

KAPSABET HIGH SCHOOL

CHEMISTRY

Paper 3

MARKING SCHEME

QUESTION 1

TABLE 1

- ✓ complete table CT **1 mk**
- ✓ decimal point D **1 mk**
- ✓ accuracy A (tied to school value) **1 mk**
- ✓ principal of averaging **1 mk**
- a) i) Average volume / final accuracy 1(tied to school value)
NB theoretically expected value = 15.0 cm³

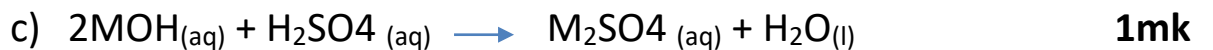
ii)
$$\frac{1M \times 75 \text{ cm}^3}{250 \text{ cm}^3}$$
$$= 0.3M$$

½ mk

½ mk

b)
$$\frac{\text{Ans in (b) above} \times \text{ans in (a) above}^{1/2} \text{ mk}}{1000} = \text{ans}$$

½ mk



d) Mole ratio = 2:1 **½ mk**

e) Moles of solution W = 2 x ans in a(iii) **½ mk**

f) $\frac{\text{ans in b(i)} \times 1000^{1/2} \text{ mk}}{25} = \text{ans}$ **½mk**

g) $\frac{\text{ans in (i)} \times 600^{1/2} \text{ mk}}{25} = \text{ans}^{1/2} \text{ mk}$

h) $\frac{8.7}{\text{ans in b (iii)}}^{1/2} \text{ mk} = \text{RFM OF MOH}^{1/2} \text{ mk}$

i) RAM of metal M = RFM - (16+1) $^{1/2} \text{ mk} = \text{ans}^{1/2} \text{ mk}$

QUESTION 2

TABLE 2

✓ complete table CT **1mk**

✓ decimal point D **1mk**

✓ trend (increasing time) **1mk**

j) 1/t row completed **1mk**

a) Graph

k) Plotting **1mk**

l) Scale **1mk**

Straight line touching origin (0,0) **1mk**

b) ✓ Correctly read value from the graph **1mk**

c) Correct reciprocal of value read from the graph **1mk**

d) Rate at reaction increase with increase in concentration of the sodium thiosulphate because increase in concentration increases number of successful collisions

Question 3

i) **Solid Q**

a)

	Observation	inferences
i)	No white ppt formed ½ mk	Ca ²⁺ Mg ²⁺ , Pb ²⁺ , Al ³⁺ Zn ²⁺ Absent 1mk
ii)	Burns with a golden yellow flame ½ mk	Na ⁺ confirmed 1mk
iii)	White ppt formed ½ mk	Cl ⁻ , SO ₄ ²⁻ , SO ₃ ²⁻ , CO ₃ ²⁻ 1mk
iv)	KMNO ₄ decolorized ½ mk	SO ₃ ²⁻ , Confirmed 1mk
B(i)	Effervescence occurs ½ mk	CO ₃ ²⁻ , SO ₃ ²⁻ 1mk
ii)	Yellow ppt formed ½ mk	Pb ²⁺ confirmed 1mk

ii) Solid R

	Observation	inferences
a	Burns with a yellow sooty flame ½ mk	=C=C=, =C=C= @1/2 mks
B(i)	Dissolves ½ mk forming a colorless solution ½ mk	Polar substance ½ mk
ii)	KMNO ₄ decolorized ½ mk	ROH, =C=C=, =C=C= 1mk
ii)	Effervescence ½ mk	H ⁺ or RCOOH 1mk