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PROVINCIAL EXAMINATION

JUNE 2024

GRADE 9

MARKING GUIDELINES

NATURAL SCIENCES

7 pages

PRINCIPLES RELATED TO MARKING NATURAL SCIENCES

1. **If more information than marks allocated is given:**
Stop marking when a maximum mark is reached and put a wavy line and 'max' in the right- hand margin (~ max).
2. **For example: Three reasons are required and five are given:**
Mark the first three irrespective of whether all or some are correct/incorrect.
3. **If language used changes the intended meaning:**
Do not accept.
4. **Spelling errors:**
If recognisable, accept, provided it does not mean something else in Natural Sciences or if it is out of context.
5. **No changes** may be made to the approved marking memorandum.

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

- 1.1 B ✓
- 1.2 B ✓
- 1.3 C ✓
- 1.4 C ✓
- 1.5 A ✓
- 1.6 A ✓
- 1.7 B ✓

[7]**QUESTION 2: TERMINOLOGY**

- 2.1 Periodic table of Elements ✓
- 2.2 Reactants ✓
- 2.3 Carbon dioxide ✓
- 2.4 Corrosion ✓
- 2.5 Phosphorus Pentoxide ✓
- 2.6 Neutralisation ✓
- 2.7 Combustion ✓

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

- 3.1 F – Chlorine ✓
- 3.2 A – Rusting ✓
- 3.3 B – 7 ✓
- 3.4 E – CaCO_3 ✓
- 3.5 D – Gas ✓
- 3.6 G – Carbon ✓

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

SECTION B

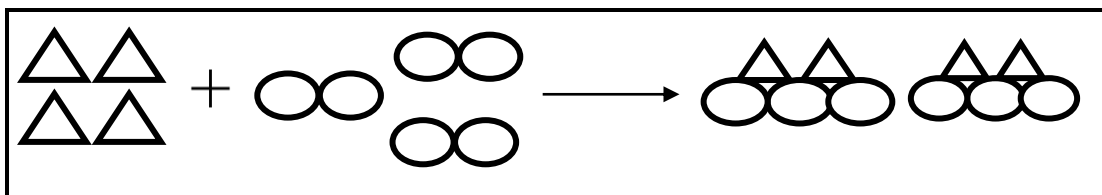
QUESTION 4: COMPOUNDS

- 4.1 4.1.1 Lithium ✓ (1)
- 4.1.2 Oxygen ✓ (1)
- 4.1.3 Lithium Oxide ✓ (1)
- 4.1.4 2 Lithium: 1 oxygen ✓ (1)
- 4.1.5 Nitrogen ✓ (1)
- 4.1.6 Hydrogen ✓ (1)
- 4.1.7 1 Nitrogen : 3 hydrogen ✓ (1)
- 4.2 4.2.1 A ✓, due to the bonding of two atoms of the same element. ✓ (2)
- 4.3 4.3.1 $2 \text{Na} \checkmark + \text{Cl}_2 \rightarrow 2 \text{NaCl} \checkmark$ (2)
- 4.3.2 $\text{H}_2 + \text{Br}_2 \rightarrow 2 \checkmark \text{HBr} \checkmark$ (2)
- 4.3.3 $\text{N}_2 + \text{O}_2 \rightarrow 2 \checkmark \text{NO} \checkmark$ (2)
- [15]

QUESTION 5: REACTION OF METALS WITH OXYGEN

- 5.1 5.1.1 silvery white ✓ (1)
- 5.1.2 silver grey ✓ (1)
- 5.1.3 solid white ✓ (1)
- 5.1.4 Reddish brown powder ✓ (1)
- 5.1.5 yellow/orange ✓ (1)
- 5.1.6 yellow/orange ✓ (1)
- 5.1.7 In paraffin/oil ✓ (1)

5.2 5.2.1



Criteria	Mark allocation
Drawing of the equation	3
Balancing the equation	1

(4)



(3)

5.3 Rusting is the chemical reaction between iron metal with oxygen \checkmark in the presence of moisture/water. \checkmark

(2)

5.4 A – Paint \checkmark ; B – Electroplating \checkmark ; C – Galvanising \checkmark ; D – Electroplating \checkmark

(4)

[20]

QUESTION 6: REACTION OF NON-METALS WITH OXYGEN

6.1 Yellow \checkmark

(1)

6.2 Blue \checkmark

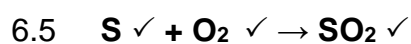
(1)

6.3 Sulphur dioxide \checkmark

(1)

6.4 fruit juice \checkmark and fizzy cool drinks \checkmark

(2)



(3)

[8]

QUESTION 7: ACIDS, BASES, AND Ph VALUES

- 7.1 7.1.1 An indicator is the chemical compound (substance) ✓ that changes its colour in the presence of an acid or a base ✓ (1)
- 7.1.2 What is the Ph of the sample of contaminated water?
- OR** (1)
- What is the colour of various indicators in a sample of contaminated water? ✓
(Award marks only for a sentence ending with a question mark.) (2)
- 7.1.3 (a) amount of water, volume of water sample ✓/temperature of the water sample ✓ same (quality of the) water sample ✓
(1 mark for any one) (1)
- (b) The pH of the water/the colour of the indicator in a water sample ✓ (1)
- 7.2 7.2.1 Red/pink ✓ (1)
- 7.2.2 Red/pink ✓ (1)
- 7.2.3 Yellow ✓ (1)
- 7.2.4 Blue ✓ (1)
- 7.3 Add soda ash (sodium carbonate) then boil the water and add chlorine. ✓
Soda ash will raise the pH of water to near neutral ✓, boiling will kill bacteria ✓ and chlorine will purify the water. ✓ (4)
- 7.4 Cholera ✓, bilharzia ✓, malaria ✓ or diarrhoea ✓ (Any 2) (2)
- [16]**

QUESTION 8: ACIDS AND BASE REACTIONS

- 8.1 8.1.1 Bee sting is acidic. ✓ (1)
Wasp sting is basic ✓ (1)
- 8.2 8.1.2 The person could have heartburn because of eating unhealthy food ✓ or drinking fizzy cool drinks. ✓
- OR**
- Indigestion is a result of the production of too much ✓ hydrochloric acid in the stomach. ✓ (2)
- 8.2.2 You can treat indigestion by taking an antacid or a substance such as baking soda in water. ✓ This will neutralise the acid in the stomach. ✓ (2)

8.2.3 Fizzy drinks are acidic ✓ and they increase the amount of acid in the stomach. ✓ (2)

8.2.4 Reducing the consumption of foods that are too acidic ✓ such as fizzy drinks. ✓ (2)
[10]

QUESTION 9: REACTION OF ACIDS WITH BASE

9.1 Sulphuric acid ✓ (1)

9.2 Nitric Acid ✓ (1)

9.3 H_2SO_4 ✓ and HNO_3 ✓ (2)

9.4 Acids in acid rain reacts with calcium carbonate in marble statues and buildings, causing them to dissolve. ✓

OR

Destroys plants ✓

OR

Pollutes water sources and soil. ✓

(Any 2) (2)

9.5 NEUTRAL ✓ (1)

9.6 HCl ✓ + MgO ✓ \rightarrow MgCl_2 ✓ + H_2O ✓ (4)
[11]

TOTAL SECTION B: 80

TOTAL : 100