UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Ordinary Level

MARK SCHEME for the October/November 2009 question paper for the guidance of teachers

5070 CHEMISTRY

5070/04

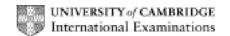
Paper 4 (Alternative to Practical), maximum raw mark 60

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	Page 2		Mark Scheme: Teachers' version	Syllabus	Paper
			GCE O LEVEL – October/November 2009	5070	04
1	(a)		hydrate/absorb water to mention ammonia or product		[1]
	(b)	X sugges	s dense or lighter than air (1), soluble in water (1) sted but property(ies) is/are correct (1) or (2) on X and appropriate properties. Z scores 0.		[3]
	(c)	(i) phos	sphorus or P (1) (not phosphate)		[1]
		amn	m (1) aq. NaOH (1) ammonia or gas + test (1) nonia + test on its own 0 marks of HC <i>I</i> + warm + NH ₃ /test only scores NH ₃ mark		[3]
		(iii) r.m.r 1kg	m. of (NH ₄) ₃ PO ₄ = 149 (1) contains 281.9 (282)g N. (1) (not 280 or 281) for 149 somewhere in working		
			ect answer gets 2 (e.c.f from wrong M_r)		[2]
					[Total: 10]
2	(a)	1.89g (1	.90 penalised only if used in (d))		[1]
	(b)	white or (yellow solid or powder (both colour and solid)		[1]
	(c)	toxic (or	any word meaning toxic) gas/NO₂ evolved		[1]
	(d)	0.01 mol	es (1) incorrect answer to (d) may be used e.c.f in (e)		[1]
	(e)	e.c.f exa			
			ver in dm ³ but shown as cm ³ . incorrect but 60 based on 1 st volume.		
			any other first reasonable incorrect volume. n all cases		[2]
	(f)	nitric acid	d		[1]
					[Total: 7]
3	(d)				[Total: 1]
4	(c)				[Total: 1]
5	(d)				[Total: 1]

	Pa	ge 3	Mark Scheme: Teachers' Version	Syllabus	Paper
			GCE O LEVEL – October/November 2009	5070	04
6	(c)				[Total: 1]
7	(b)				[Total: 1]
8	(a)	1.7(0)g			[1]
	(b)		lioxide (1) lime water turns milky/cloudy/white ppt. (1) y or foggy) no other gas nor test counts		[2]
	(c)	orange, ı	red, pink to yellow (1) any combination of dark to light.		[1]
	(d)		48.6 32.4 23.3 6.9 25.3 25.5 lue = 25.4 cm ³ (1) or each row or column (3) (mark rows <u>or</u> columns)		[4]
	(e)	0.00254			[1]
	(f)	0.00254			[1]
	(g)	0.0254			[1]
	(h)	0.05			[1]
	(i)	0.0246			[1]
	(j)	0.0123*			[1]
	(k)	any valu	138(.2) (1), r.a.m. M = 39 (1) e between 24 and 50 is acceptable for potassium as aroughout question)	nswer to (I).	[2]
	(I)	potassiu	m (1) reason based on ion charge/position in Group 1 i	in Periodic Table	(1). [2]
		1 st mark if answe acceptate alternative A_r is			5. Lithium is
		• It is	an alkali metal or in Group 1 in the Periodic Table		[Total: 10]

Mark Scheme: Teachers' version

Syllabus

Paper

[Total: 18]

Page 3

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	Pa	ge 4	Mark Scheme: Teachers' version	Syllabus	Paper				
			GCE O LEVEL – October/November 2009	5070	04				
9	(a)	(a) C contains a transition metal ion/transition metal/d-block metal (1) not it is a transition metal.							
	(b)	and (c) (red brown precipitate) insoluble in excess (both) (1)							
	(b)	and (c) C contains Fe ³⁺ ions (both) (1)							
	(d)	(d) aq. NaOH (1) aluminium foil (1) and heat (1) (brown ring test) if either NaOH or Al not mentioned only heat scores if neither NaOH nor Al mentioned heat does not score gas evolved or ammonia + test (1)							
		Fe(N	IO ₃) ₃ (1) e.c.f for Fe ²⁺ concluded in (b) and (c)		[5]				
					[Total: 8]				
10	(a)	(i) (0.25 g (1)						
		(ii)	35.2, 26.3. (1) 8.9 °C (1)		[3]				
	(b)	(i) (60		[1]				
		(ii) (0.0042 (1) allow 0.00416, 0.00417 but <u>not</u> 0.0041		[1]				
	*	(iii) -		[1]					
	(c)	(c) exothermic(d) heat loss/no insulation/incomplete combustion of the alcohol/evaporation of alcoho any 2							
	(d)								
	(e)		oints plotted correctly (1) ts connected by a smooth curve (1)		[2]				
	(f)		g (1) (read candidates curve) - half small square but accept 0.585 etc		[1]				
			0.004166 = -1794.3						
		0.0	0.0041 = -1823		[Total: 12]				
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