

JUNE 2002

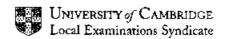
INTERNATIONAL GCSE

MARK SCHEME

MAXIMUMMARK: 80

SYLLABUS/COMPONENT: 0620/3

CHEMISTRY (EXTENDED)



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- When the name of a chemical is demanded by the question, a correct formula
 is usually acceptable. When the formula is asked for, the name is not acceptable.
- When a word equation is required a correct symbol equation is usually acceptable.
 If an equation is requested then a word equation is not usually acceptable.
- An incorrectly written symbol, e.g.NA or CL, should be penalised once in a question.

In the mark scheme if a word or phrase is underlined it(or an equivalent) is required for the award of the mark.

(.....) is used to denote material that is not specifically required.

(a) (i) Any metal above aluminium Na. K. Ca. Mg etc.

1

OR designates alternative and independent ways of gaining the marks for the question.

or indicates different ways of gaining the same mark.

COND indicates that the award of this mark is conditional upon a previous mark being gained.

[1]

- Unusual responses which include correct Chemistry that answers the question should always be rewarded-even if they are not mentioned in the marking scheme.
- All the candidate's work must show evidence of being marked by the examiner.

	(a)	(1)	Any metat above attribution Na, K, Ca, Mg etc		[1]
		(ü)	If (i) is correct then word equation		[1]
		(iii)	conseq to (i) symbol equation If not balanced ONLY [1]		[2]
	(b)	(i)	Al ³⁺ + 3e ==> Al For Al ³⁺ ONLY [1] anywhere in equation		[2]
		(ii)	bauxite		[1]
		(iii)	molten or liquid or fused or homogeneous cryolite		[1] [1]
		(iv)	oxygen from oxide or formed at anode or implied it is formed carbon (anode) to form carbon dioxide	[1]	[1]
	(c)	(i)	packaging of food or window frames or roofs accept "cans" NOT aircraft cars etc		[1]
		(ii)	low density light alloys for aircraft or electrical cables good conductor or foil malleable or cooling utensils		[1] [1]

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		good conductor of heat If use repeated with different properties then 2/3	
(d) ((i)	protected by oxide layer or temperature/energy heat low	[1]
((ii)	removal of oxide layer temperature/energy/heat increases NB comments must relate to this reaction	[1] [1]
TOTAL =	17		
2 (a) ((i)	limestone or quicklime or calcium oxide or marble or chalk or calcium carbonate NOT just lime	[1]
. ((ii)	Ca ²⁺ and SO ₄ ²⁻	[2]
((iii)	blue precipitate accept light blue precipitate then blue solution dissolves or solution deep blue	[1] [1] [1]
(b)		light chlorophyll water and carbon dioxide react to form (glucose) and oxygen or equation [2]	[4]
(c) ((i)	provides enzymes or named enzyme or eatalyst or anacrespiration of yeast cells	erobic [1]
((ii)	oxidises alcohol to ethanoic acid or acetic acid or vinegar accept anaerobic [1] and respiration [1] if not credited	[1] [1] in (i)
((iii)	above "kills" or denatures yeast lower slows reaction most efficient/best/suitable temperature for enzymes any TWO NOT repeat optimum	[2]
(d)		butanoic acid propanol names only	[1] [1]

Paper

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TOTAL = 17

3	(a)	(i)	amide or peptide	amino acids	[2]
			ester	carboxylic acid or salts or glycerol or soap or fatty acids	[2]
				sugar or glucose or named sugar	[1]
		(ü)	nylon(s) or p polyesters or	olyamide r terylene or dacron	[1] [1]
		(iii)	remains brov	ter or in organic solvent) wn/orange red/orange/yellow	[1] [1]
			NOT stays to goes colourle OR potassiu		[1]
	(b)	(i)	catalytic con	verter	[1]
		(ü)		or insufficient oxygen	[1] [1]
		(iii)	or reduced or no unbur or only form		
			or water is r	not a pollutant	[1]
	(c)		(steam) and heat or catal and (hydrog	lyst or details of chemistry - forms carb	[1] on monoxide/dioxide [1]
			OR electrol	•	[1]
			brine or acid or hydroger	dified water n forms at cathode	[1]
			OR carbon/heat or deta (hydrogen)	coke tils of chemistry – forms carbon monoxi	[1] ide/dioxide and [1]

Page 4	Mark Scheme	Syllabus	Paper
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TOTAL = 16

4	(a)	(i)	fluorine	[1]
		(ii)	iodine and astatine	[1]
	(b)	(i)	Cl ₂ + 2Br ==> 2Cl + Br ₂ not balanced ONLY [1]	[2]
		(ii)	because it has lost electron(s)(Must be electron transfer)	[1]
			Not conseq because it took electrons from the bromide or chlorine gained electrons or because chlorine was reduced	[1]
		(iii)	Iodide or metals or iron(II) etc not iodine accept iodine ions or alkene	[1]
	(c)		P and 3Br	[1]
			COND upon first mark being awarded 3bp and Inbp around phosphorus	[1]
			8e around each bromine if charges then first mark only	[1]
	(d)	(i)	balanced	[1]
		(ii)	pH phosphorous acid has higher pH	[1] [1]
			OR electrical conductivity phosphorous acid poorer	[1] [1]
			OR reaction with named metal or carbonate hydrobromic faster	[1] [1]
			OR pH indicator correct colours	[1] [1]
	(e)	(i)	proton or hydrogen <u>ion</u>	[1]
		(ii)	base or proton acceptor or electron pair donor	[1]

TOTAL = 15