## UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

## MARK SCHEME for the May/June 2006 question paper

## 0620 CHEMISTRY

**0620/03** Paper 3, maximum raw mark 80

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do 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*.

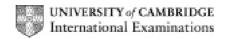
All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

• CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2006 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



		go .		IGCSE	– May/June 2006		0620	03	
1	(a)	compounds are highly coloured used as catalysts							[1] [1]
		more tha	ın one oxida					[1]	
					ee correct choices o correct choices [1				
					e correct choices [(	-			
		Five boxes ticked [0]							
	(b)	(i) perio	od 4						[1]
		(ii) 26p	and 30 <i>n</i>						[1]
	(c)	(i) limes	stone						[1]
		(ii) slag							[1]
		(iii) iron	ore						[1]
	(d)		or provide he carbon mon						[1] [1]
	<b>(2)</b>				ahinawa su fuidana a	4-			
	(e)	mild stee stainless			chinery <b>or</b> fridges e hemical plants etc.				[1] [1]
								[TOTAL	. = 12]
2	(a)	X							
		W							
		Z Y							[2]
		For most reactive X and least Y [1] <b>ONLY</b> All other responses [0]							
	(b)	magnesi	um	W					[1]
	( - /	copper		Υ					[1]
	(c)	(i) goes	s "pop" with	burning splin	t				[1]
		<b>or</b> m		r and ignited	goes pop				
		NOI	glowing sp	IIIIL					
		` '	and observa						[1]
			ersai indicat H paper goe	or goes blue es blue					
			igh pH, acce	•	mmonio				
				on gives off a cations forms	a precipitate				[1]
			litmus	acutralises a	side with an observ	able regult			
			becomes wa		cids with an observ	abie resuit,			
		(iii) Grou	up 1						[1]
		(iv) elect	trolysis <b>ID</b> molten						[1]
		CON	HOILEH						[1]
								[TOTAL	. = 10]

Mark Scheme

**Syllabus** 

Paper

Page 1

	Page	e 2		Mark Scheme	Syllabus	Paper	
			](	GCSE – May/June 2006	0620	03	
(a)	amr	nonia <sup>r</sup>	10				
(ω,			ric acid 1				
			droxide 13				
		anoic a					
		correct					
	Two	corre	ct [1]				
(b)	With strong acid bulb brighter						
			of bubbles	de fenome de estal			
	OR	corres	ponding commer	its for weak acid			
(c)			T hydrogen ion				
			ditional on protor or [2] is proton a				
	OIII	y way i	or [2] is proton a	nu ri			
(d)	(i)	CaO a	and MgO				
	(ii)	CO <sub>2</sub> a	nd SO <sub>2</sub>				
	(iii)	A <i>l</i> <sub>2</sub> O <sub>3</sub>					
	(iv)	СО					
						[TOTAI	L <b>:</b>
(a)	4 G	e atom	s around 1 Ge				
(,	Looks tetrahedral <b>or</b> stated to be						
(b)	(i)	Graph	ite has layers				
			that can move/s	•			
		or we	ak bonds betwee	n layers			
		Graph	ite has delocalise	ed/free/mobile electrons			
	(ii)	prope	rty <u>and</u> use				
		soft		lubricant <b>or</b> pencils			
		<b>OR</b> go	ood conductor	electrodes or in electric motors			
(c)	(i)	CO <sub>2</sub> a	nd SiO <sub>2</sub> or XO <sub>2</sub>				
	(ii)	CO <sub>o</sub> n	nolecular <b>or</b> simn	le molecules <b>or</b> simple covalent			
	()		nacromolecular <b>c</b>				
		2 !					

[TOTAL = 10]

		IGCSE – May/June 2006	0620	03
(a)	(i)	Burn sulphur in air (or oxygen)		
	(ii)	as a <u>bleach</u>		
	(iii)	kill bacteria/micro-organisms  NOT prevents food going bad or rotten or decaying		
(b)	(i)	decrease		
	(ii)	exothermic  COND increase temperature favours back reaction so it is endothermic, so forward reaction must be exothermic  OR any similar explanation will be awarded the mark, for explanation is not favoured by an increase in temps o it is exothermic (rather than endothermic)		
	(iii)	Low enough for good yield High enough for (economic) rate Any similar explanation will be awarded the mark <b>NOT</b> just that it is the optimum temperature		
	(iv)	bubble into (conc) sulphuric acid add water NOT consequential		
				[ТОТ]
(a)	(i)	Any bond that is broken C-H <b>or</b> O=O		
		Bond that is formed C=O <b>or</b> O-H Do not insist on double bonds		
	(ii)	More energy is released forming bonds than is used breaking bonds For just - more energy released than used [1] For - energy is released forming bonds and it is used breaking bonds [1]		
(b)	(i)	U 235		
	(ii)	treatment of cancer, autoradiographs, tracer, sterilising foo surgical equipment, measuring thickness, checking welds	d,	
(c)	` ,		d,	

Mark Scheme

**Syllabus** 

Paper

Page 3

[1]
[1] [1]
[2]
= 15]
[1]
[2]
[1]
[1]
[2]
[1]
[1]
[1]
[1]
[1]
[1]
= 13]
= 80]

Mark Scheme

**Syllabus** 

Paper

Page 4