education
Department of Education
FREE STATE PROVINCE

GRADE 8 **NATURAL SCIENCES** **SEPTEMBER 2017**

TIME: 1 HOUR **MARKS: 50**

MEMORANDUM

SECTION A

QUESTION 1

1.1.1 C✓

1.1.2 A✓

1.1.3 C✓

1.1.4 D✓

1.1.5 B✓

1.1.6 B✓

1.1.7 B✓

1.1.8 C✓

1.1.9 B✓

1.1.10 A✓ **[10]**

1.2.1 E✓ (1)

1.2.2 H✓ (1)

1.2.3 B✓ (1)

1.2.4 G✓ (1)

1.2.5 F✓ (1)
[5]

TOTAL SECTION A: 15

SECTION B

QUESTION 2

2.1 electrons✓ (1)

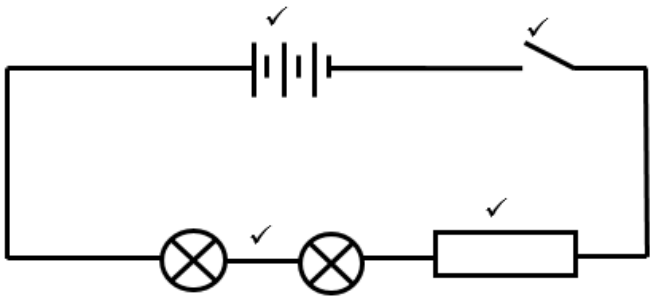
2.2 friction ✓ (1)

2.3 The negatively charged balloon, pushes away the electrons (negative charges) on the surface of the wall. ✓ The negatively charged balloon is attracted by the positively charged surface✓and sticks to it. (2)

2.4 Both balloons are negatively charged.✓ Objects carrying the same / like charges, repel each other.✓ (2)

[6]

QUESTION 3



[4]

QUESTION 4

4.1 (A) ✓ (1)

4.2.1 Independent variable: Number of cells in series.✓ (1)

4.2.2 Dependent variable: Brightness of the bulbs.✓ (1)

4.3 The cells must be identical. (Excluding the number of cells.)
The bulbs must be identical (same resistance).
Bulbs must be connected in parallel (both circuits).
Same number of bulbs in both circuits.
(Any TWO for 2 marks) (2)

4.4 If the number of cells connected in series decreases,✓ then the brightness of the bulbs (connected in parallel) will also decrease.✓

OR

If the number of cells connected in series decreases,✓ then the brightness of the bulbs (connected in parallel) will increase.✓

OR

If the number of cells connected in series increases,✓ then the brightness of the bulbs (connected in parallel) will also increase.✓

OR

If the number of cells connected in series increases,✓ then the brightness of the bulbs (connected in parallel) will decrease.✓ (2)

4.5 Circuit A✓ (1)

4.6 More cells in series (Circuit A) give a higher overall current in the circuit.✓ (1)

4.7 The bulbs will glow with the SAME brightness as before.✓
The total resistance will decrease✓ with an additional bulb connected in parallel, which will increase the overall current.
The current in the branches however, remains the same✓
(current divides into 3 branches now). (3)
[12]

QUESTION 5

5.1 Bar magnet✓

The magnetic properties of the bar magnet cannot be switched on or off mechanically.✓ (Like that of an electromagnet)
OR
The magnetic properties of the bar magnet remain constant for a long period of time. ✓ (2)

5.2 Increase the current / increase the number of cells in series.✓
Increase the number of windings/turns of insulated wire✓ around the iron nail. (2)

5.3 Picking up metal in a scrap yard. ✓
Electromagnetic security lock. ✓

(Any ONE of the examples above **OR** any other relevant example) (1)
[5]

QUESTION 6

6.1 X = White✓
Y = Red✓
Z = Orange✓ (3)

6.2 Normal✓ (1)

6.3.1 Dispersion✓ (1)
6.3.2 Spectrum✓ (1)

6.4 When white light shines onto a green leaf all the frequencies / colours of white light are absorbed✓ by the green leaf, except green light, which is reflected✓ by the leaf. (2)
[8]

TOTAL SECTION A:	**15**
TOTAL SECTION B:	**35**
GRAND TOTAL:	**50**