UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

General Certificate of Education O Level

MARK SCHEME for the November 2004 question paper

5070 CHEMISTRY

5070/04

Paper 4 (Alternative to Practical), maximum mark 60

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

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NOVEMBER 2004

GCE O Level

MARK SCHEME

MAXIMUM MARK: 60

SYLLABUS/COMPONENT: 5070/04

CHEMISTRY Paper 4 (Alternative to Practical)



	Page 1	Mark Scheme O LEVEL – NOVEMBER 2004	Syllabus 5070	Paper 4						
1	24(1) cm			[1]						
2	parately for	ethanol or								
	(b) yeast (1)									
(c) when the thermometer showed an increase, or temperature rises above to boiling point of ethanol (1) <u>not</u> no more distillate produced.										
										(d) (i) or
		hyl ethanoate (1), $CH_3COOC_2H_5$ (1) no e.c.f exe $_4H_8O_2$	cept for an	ester. Not						
	(ii) es	sters (1) e.c.f allowed here from (e) (i)								
	(c	arboxylic acids not organic acids if appropriate e.c	e.f.)	[10]						
3	(a) chron	natography (1)								
	(b) line drawn below base line (1) (must be straight, using a ruler, and parallel with the base line)									
(c) ink consists of different colours, dyes, components (1) which v separated (1)										
	(d) X contains S and U. (1)									
	Y con	tains R, S, and T. (1) (all in each case for 1 mark)								
	(e) distar	nce travelled by t = 4 cm								
	distar	nce travelled by solvent front = 5.5 cm (both 1)								
	(No o 5.5 cr	ther values are acceptable as they are drawn exac n.)	ctly at 4.0 ar	nd						
	R _f = 4	/5.5 = 0.72 or 0.73 (1) (to two d.p.) (not 0.7)								
	Acce	ot any e.c.f. for R _f even if >1		[8]						
Qı	uestion 4 t	o 7 (a), (b), (c). 1 mark each		[4]						
8	(a) 1.55 g (1)									
	(b) to allo	w gas to escape (1) or to prevent pressure build נ	ıp.							
	(c) red o	pink or orange to yellow (1)								

Page 2			Mark Scheme					Syllabus	Paper	
	Fage 2					01	EVEL – NOVEMBER 2004	5070	4	
	(d)	0.0 24.1	1 2	1.1 7.6 3.5	2	8.5 4.8 3.7	1 mark for correct row or column (3) 1) cm ³			
	(e)	0.00236 (1)					(i) 0.0264 (1)			
	(f)	0.00236 (1)					(j) 0.0132 (1)			
	(g)	0.0236 (1)					(k) (i) 100 g (1)			
	(h)	0.05 (1)					(ii) 1.32 g (1)			
							(iii) 85.2% (1)		[16]	
9	1	colourless solution (1) (no substances or solids.)								
	2	(a) white ppt. (1)								
		(b) soluble in excess (1)								
	3	(a) wh	ite	ppt.	(1)					
		(b) insoluble in excess (1)								

4 Al foil (1), aq NaOH and heat (1), NH_3 or

gas evolved (1), test for NH_3 (1).

Al foil (1) followed by incorrect chemistry loses the second mark <u>and</u> the ammonia or gas evolved mark. The test for ammonia may be scored if correct.

or 'Brown Ring' test:

aq. $FeSO_4$ (1), conc. H_2SO_4 (1), aq. and conc. (1)

brown ring (1)

Formula $Al(NO_3)_3(1)$

- **10 (a)** hydrogen (1)
 - (b) 18, 40, 54, 60 (2) all correct (one error 1 mark)
 - (c) all points, recorded in the table, plotted correctly (1) two smooth curves (1), any attempt to draw reasonable curves (no straight lines between points) both passing through zero (1)

[10]

Page 3	Mark Scheme	Syllabus	Paper
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- **(d) (i)** 48 (1) cm³
 - (ii) 2.6 (1) minutes (in both cases read candidates graph and insist **to** half a small square)
- (e) (i) powdered (1)

25 cm³ of 0.200 mol/dm³ or equivalent (2 or 0)

or double the concentration and halve the volume (2)

or increase the concentration and reduce the volume to give the same number of moles (2)

(increase concentration and reduce volume worth 1) [11]