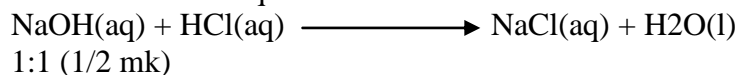


TERM III
CHEMISTRY PAPER 3 (PRACTICAL)
FORM THREE MARKING SCHEME

1. CT – 1mk
 D.P – 1 mk
 Accuracy (1 mk)

(a) Average volume of solution X = 25.0cm^3 (1 mk)

(b) Moles of solution X required



$$\text{Moles of NaOH} = \frac{0.2 \times 25}{1000} = 0.005 \text{ moles (1/2 mk)}$$

$$\text{Moles of solution X} = \frac{0.005 \times 1}{1} = 0.005 \text{ moles (1 mk)}$$

(c) Molarity of solution X

No. of moles = 0.005 moles

0.005 moles 25cm^3

? 1000cm^3

$$= \frac{0.005 \times 1000}{25} \text{ (1 mk)} = 0.2\text{m (1 mk)}$$

Procedure II

CT – 1 mk

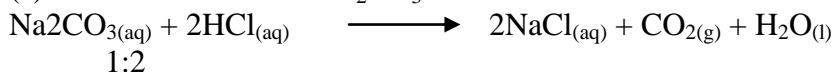
D.P – 1 mk

Accuracy – 1 mk

(d) Average volume of solution X

$$= 25.0\text{cm}^3 \text{ (1 mk)}$$

(e) Number of moles of Na_2CO_3 in 25cm^3



$$\text{Moles of HCl reacting} = \frac{0.2 \times 25}{1000} = 0.005 \text{ moles (1/2 mk)}$$

Mole ratio – $\text{Na}_2\text{CO}_3:\text{HCl}$

1:2 (1/2 mk)

$$\text{Moles of Na}_2\text{CO}_3 = \frac{1}{2} \times 0.005 \text{ (1/2 mk)} = 0.0025 \text{ moles (1/2 mk)}$$

(f) Concentration of sodium carbonate in moles per litre.

0.0025 moles 25cm^3

? 1000cm^3

$$\frac{0.0025 \times 1000}{25} \text{ (1 mk)} = 0.1 \text{ M (1 mk)}$$

2. (a)

Observations	Inferences
- Solid turns to yellow and then to white on cooling. (1 mk)	Zn^{2+} present (1 mk)
- A gas that turns moist blue litmus paper to red.	The gas is acidic

(b) (i)

Observations	Inferences
A white precipitate soluble in excess. (1 mk)	Zn^{2+} present (1 mk)

(ii)	
Observations	Inferences
A white ppt present (1 mk)	SO_4^{2-} , Cl^- , CO_3^{2-} present (1 mk for any two)
(c)	
Observations	Inferences
Effervescence present (1 mk)	CO_3^{2-} present (1 mk)
(i)	
Observations	Inferences
A white ppt which dissolves in excess (1 mk)	Zn^{2+} present (1 mk)
(ii)	
Observations	Inferences
No white ppt (1 mk)	SO_4^{2-} , Cl^- , SO_3^{2-} absent (1 mk for any two)
3. (a) (i)	
Observations	Inferences
Solid burns with a sooty flame (1 mk)	$\begin{array}{c} \quad \\ \text{C} = \text{C} \\ \quad \end{array}$ or $-\text{C}=\text{C}-$ present (1/2 mk for each)
(b) (i)	
Observations	Inferences
Solid dissolves forming a colourless solution. (1/2 mk)	The solid is polar (1/2 mk)
(ii)	
Observations	Inferences
Purple acidified potassium manganate (vii) is decolourised (1 mk)	$\begin{array}{c} \quad \\ \text{C} = \text{C} \\ \quad \end{array}$ or $-\text{C}=\text{C}-$ present (1/2 mk for each)
(iii)	
Observations	Inferences
Orange acidified Potassium dichromate (vi) turns to green. (1 mk)	$\begin{array}{c} \quad \\ \text{C} = \text{C} \\ \quad \end{array}$ or $-\text{C}=\text{C}-$ present (1/2 mk for each)
(iv)	
Observations	Inferences
Effervescence present (1 mk)	H^+ present (1 mk)

(v)

Observations	Inferences
PH is 5 (1 mk)	Solution is weakly acidic. (1 mk)