NATURAL SCIENCES:

Science Exams

17 November 2023

GRADE 8 - MEMO

MARKS: 75

TIME: 75 min

EXAMINER: Z Booysen

MODERATOR/S: Am, Vh, La, Sk

This question paper consists of 11 pages. Disconnect this page and attach it to the front of your answer script.

Name _____ **Teacher: Vh/La/Am/Bn /Sk Class:**

For official use only					
Question 1	Marker	Moderator	**Question 6**	Marker	Moderator
Question 2	Marker	Moderator	**Question 7**	Marker	Moderator
Question 3	Marker	Moderator	**Question 8**	Marker	Moderator
Question 4	Marker	Moderator	**Total**	Marker	Moderator
Question 5	Marker	Moderator	**Percentage**	Marker	Moderator
Signature	Marker		**Signature**	Moderator	

INSTRUCTIONS

1. Write your **NAME** and science teacher code (**Am/Bn/Sk/Vh/La**) in the appropriate space on the Cover Page and all scripts handed in.
2. The question paper consists of 8 questions. Answer ALL the questions.
3. Start EACH question on a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Leave ONE line between two sub questions, for example between QUESTION 2.1 and QUESTION 2.2.
6. You may use a non-programmable calculator.
7. You may use appropriate mathematical instruments.
8. You are advised to use the attached DATA SHEET.
9. Show ALL formulae and substitutions in ALL calculations.
10. Round off your **final numerical answers** to a minimum of **TWO decimal places**.
11. Give brief motivations, discussions, et cetera where required.
12. Write neatly and legibly.

Answer Sheet

Name:_____ **Teacher Code: Am/Bn/Vh/Oc**

Question 1

Make a **cross (X)** in the appropriate box next to the relevant question number (1.1 – 1.10)

1.1	A	B	C	D
1.2	A	B	C	D
1.3	A	B	C	D
1.4	A	B	C	D
1.5	A	B	C	D
1.6	A	B	C	D
1.7	A	B	C	D
1.8	A	B	C	D
1.9	A	B	C	D
1.10	A	B	C	D
		Total		**/10**

ANSWERS:

1.1.1 C
1.1.2 A
1.1.3 D
1.1.4 C
1.1.5 B
1.1.6 A
1.1.7 D
1.1.8 D
1.1.9 C
1.1.10A

10 x ✓ = **[10]**

Question 2:

2.1 Battery ✓

2.2 Sort Circuit ✓

2.3 Violet ✓

2.4 Positive ✓

2.5 Repel ✓ **[5]**

Question 3:

3.1 Nitrogen✓ and Hydrogen✓ 2

3.2 Elements✓ 1

3.3 $N_2 + 3H_2$ ✓⟶ $2NH_3$✓ ✓balancing 3

3.4.1 Hydrogen ✓ 1

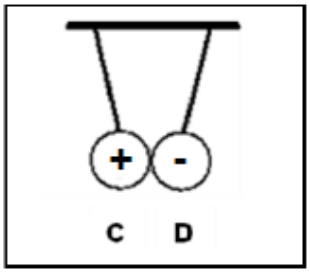
3.4.2 Bring a flame✓ to the gas and a popping✓ sound will be heard 2

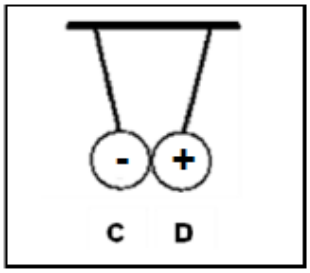
[9]

Question 4:

4.1 A and B✓ 1

4.2 C and D✓ 1

4.3 

OR


✓ 1

4.4.1 Neutral ✓ 1

4.4.2 Equal number of positive and negative charges.✓

OR

Equal number of protons and electrons. ✓

OR

The rod has 5 positive and 5 negative charges. ✓ 1

4 4.3 Positive ✓ 1

4.4.4 Due to friction between the **ROD**✓ and the cloth, **ELECTRONS**✓ move from the rod to the cloth. 2

[8]

Question 5:

5.1.1 Number of cells ✓ 1

5.1.2 The strength of the electromagnet ✓
(Accept: Number of paper clips picked up) 1

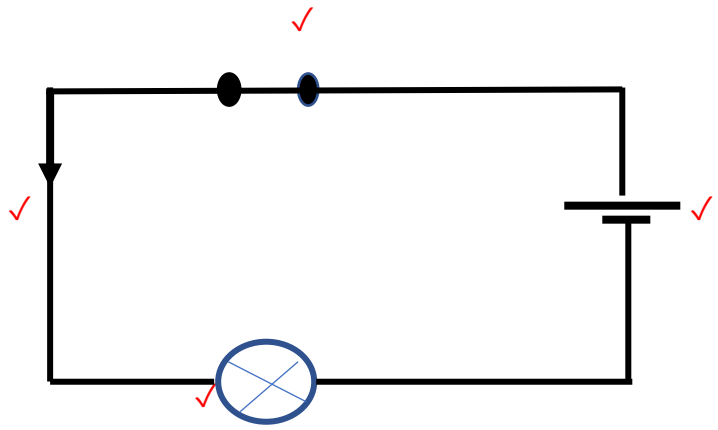
5.1.3 -The same electromagnet must be used **OR** the same iron nail with the same number of wire windings around it. ✓
-The type and size of paper clips must be the same. ✓
(Accept: Identical cells must be used, although it is not crucial in this case.) 2

5.2 More cells increase the strength of the electromagnet. ✓
OR
If the number of cells increases, the electromagnet gets stronger. ✓
(Only 1 mark for the **relationship**; variables were given in the question.) 1

[5]

Question 6:

6.1



4

6.2 Ammeter ✓ 1

6.3 Closed ✓– the light bulb is shining✓ / no break in the circuit 2

6.4.1 B1 and B2 ✓ (BOTH for one mark) 1

6.4.2 No bulbs will glow✓ 1

6.4.3 **If Bulb B2 is removed:** There are LESS bulbs in parallel. ✓
Total resistance increases. ✓
Total current decreases. ✓
Brightness of B1 decreases. 3

6.4.4 Lights can be switched on and off independently from one another. ✓
If a light bulb fuses, the others will still glow. ✓
If more bulbs are connected in parallel, the brightness of the bulbs remain the same. ✓
(**ANY ONE**) 2

[14]

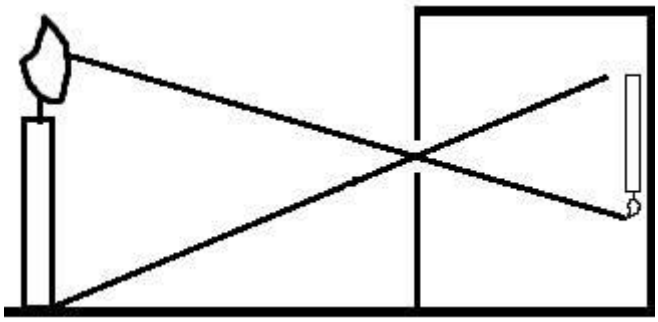
Question 7:

7.1 When the sun is at a higher angle, more of the sun's light can shine past the person. ✓

As a result, less of the light is obstructed. But at a lower angle, a person obscures more of the sun's light, which means less light shines past the person. ✓

Thus the shadow is longer because there is less sun. ✓ 3

7.2



✓✓✓ 3

7.3 Smaller✓ and inverted✓ 2

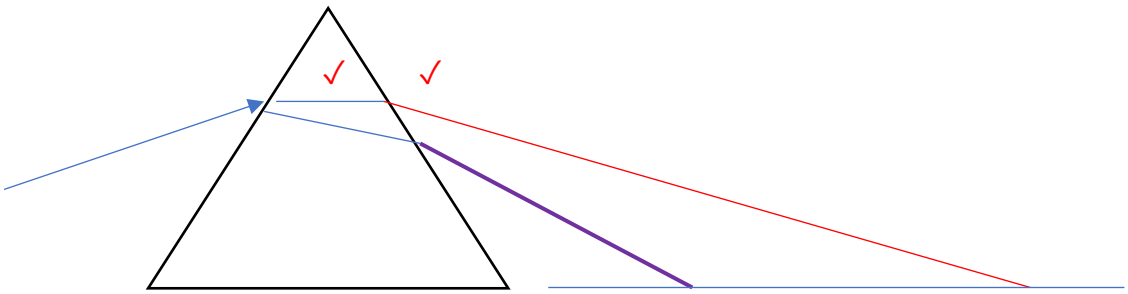
7.4 Luminous✓ 1

7.5 A: Peak/Crest✓

B: Trough✓

C: wavelength✓ 3

7.6



V, I, B, G, Y, O, R ✓✓ 4

7.7 Orange, Yellow, Green, Violet✓ 1

Question 8 [17]

8.1 E_p= mgh ✓

= 0,5 X 9.8 X 20✓

= 98 J✓ 3

8.2 In an isolated/closed system the total energy remains constant/the same✓ 1

8.3 $\mathbf{E_p + E_k = E_m}$✓

(0,5 x 9.8 x 10) + (½ x 0,5 x V^2) = 98✓

V = 14 $m.s^{-1}$✓ 3 [7]