5.4.3 Chemistry Practical Paper 3 (233/3)

1. Table 1

	I	II	III
Final burette reading	17.45	32.90	36.05
Initial burette reading	2.10	17.45	20.60
Volume of solution B used (cm^3)	15.35	15.45	15.45

(4 marks)

(a) - (i) Average volume

_ 15.35+15.45+ 15.45

= 15.42cm^3 (1 mark)

(ii) Moles of sodium thiosulphate used

_ 0.05x15.42
1000 7.71 x 10'4 (y_2)

moles **(A)** (1 mark)

(b) (i) Number of moles of A in 25 .Ocm^3

mole ratio A : $Na_2S_2O_3$. $5H_2O$ **1 : 6**

7.71 x 10^{-4}/6 = 1.28 x 10'4 moles (ii) Concentration of

solution A in mol dm^3 (1 mark)

1.28 x 10^{-4} moles in 25cm^3
? moles in 1000cm^3

1.28 x 10 ^{4}x 1000/25 (1)
5.12 x 10^{-3} moles/dm^3 (1)

(2 marks)

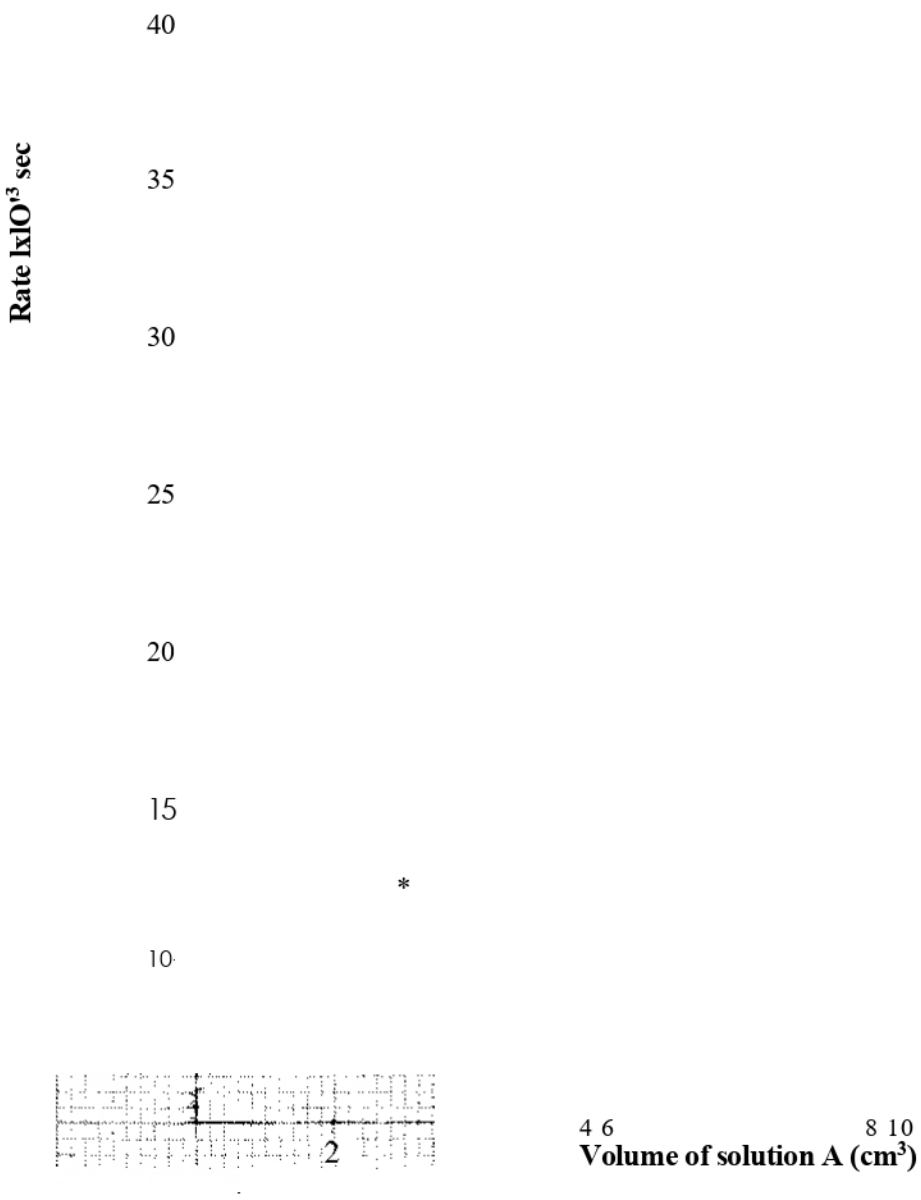
Table 2

Test tube number	*1*	2	3	4	5	6
Volume of distilled water (cm^3)	*0*	2	3	5	6	7
Volume of solution A (cm^3)	10	8	7	5	4	3
Time (s)	22.5	28.0	32.0	50.0	57.5	85.0
Rate = Y_{Time} (s^{-1})	0.044	0.036	0.031	0.020	0.017	0.012

(1) (1) (1) (1) (1) (1)

(6 marks)

(a) Graph of Rate



(b) Time taken for $4cm^3$ of distilled water.

$6cm^3$ of solution A is added, from the graph = $25x10^3$ sec^1 (1)

= 40 seconds (1) (2 marks)

2. Observation

(a) (i)	(I)	A white precipitate (1)	Presence of Pb^{2+}, Ba^{2+} or Ca^{2+} (1) *1 mark for all the 3 ions '/2 mark for 2 correct ions 0 mark for one or none*
	(II)	No white precipitate (1)	Absence of Pb^{2+} (1)
	(III)	No white precipitate (1)	$S0_4^{2'}$, $S0_3^{2-}$, $C0_3^{2}$ ions absent (1) *1 mark all the 3* *'/2 mark for 2 ions correct* *0 mark for one or none*
	(IV)	No white precipitate (1)	Cl ions absent (1)
(ii)		Effervescence ;/2/Bubbles/Fizzing Colourless gas produced /2 Turns red litmus blue /2 Blue litmus remained blue x/2 (2 marks)	NO"3 present (1)
			(Total 11 marks)

3,

	Observations	Inferences
(a)	No effervescence (1)	Compound/solution F **not acidic** H^+ or R-COOH absent. (1)
(b) (i)	Burns with a sooty/smoky % luminous/yellow flame ><	Unsaturated cpd (1) " / C = C ^ Long chain hydrocarbon or -C = C-
(ii)	Some white suspension/solid remains undissolved %	Compound slightly/partially soluble in water
(c) (i)	Effervescence % Colourless gas produced /	Mixture is acidic (1) RCOOH present
(ii)	Not decolourized (1)	\ / C=C / \ absent (1) —C=C— absent

(Total 9 marks)