GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

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

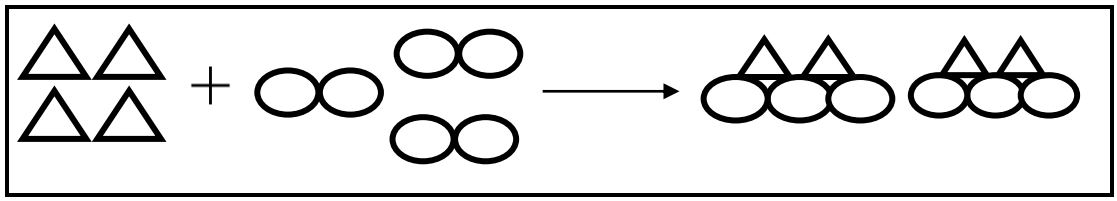
QUESTION 4: COMPOUNDS

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** Na ✓ + Cl_2→ **2** NaCl ✓	(2)
	4.3.2	H_2 + Br_2 → **2** ✓ HBr ✓	(2)
	4.3.3	N_2 + O_2→ **2** ✓ NO ✓	(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)

5.2.2 **4Fe** ✓ **+ 3O_2** ✓ → **2Fe_2O_3** ✓ (3)

5.3 Rusting is the chemical reaction between iron metal with oxygen ✓ in the presence of moisture/water. ✓ (2)

5.4 A – Paint ✓; B – Electroplating ✓; C – Galvanising ✓; D – Electroplating ✓ (4)
[20]

QUESTION 6: REACTION OF NON-METALS WITH OXYGEN

6.1 Yellow ✓ (1)

6.2 Blue ✓ (1)

6.3 Sulphur dioxide ✓ (1)

6.4 fruit juice ✓ and fizzy cool drinks ✓ (2)

6.5 **S** ✓ **+ O_2** ✓ → **SO_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** ✓ → **$MgCl_2$** ✓ **+ H_2O** ✓ (4)
[11]

TOTAL SECTION B: 80

TOTAL : 100