

**PRESIDENT'S OFFICE REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
BUMBULI DISTRICT COUNCIL
FORM THREE MID TERM TEST MARKING SCHEME – CHEMISTRY
MARCH, 2025**

1.

i	ii	iii	iv	v	vi	vii	viii	ix	x
C	B	B	C	A	B	C	B	C	B

01 mark @

2

LISTA	I.	II.	III.	IV.	V.	VI.
LIST B	B	D	E	F	C	G

01

mark

@

3. (a).

-Experimentation involves testing a hypothesis by conducting practical investigations. **02 marks**

-Observation involves carefully noting and recording what happens during an experiment.

02marks

(b).

i. Observation. **01 mark**

ii. Experimentation. **01 mark**

iii. Conclusion. **01 mark**

iv. Data collection. **01 mark**

v. Hypothesis. **01 mark**

4. a. Ammonia (**02 marks**)

b. NH₃ (**02 marks**)

c. Covalent bond. (**02 marks**)

d. H₂O, CO₂, O₂. (**03 marks**)

5. (a) To avoid repetition of elements. 05 marks

(b) i. Water

ii. Solid- ice

iii. Liquid- water

iv. Gas- steam or vapor. **01 mark@**

6. (a)

-It is difficult in storage because it is explosive, and requires special tanks

- It is flammable in term of safety concerns

-It has high production cost. **02 marks @**

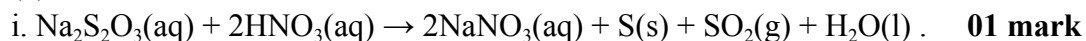
(b).

- Oxygen is pure element, air is a mixture
- Oxygen supports combustion more than air
- Oxygen does not contain nitrogen, while air is 78% nitrogen. **01 mark @**

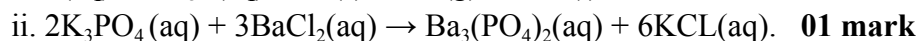
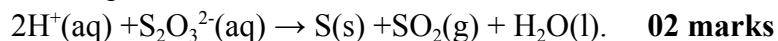
7. (a)

- Indicates the physical state of a substances.
 - Shows exact amounts of reactants and products
- Easier to understand than word equations. **01 mark @**

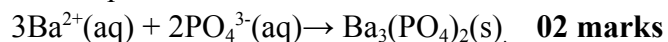
(b)



Ionic equation:



Ionic equation:



8. (a)

- Noble gas is E, has a full outer shell
- Halogen is D, needs 1 electron to complete the octet.
- Alkali metal is A, has 1 valence electron . **02 marks @**

(b)

- Same group is C and F, Both in group II
- Same period is C, D and E, All in period 3. **1.5 marks @**

9.

- Pipette. **05 marks**
- colorless. **02 marks**
- Sodium chloride (NaCl), and water (H₂O). **02 marks**
- Evaporation or crystallization. **03 marks**
- same concentration. **03 marks**
- used in medicine (antiacids)
- used in agriculture (soil P^H control)
- used in waste water treatment
- used in food industries (eg. Baking soda in cakes). **02 marks @**

10. (a)

- Sample C, more soap was used.
- Sample D, volume of soap used was small and constant throughout the experiment.
- Sample A, Calcium hydrogen carbonate ($\text{Ca}(\text{HCO}_3)_2$) or Magnesium hydrogen Carbonate($\text{Mg}(\text{HCO}_3)_2$) **02 maks @**

Sample B, sulphates or chlorides of magnesium and calcium.



(Any relevant equation)

(b) i) Avogadro's law state that:

“Equal volume of all gases measured at the same temperature and pressure contains the same number of particles or molecules.. **1 mark**

ii) Data given

- Mass of fluoride gas = 0.6g
- *Volume of gas at STP* = 112 cm³ = 0.112 L
- Molar volume of a gas at STP = 22.4 L
- Required the relative molecular mass of the fluoride = ?

$$\text{Molecular Mass} = \frac{\text{mass of gas} \times 22.4}{\text{Volume of a gas at STP.}} \quad \mathbf{1 \text{ mark}}$$

$$\begin{aligned} \text{Molecular mass} &= \frac{0.6 \times 22.4}{0.112} \\ &= 13.44 \\ &= 120 \text{ g/mol} \end{aligned}$$

❖ Thus the relative molecular mass of fluoride = 120 g/mol **1 mark**

iii) data given

- Mass of sodium carbonate = 10.6g
- Molar mass of sodium carbonate = 106 g/mol
- Required the number of atoms

$$N = n \times N_A$$

$$\text{But } n = \frac{\text{Mass(g)}}{\text{Molar mass (g/mol)}}$$

1 mark

$$n = \frac{10.6 \text{ g}}{106 \text{ g/mol}}$$

1 mark

$$n = 0.1 \text{ mol.}$$

then recall

$$N = n \times N_A$$

$$N = 0.1 \text{ mol} \times 6.022 \times 10^{23}$$

$$N = 6.022 \times 10^{22} \text{ atoms.}$$

2 marks

11. a)

- Combination reaction/synthesis(1 example)
- Decomposition reaction(1 example)

2marks@

- Displacement reaction
- Redox reaction
- Precipitation reaction(double displacement)

b)

- i. Write the word equation
- ii. Write the word equation using arrow
- iii. Write the equation using symbol
- iv. Balance the equation
- v. Introduce state symbols
- vi. Write the equation in ionic form
- vii. Omit spectator ions

5marks

- viii. Write the net ionic equation
(must use the equation to show the above steps)