MARKING SCHEME PAPER 3

PROCEDURE 1

1.[a]2 moles →1000cm^3 $\frac{25\times1}{1000}$=0.05 moles

? 25cm^3

0.05 moles-250cm^3 $\frac{0.05\times1000}{250}$=0.2m

PROCEDURE II

Complete table 1

Decimal 1

Arithmetic 1

Accuracy 1=0.2

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

[b] 0.2 moles→1000cm^3 $\frac{0.2m\times25}{1000}$=0005 moles

25cm^3

[c]2NaoH $_{[aq]}$+$H_2SO_{4[aq]}$→$NaSO_{4[aq]}$+2H2O$_{[l]}$

[d]Mole ratio

A:C C=0.0025moles

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

[e]0.0025→answer a=$\frac{0.0025\times1000}{answer\ a}$

1000

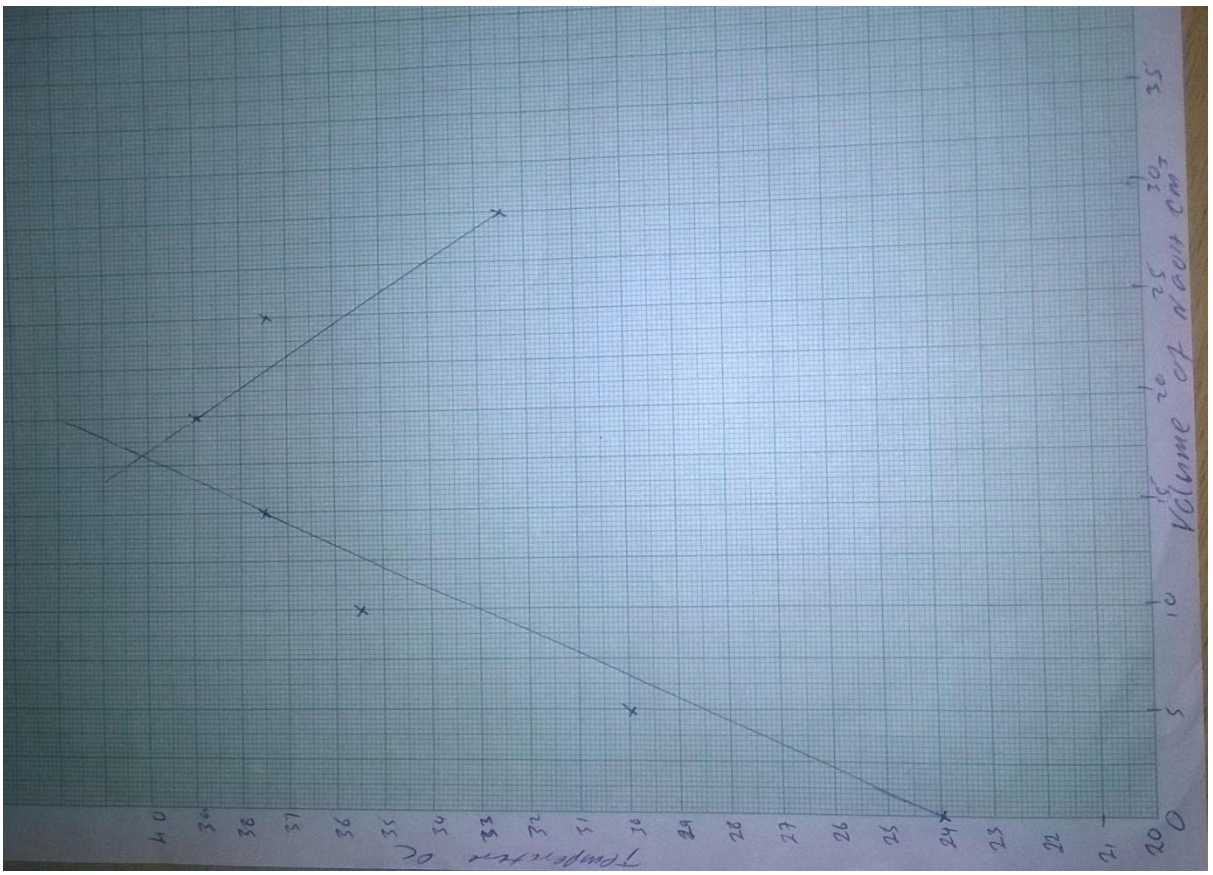
2. Table

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=50×1=50g.

From MCDθ→50g× $\frac{4.2}{g}$ J/g/°C × 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[$\frac{1}{2}$]NoCu^{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	