

PAPER 3

CHEMISTRY

Form 4



Paper 3

MARKING SCHEME

MARKING SCHEME

FORM 4 CHEMISTRY PRACTICAL

QUESTION 1

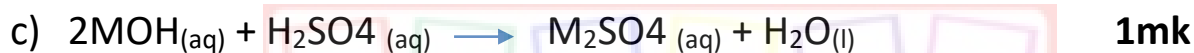
TABLE 1

- ✓ 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

$$\text{ii) } \frac{1M \times 75 \text{ cm}^3}{250 \text{ cm}^3} \quad \frac{1}{2} \text{ mk}$$

$$= 0.3M \quad \frac{1}{2} \text{ mk}$$

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



$$\text{d) Mole ratio} = 2:1 \quad \frac{1}{2} \text{ mk}$$

$$\text{e) Moles of solution W} = 2 \times \text{ans in a(iii)} \quad \frac{1}{2} \text{ mk}$$

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

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

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

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

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 $\frac{1}{2}$ mk	Ca ²⁺ Mg ²⁺ , Pb ²⁺ , Al ³⁺ Zn ²⁺ Absent 1mk
ii)	Burns with a golden yellow flame $\frac{1}{2}$ mk	Na ⁺ confirmed 1mk
iii)	White ppt formed $\frac{1}{2}$ mk	Cl ⁻ , SO ₄ ²⁻ , SO ₃ ²⁻ , CO ₃ ²⁻ 1mk
iv)	KMNO ₄ decolorized $\frac{1}{2}$ mk	SO ₃ ²⁻ , Confirmed 1mk
B(i)	Effervescence occurs $\frac{1}{2}$ mk	CO ₃ ²⁻ , SO ₃ ²⁻ 1mk
ii)	Yellow ppt formed $\frac{1}{2}$ mk	Pb ²⁺ confirmed 1mk

ii) Solid R

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