

MARKING SCHEME PAPER 3

PROCEDURE 1

1.[a] $2 \text{ moles} \rightarrow 1000 \text{cm}^3 \times \frac{25 \times 1}{1000} = 0.05 \text{ moles}$

? 25cm^3

$0.05 \text{ moles} - 250 \text{cm}^3 \times \frac{0.05 \times 1000}{250} = 0.2 \text{m}$

PROCEDURE II

Complete table 1

Decimal 1

Arithmetic 1

Accuracy 1=0.2

[a] $\frac{12.5+12.5+12.5}{3} = 12.5 \text{cm}^3$

[b] $0.2 \text{ moles} \rightarrow 1000 \text{cm}^3 \times \frac{0.2 \text{m} \times 25}{1000} = 0.005 \text{ moles}$

25cm^3



[d] Mole ratio

A:C C=0.0025moles

1:2 $A = \frac{0.005}{2} = 0.0025 \text{ moles}$

[e] $0.0025 \rightarrow \text{answer a} = \frac{0.0025 \times 1000}{\text{answer a}}$

1000

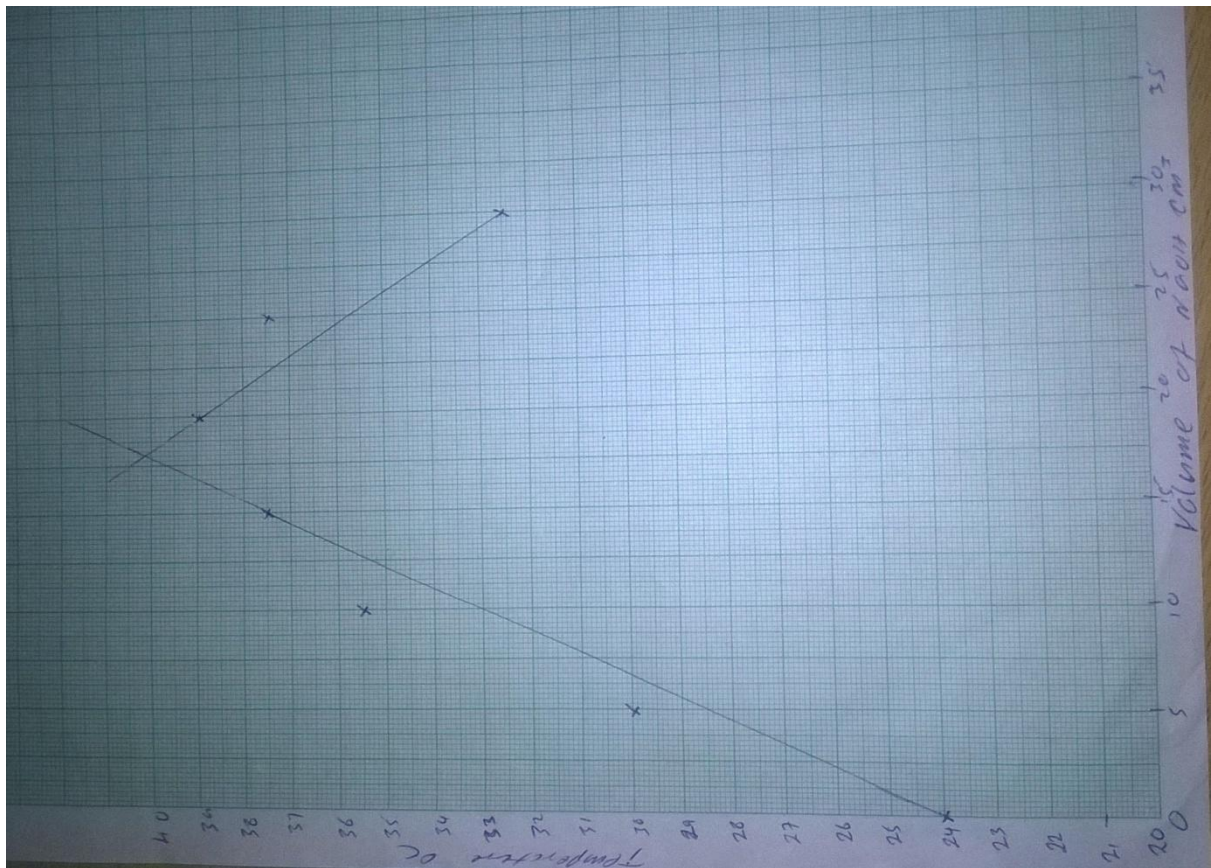
2. Table

Complete table 1

Decimal point 1

Trend 1

[a] Graph



Axis $-\frac{1}{2}$ Mk each

Scale $-\frac{1}{2}$ Mk each

Plotting 1 mk

Curve 1 mk

[b][i] answer from the graph

[ii] Use MCDθ

Mass = $50 \times 1 = 50$ g.

From MCDθ $\rightarrow 50 \text{g} \times \frac{4.2}{g} \text{J/g/}^\circ\text{C} \times \text{answer in b [i] above.}$

[iii] Theoretical value is higher than the obtained value

Heat lost to the surrounding [1mk]

Heat absorbed by the apparatus [1mk]

3.[a]

Observation	Inference
It dissolves into $[\frac{1}{2}]$ a colourless solution [$\frac{1}{2}$ mk]	Soluble salt $[\frac{1}{2}]$ No Cu^{2+} , Fe^{2+} or Fe^{3+} [$\frac{1}{2}$ mk]

[b]

Observation	Inference
White precipitate soluble in excess [1mk]	Pb^{2+} , Zn^{2+} , Al^{3+} ions present [2mks] for the 3 1mk for 2 0 mk for less than 2

[c]

Observation	Inference
White precipitate insoluble in excess [1mk]	Pb^{2+} , Al^{3+} ions present [1mk]

[d]

Observation	Inference
No Yellow precipitate formed [1mk]	Pb^{2+} ions absent / Al^{3+} present [1mk]

[e]

Observation	Inference
White precipitate [1mk]	SO_4^{2-} ions [1mk]
Don't dissolve on adding nitric acid	