CAMBRIDGE INTERNATIONAL EXAMINATIONS Cambridge Ordinary Level



MARK SCHEME for the October/November 2014 series

5070 CHEMISTRY

5070/31

Paper 3 (Practical Test), maximum raw mark 40

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Ρ	age 2			Sche		Syllabus	Paper		
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1	(a)	Titration							
		Accuracy	8 marks						
		2 marks for a va	titres give: lue within 0.2 cm ³ d lue within 0.3 cm ³ d ue within 0.4 cm ³ d	of sup	ervisor				
		Concordance 3 marks							
		2 marks if all the	e ticked values are e ticked values are ticked values are v	within	0.3 cm ³				
		<u>Average</u>	1 mark						
		Give 1 mark if th ticked values.	e candidate calcul	ates a	correct average (error not g	reater than 0.	05) of all		
							[12]		
		culations suming a 25.0 cm ³	³ pipette and a titre	of 25	.2 cm ³ .				
	(b)	(b) concentration of iodine in P							
		$= \frac{25.2 \times 0.1}{2 \times 25} \ ($	1)						
		= 0.0504 (1)					[2]		
	(c)	mole of oxygen							
		$=$ $\frac{0.0504}{2}$							
		= 0.0252 (1)					[1]		
	(d)	percentage by v	olume of oxygen						
		volume of oxyge	en	=	$0.0252\times24dm^3$				
				=	0.605 dm ³ (1)				
		percentage by v	olume of oxygen	=	$\frac{0.605 \times 100}{3}$				
				=	20.2 (1)		[2]		

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2 R is sodium hydroxide; S is copper(II) chloride

Test			Notes
General points For ppt Allow solid, suspension, powder.			
For gases Name of gas requires test to be at lea Effervesces = bubbles = gas vigorous			
Solutions Colourless not equivalent to clear, cle	ear not e	quivale	ent to colourless.
Test 1			
(a) turns red	(1)		
(b) turns yellow	(1)	[2]	accept orange
Test 2			
white ppt	(1)		
ppt disappears in excess of R	(1)		
colourless solution	(1)	[3]	
Test 3			
effervescence	(1)		
gas pops with a lighted splint	(1)		
hydrogen	(1)		to score hydrogen mark there must be some indication of a test e.g. 'popped with a splint', 'tested with a burning splint'
all or some of metal disappears	(1)	[4]	
Test 4			
(a) white ppt	(1)		
(b) insoluble in acid	(1)	[2]	

ige 4	Mark – Cambridge O Level	SyllabusPaprember 2014507031		
T 4 /				
Test 5)			
blue p	opt	(1)		
ppt sc	oluble in excess ammonia	(1)		
deep blue solution		(1)	[3]	
Test 6	3			
efferv	effervescence			
gas relights a glowing splint		(1)		
oxygen liquid turns black-brown		(1)		to score oxygen mark there must be some indication of a test e.g. 'tested
		(1)		with a glowing splint', 'relights a splint'
ppt formed		(1)		
on standing deep blue solution formed		(1)	[6]	

Conclusions

Anion in **R** is OH⁻ (test 1 colour change of indicator or test 2 white ppt soluble in excess) (1)

Cation in **S** is Cu^{2+} (test 5 blue ppt or deep blue solution in excess) (1)

Anion in **S** is Cl^{-} (test 4 white ppt which does not dissolve in nitric acid) (1)

Note: if correct name of any ion(s) given instead of formula, deduct one mark (therefore max 2 marks for conclusions.)

[3]

[Total: 23]