

1. **Table 1** 5 marks
Distributed as follows
 - A **Complete Table** 1 mark
Complete Table with 3 titrations 1 mark
Incomplete Table with 2 titrations ½ mark
Incomplete Table with 1 titration 0 mark
 - B **Decimal** 1 mark
(Tied to the 1st and 2nd row only)
Accept one or two decimal places used consistently otherwise penalize fully.
 - C **Accuracy** 1 mark
If any value of the student is within
 - i. $\pm 0.1 \text{ cm}^3$ of school value 1 mark
 - ii. $\pm 0.2 \text{ cm}^3$ of school value ½ mark
 - iii. Beyond $\pm 0.2 \text{ cm}^3$ of school value. 0 mark
 - D **Principle of averaging** 1 mark
Values averaged must be within $\pm 0.2 \text{ cm}^3$ of each other otherwise penalize fully.
 - E **Final accuracy** 1 mark
Compare the candidate's correct averaged value and if within
 - i. $\pm 0.1 \text{ cm}^3$ of school value 1 mark
 - ii. $\pm 0.2 \text{ cm}^3$ of school value ½ mark
 - iii. Beyond $\pm 0.2 \text{ cm}^3$ of school value 0 mark

- b) $\frac{\text{averaged volume} \times 0.1}{1000} \sqrt{1/2} = \text{correct answer} \sqrt{1/2}$
- c) $\frac{\text{Correct answer in (b) above}}{2} \sqrt{1/2} = \text{correct answer} \sqrt{1/2}$
- d) $\text{If } 25\text{cm}^3 \rightarrow \text{Ans in (c)}$
 $1000\text{cm}^3 \rightarrow \frac{1000 \times \text{ans in (c)}}{25} \sqrt{1/2}$
 = intermediate answer
 if intermediate answer $\rightarrow 6.5$
 $1\text{mole} \rightarrow \frac{1 \times 6.5}{\text{int ermediate answer}} \sqrt{1}$
 = correct answer $\sqrt{1/2}$
- (e) $\text{RFM of } H_2O = 18 \sqrt{1/2}$
 $2 + 88 + 18x = \text{answer in (d) above}$
 $18x = \text{answer in (d) above} - 90$
 $x = \frac{\text{answer in (d) above} - 90}{18} \sqrt{1}$
 = Correct answer $\sqrt{1/2}$

2. **Table 2** 4 marks

Distributed as follows A Complete Table 2 marks

Completer Table with 6 to 7 reading 2 marks

Incomplete Table with 5 to 4 reading 1 mark

Incomplete Table with 3 to 2 reading $\frac{1}{2}$ mark

Incomplete Table with one reading 0 mark B Decimals $\frac{1}{2}$ mark

Accept whole numbers or one decimal place used consistently for $\frac{1}{2}$ mark C Accuracy $\frac{1}{2}$ mark

Compare the students value at test tube one for the height of precipitate with the school value at test tube 1 and if with+ 2.0mm height award $\frac{1}{2}$ mark otherwise penalize fully.

D Trend 1 mark Award one mark for a continuous rise followed by a constant otherwise penalize fully.

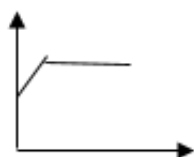
GRAPH 3 marks A Labelling of both axis even without units $\frac{1}{2}$ mark B Scale $\frac{1}{2}$ mark

Area occupied by the graph should be atleast $6\frac{1}{2}$ squares in y axis by 9 squares in x axis otherwise penalize fully.

C Plotting 1 mark 6 to 7 correctly plotted points 1 mark. 5 to 4 correctly plotted points $\frac{1}{2}$ mark
Less than 4 correctly plotted points 0 mark

D Shape 1 mark

Accept a rise and then a constant joint by a straight edge



(b) Accept correct showing for $\frac{1}{2}$ mark and correct reading for $\frac{1}{2}$ mark

3.	a)	i)	Observation -Colourless liquid forms on the cooler parts of the test tube $\sqrt{1}$ -White fumes with HCl $\sqrt{1/2}$ -Solid sublimes $\sqrt{1/2}$ /white sublimate $\sqrt{1/2}$	Inference hydrated salt $\sqrt{1/2}$ NH_4^+ present $\sqrt{1/2}$ (3)
		ii)	Observation (I) White precipitates $\sqrt{1/2}$ insoluble in excess $\sqrt{1/2}$ (II) Observation No white precipitate $\sqrt{1/2}$ No effervescence $\sqrt{1/2}$ (III) Observation White precipitates $\sqrt{1/2}$ insoluble on boiling $\sqrt{1/2}$	Inferences Pb^{2+} $\sqrt{1/2}$ or Al^{3+} present $\sqrt{1/2}$ (2) Inferences Al^{3+} present $\sqrt{1/2}$ or Pb^{2+} absent $\sqrt{1/2}$ CO_3^{2-} or SO_3^{2-} absent $\sqrt{1}$ (3) Inference SO_4^{2-} present $\sqrt{1}$ 2

(I) **Observation**

Melts and burns with a sooty/smoky flame✓1

Inferences

$\begin{array}{c} | \\ \text{C}=\text{C} \\ | \end{array} / -\text{C}\equiv\text{C}-$ present 1 2

(II) i) **Observation**

Bromine water decolourised✓1

Inferences

$\begin{array}{c} | \\ \text{C}=\text{C} \\ | \end{array}$ or $-\text{C}\equiv\text{C}-$ present ✓1 2

ii) **Observation**

KMnO₄ is decolourised✓1

Inferences

$\begin{array}{c} | \\ \text{C}=\text{C} \\ | \end{array}$ or $-\text{C}\equiv\text{C}-$
Present ✓1 2

iii) **Observation**

Effervescence/Bubbles/fizzling✓1

Inferences

H⁺/H₃O⁺ present✓1 2

iv) **Procedure used**

-Place 3 drops of universal indicator✓1/2
into the solution.

-Match the colour obtained with the pH
chart and note the pH value ✓1/2

-pH value 4.5 or 6✓1

Inferences

Solution is weakly acidic✓1 3