

Term 2 - 2022
FORM 4
CHEMISTRY PAPER 3 (233/3)
MARKING SCHEME

Question		Answer	Marks
1.	Table	Trend: Temperature increases. Complete Table: All time values indicated. Decimal Place: Time values should be either 1d.p or whole numbers used consistently.	1 mark 1 mark 1 mark
	(a)	Scale: Curve: Plotting:	1 mark 1 mark 1 mark
	(b) (i)	From the graph Answer	$\frac{1}{2}$ mark $\frac{1}{2}$ mark
	(ii)	$15 - 7 = 8\text{cm}^3$	1 mark
	(c)	Should be steeper, below the plotted line and does not touch the plotted lines.	1 mark
	(d)	Increase in volume increases the rate of reaction. This is because increase in the volume increases the corresponding concentration/increases the number of reacting particles increasing the number of effective collisions hence increase in the rate of reaction.	2 marks
Total			11 marks
2.	(a)	Complete table: Decimal place: Principle of averaging: Accuracy: 8.0cm^3 Final accuracy:	1 mark $\frac{1}{2}$ mark 1 mark 1 mark $\frac{1}{2}$ mark
	(b)		
	(c) (i)	$\frac{0.05\text{moles} \times \text{Av. Vol}}{1000\text{cm}^3}$	1 mark
	(ii)	$\frac{\text{Ans (c)(i)} \times 5}{2}$	1 mark
	(iii)	$\frac{\text{Ans (c)(ii)} \times 1000}{25}$	1 mark
	(iv)	$(5 / \text{Ans (c)(iii)}) - 125$	1 mark 1 mark
Total			09 marks

3.	(a) (i)	Observations	Inference	1 mark	
		A colorless liquid forms on the cooler parts of the test tube.	Hydrated salt / compound present		
					1 mark
	(ii)	Observations	Inference	1 mark	
		A white residue and a colorless filtrate.	A mixture of an insoluble and soluble salt. Absence of Cu^{2+} , Fe^{2+} , Fe^{3+}		
				1 mark	
	I	Observations	Inference	1 mark	
		The colorless solution changes to pink.	OH^- , HCO_3^- , CO_3^{2-} present		
				1 mark	
	II	Observations	Inference	1 mark	
		No effervescence.	OH^- present		
		White precipitate.	Ba^{2+} , Pb^{2+} , Ca^{2+} present		
				1 mark	
	III	Observations	Inference	1 mark	
No yellow precipitate.		Pb^{2+} absent Ba^{2+} , Ca^{2+} present			
			1 mark		
IV	Observations	Inference	1 mark		
	No white precipitate.	Ca^{2+} present			
			1 mark		
(b) (i)	Observations	Inference	1 mark		
	Solid melts and burns with a yellow sooty flame.	$\begin{matrix} \text{-C=} & \text{C-} \\ & \end{matrix}$, $\text{-C}\equiv\text{C-}$ present			
			1 mark		

	(ii)	Observations	Inference	1 mark
		Solid dissolves to form a colorless solution.	Polar organic compound present	1 mark
	I	Observations	Inference	1 mark
		Effervescence	RCOOH present	1 mark
	II	Observations	Inference	1 mark
		Orange color of acidified potassium dichromate (VI) persist.	ROH absent	1 mark
Total				20 marks
				40 marks