

## November 2003

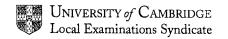
## INTERNATIONAL GCSE

## MARK SCHEME

**MAXIMUM MARK: 60** 

SYLLABUS/COMPONENT: 0620/06

CHEMISTRY
Alternative to Practical



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – NOVEMBER 2003	0620	6

Question Number	Question (Including any Source Details)	
1 (a)	Boxes labelled clockwise: Condenser (1) Beaker (1) Fractionating column (1)	3
(b)	↑ underneath flask (1)	1
(c)	Fractional (1) distillation (1)	2
2 (a)	Larger surface area (1) Quicker to extract colour/more colour extracted (1) not easier/faster	2
(b)	Reference to ethanol (1)	1
(c)	Reference to flammability of ethanol (1)	1
(d)	To prevent loss of solvent (1) not splash/evaporation	1
(e)	Pour off liquid (1)	1
<b>(f)</b>	Chromatography (1) Apply orange concentrate (1) to paper (1) Use of solvent (1) Description of elution (1) Result of experiment (1)  Max 5 – all marks could be obtained from a suitable diagram	5
3	Table. Times read correctly: 4s (1) 8s (1) 14s (1) 30s (1) 82s (1)	5
(a)	Points plotted correctly (3) (-1 for each incorrect) Smooth line graph (1)	4
(b)	Read from graph – should be $\simeq 48$ (1) $\underline{s}$ (1) Indication on graph (1)	2 1
(c) (i)	Experiment 1 (1)	1
(ii)	Greatest concentration/amount of bromate (1) Therefore more collisions (1)	2

Page 2	Mark Scheme	Syllabus	Paper
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	estion mber	Question (Including any Source Details)	Part Mark
	(d) (i)	Two errors: e.g. use of m cylinder inaccurate (1)/use of timer (1)/detecting when cross not visible	2
	(ii)	Improvements: e.g. use of burette (1)/use of computer data logging (1)/use of colourimeter (1) insulate repeat and average	2
4	(b) (i)	Orange/brown (1) Precipitate (1) No change in excess (1)	3
	(c)	Orange/brown precipitate (1) No change in excess (1)	2
	(f) (i)	Hydrogen (1)	1
	(ii)	Reduction/redox/displacement (1) iron (II) formed (1)	2
	(g)	Cation – ammonium (1) Anion – sulphate (1)	2
5	(a)	Sodium hydroxide (1)	1
	(b)	Ammonium sulphate (1)	1
	(c)	Bunsen burner (1)	1
	(d)	Reference to reaction (1)	1
	(e)	Gas jar wrong way up (1) Gas is less dense than air (1)	2
		Tubes in flask should be evened (1) Liquid would be transferred to gas jar (1)	2
		Also credit in (c)	
6		Weigh coal sample (1) same amount  Burn coal (1)  Pass gas or diagram to show (1)  Through acid/dichromate (1)  Use of timer (1)  Record time for colour change (1)  Repeat/compare with other samples (1)	
		Max 6	6
			Total 60