MARK SCHEME for the October/November 2015 series

5070 CHEMISTRY

5070/31

Paper 3 (Practical Test), maximum raw mark 40

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Page 2	Mark Scheme	Syllabus	Paper	
- J -	Cambridge O Level – October/November 2015	5070	31	
(a) ⊺	itration			
4	Accuracy 8 marks			
F 2 1	For the two best titres give: marks for a value within 0.2 cm ³ of supervisor marks for a value within 0.3 cm ³ of supervisor mark for a value within 0.4 cm ³ of supervisor			
<u>(</u>	Concordance 3 marks			
	Bive: marks if all the ticked values are within 0.2 cm ³ marks if all the ticked values are within 0.3 cm ³ mark if all the ticked values are within 0.4 cm			
<u> </u>	verage 1 mark			
(Give 1 mark if the candidate calculates a correct average (error not gre	ater than 0.	05)	
Ĺ			[12]	
A	ming a 25 0 cm ³ pinette and a titra of 20 2 cm ³			
Assu	Thing a 25.0 cm pipelle and a life of 20.2 cm .			
(a)	noies of sodium hydroxide in 25 cm² of Q			
=	$\frac{25 \times 0.336}{1000}$			
=	0.0084		[1]	
(c) r	noles of hydrochloric acid reacting with 25cm^3 of Q			
=	0.0084		[1]	
(d) r	noles of hydrochloric acid in 250 cm ³ of P			
=	$\frac{0.0084 \times 250}{20.2}$			
=	0.104		[1]	
(e) r	noles of hydrochloric acid in 250 cm ³ 0.500 mol/dm ³ acid			
=	$\frac{250\times0.5}{1000}$			
=	0.125		[1]	

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Page 3	Mark Scheme			Syllabus	Paper		
	Cambridge O Level – October/November 2015			5070	31		
(f)	(f) moles of hydrochloric acid that reacted with calcium carbonate						
	= 0.125 - 0.104						
	= 0.021				[1]		
(g)	mass of calcium carbonate in one tablet	=	$\frac{0.021\times100}{2\times2}$				
		=	0.525g				

If the answer from **(f)** undergoes **any one** of the following processes, score 1 mark If answer from **(f)** undergoes **all** of the following processes, score 2 marks

- (f)/2 mole of calcium carbonate
- (f) \times 100 mass of calcium carbonate
- (f)/2 moles in 1 tablet

[2]

[Total: 19]



Page 4	Mark Scheme		Paper
	Cambridge O Level – October/November 2015	5070	31

2 R is dilute hydrochloric acid; S is manganese(IV) oxide

Test		Notes		
General points For precipitate/ppt Allow solid, suspension, powder				
For gases Name of gas requires test to be at least partially correct. Effervesces = bubbles = gas vigorously evolved but not gas evolved.				
Solutions Colourless not equivalent to clear, clear not equivalent to colourless.				
Solution R				
Test 1				
white ppt	(1)			
Test 2				
insoluble in acid	(1)			
Test 3				
ppt dissolves	(1)			
colourless solution	(1)			
Test 4				
(a) effervescence	(1)			
turns limewater milky	(1)			
carbon dioxide	(1)	To score carbon dioxide mark there must be		
solid disappears	(1)	lime water'		
(b) white pot	(4)			
(b) white ppt	(1)			
ppt dissolves	(1)			
Test 5				
(a) white ppt	(1)			
(b) ppt disappears	(1)			



Page	÷5	Mark Scheme				Paper
		Cambridge O Level – October/November 2015			5070	31
Tes	st 6					
(a)	bu	bbles	(1)			
	rel	ights a glowing splint	(1)			
	ox	ygen	(1)	to score oxygen mark there indication of a test e.g. 'tes glowing splint', 'relights a (e must be so ted with a burning) spl	ome int'
Tes	st 7					
(a)	ye	low/brown filtrate	(1)			
(b)	liqu	uid turns blue/black	(1)			
Test 8						
litm	us t	urns white/bleached	(1)			
chlo	orine	9	(1)	to score chlorine mark ther indication of the gas e.g. 's	e must be s mell of chlo	some rine'

Any 19 out of 20 points to score.

R contains hydrochloric acid/hydrogen chloride/HCl (dependent on white ppt in test 1; insoluble in acid in test 2 or chlorine identified in test 8; and bubbling/gas in test 4) (1)

S is an oxidising agent/oxidant (dependent on indication of iodine in test **7** or chlorine in test **8**) (1)

[2]

[19]

[Total: 21]

