6.1.3 wavelength ✓ (1)
- 6.2.1 Black ✓ (1)
- 6.2.3 Black ✓ (1)
- 6.2.2 Green ✓, The green object will absorb all frequencies of light, except green light which is reflected and makes the object appears green. ✓ (2)
- [7]**

**TOTAL SECTION B:[35]**

**GRAND TOTAL: [50]**