www. tremepaders.com

## **UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**International General Certificate of Secondary Education** 

## MARK SCHEME for the October/November 2006 question paper

## 0620 CHEMISTRY

0620/02

Paper 2 (Core Theory), maximum raw mark 80

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 instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

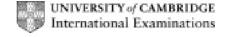
All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

The grade thresholds for various grades are published in the report on the examination for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses.

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

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



Page 2			Mark Scheme IGCSE - OCT/NOV 2006		Paper 02 [1]
1 (a)	(a) C				
(b)	(i)	2;2	? (both needed)		[1]
	(ii)	floa dis AL	rom: ats on water/on surface; moves (on surface); forms a ball/r appears/dissolves LOW: spits/explodes (at end of reaction) DT: reacts violently	nelts;	[2]
	(iii)		e; ution is alkaline/sodium hydroxide/ (NaOH) is alkaline LOW: (solution) is basic/is a base		[2]
	(iv)	2 <sup>nd</sup>	and 3 <sup>rd</sup> boxes ticked (1 each)		[2]
(c)	faste	faster/more reactive OWTTE (than potassium)  (i) atoms of same element/same number of protons with different number of neutrons/different mass numbers  NOT: elements/compounds with different mass numbers			
(d)	(i)				
	(ii)	11			[1]
	(iii)	19			[1]
	(iv)		ergy/nuclear fuel/nuclear power plants T: nuclear weapons/unqualified fuel		[1]
					[Total: 13]
2 (a)	CO <sub>2</sub>				[1]
(b)	(i)	me	luced; stal; dothermic		[3]
	(ii)	car	bon		[1]
	(iii)		ewater; ns cloudy/milky/goes white		[2]
(c)	light	add(aqueous) sodium hydroxide; light blue ppt; insoluble in excess OR			
	light	d aqueous ammonia; ht blue ppt; luble in excess/giving dark blue solution			
(d)	(i)	cor	rect diagram (2,4)		[1]
	(ii)	(pe	eriod) 2		[1]
(e)	(i)	alk	ane(s)		[1]
	(ii)	eth	ane		[1]
					[Total: 14]

	Page 3			Mark Scheme IGCSE - OCT/NOV 2006	Syllabus 0620	Paper 02	
3	(a)	ring around OH group only				[1]	
	(b)	unsaturated because it contains (C=C) double bonds (both points needed)					
	(c)	carb		[2]			
	(d)	(i)		[1]			
		(ii)	10	0°C (unit needed)		[1]	
		(iii)	it is	s above the water/floats on water		[1]	
	(e)	(i)	on	the origin line and directly below the spots		[1]	
		(ii)	4			[1]	
		(iii)	e origin line and	[1]			
		(iv)		ndom movement of molecules/molecules move anywhere DT: molecules move from higher to lower concentration		[1]	
		(v)		rrect formula for ethanol showing all atoms and bonds LOW: OH group shown without bond		[1]	
		(vi)	2 <sup>nd</sup>	and 4 <sup>th</sup> boxes ticked		[1]	
					Γ	Total: 13]	
4	(a)	substance containing different atoms bonded/joined etc				[1]	
	(b)	treating acid soils/making plaster/any other specific reasonable use					
		NaC <i>l</i> ; CaCO <sub>3</sub> ; in blast furnace/for making iron/making lime/any other <u>specific</u> reasonable ammonium nitrate; N = 2, H = 4, O = 3;					
	(c)	80				[1]	
						[Total: 8]	
5	(a)	it is (very) reactive/near top of reactivity series				[1]	
	(b)	gives off bubbles rapidly; dissolves quickly; for cutting/welding/for oxyacetylene blow torch				[2]	
	(c)					[1]	
	(d)	(i)	2H	<sub>2</sub> O		[1]	
		(ii)	ne	utralization		[1]	
	(e)	(i)	bui	rette		[1]	
		(ii)	рΗ	orts alkaline/stated alkaline pH; decreases/to stated lower pH DT: becomes more acid		[2]	
				© LICLES 2006		[Total: 9]	

Page 4				Mark Scheme	Syllabus	Paper	
				IGCSE - OCT/NOV 2006	0620	02	
6	(a)	PbB	2			[1]	
	(b)	giant; ionic				[2]	
	(c)	(i)	В			[1]	
		(ii)	pla	tinum		[1]	
		(iii)		s can move/so it can conduct electricity OT: ions are free		[1]	
		(iv)	bro lea	omine; ad		[2]	
	(d)	(i) Br <sub>2</sub>				[1]	
		(ii)	(ii) orange/brown/red-brown: NOT yellow				
		(iii) bromine is more reactive than iodine/bromine is higher in the activity series th iodine (must be comparison)					
				LOW: ideas about stronger bonding in NaBr		[1]	
	(e)	(i)	cor	rrect formula showing all atoms and bonds		[1]	
		(ii)	D			[1]	
					רן	Гotal: 13]	
7	(a)	reas	+ <b>D</b> (both needed); ason: high melting point/coloured chlorides/coloured compounds OT: properties of transition elements not shown in the table			[2]	
	(b)	iron sulphate				[1]	
	(c)	idea of measuring volume of gas/amount of gas;					
			in measuring cylinder/tube; idea of measuring (volume of gas) with time/time intervals;				
	(d)	(i)		ubling concentration doubles rate/rate proportional to concereasing concentration increases rate/speed = 1	entration = 2	[2]	
		(ii)	slo	wer/decreases		[1]	
		(iii)	slo	wer/decreases		[1]	
		[Tot					
		[TOTAL					