**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**
1. i) Average volume / final accuracy 1(tied to school value)

NB theoretically expected value = 15.0 cm3

ii) $\frac{1M x 75 cm3 }{250 cm3}$ **½ mk**

 = 0.3M **½ mk**

1. $\frac{Ans in \left(b\right)above X ans in \left(a\right)above½ mk}{1000}$= ans **½ mk**
2. 2MOH(aq) + H2SO4 (aq) M2SO4 (aq) + H2O(l) **1mk**
3. Mole ratio = 2:1 **½ mk**
4. Moles of solution W = 2 x ans in a(iii) **½ mk**
5. $\frac{ans in b\left(i\right)x 1000½ mk}{25}$ = ans **½mk**
6. $\frac{ans in \left(i\right)x 600}{25}$**½ mk** = ans**½ mk**
7. $\frac{8.7 }{ans in b (iii)}$**½ mk**= RFM OF MOH**½ mk**
8. RAM of metal M = RFM -(16+1) **½ mk**= ans**½ mk**

**QUESTION 2**

**TABLE 2**

* complete table CT**1mk**
* decimal point D **1mk**
* trend (increasing time )**1mk**
1. 1/t row completed **1mk**
2. **Graph**
3. Plotting 1**mk**
4. Scale 1**mk**

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

1. Correctly read value from the graph 1**mk**
2. Correct reciprocal of value read from the graph 1**mk**
3. Rate at reaction increase with increase in concentration of the sodium thiosulphate because increase in concentration increases number of successfulcollisions

Question 3

1. **Solid Q**

|  |  |  |
| --- | --- | --- |
|  | **Observation** | **inferences** |
|  | No white ppt formed **½ mk** | Ca 2+ Mg2+, Pb2+, Al3+ Zn2+ Absent **1mk** |
|  | Burns with a golden yellow flame **½ mk** | Na+ confirmed **1mk** |
|  | White ppt formed **½ mk** | Cl-, SO42-, SO32-,CO32-**1mk** |
|  | KMNO4 decolorized**½ mk** | SO32-, Confirmed**1mk** |
| B(i) | Effervescence occurs **½ mk** | CO32-, SO32-**1mk** |
| ii) | Yellow ppt formed**½ m**k | Pb2+ confirmed**1mk** |

1. **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 m**k | Polar substance**½ mk** |
| ii) | KMNO4 decolorized**½ mk** | ROH, =C = C =, = C = C =**1mk** |
| ii) | Effervescence**½ mk** | H+ or RCOOH**1mk** |