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CAMBRIDGE INTERNATIONS

**NOVEMBER 2002** 

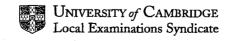
## INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK : 60

SYLLABUS/COMPONENT: 0652/2

PHYSICAL SCIENCE (CORE)



Syllab 0652 Mark Scheme Page 1 **IGCSE Examinations – November 2002** 

1	(a)	Approximately correct (by eye) to mirror 2	1	
		Approximately correct (by eye) from mirror 2	1	2
		(For both marks a ruler must be used)		
	(b)	i correctly marked	1	1
	-			
	(c)	angle of incidence = angle of reflection (accept 'same')	1	1
	<b>(</b> - <b>/</b>			
	(d)	suitable suggestion	1	1
	(**)	(e.g. looking over heads at golf match, submarine, etc.)		
			Tota	ı 5
2	(a) (i)	decreases (not just less reactive* but accept longer time)	1	
	(ii)	decreases (not just less reactive* but accept longer time)	1	
	(iii)	increases (not just more reactive* but accept shorter time)	· 1	3
	<b>(7</b>	*but penalise once only		
	(b)	Test: use of limewater	1	
	()	Result: goes cloudy / milky	+1	2
		,		
			Tota	ıl 5.
3	(a) (i)	acceleration, building up / increasing speed	1	
_	(-)	constant / uniform	+1	
	(ii)	constant speed / accept no acceleration	1	3
	(,			
	(b)	Recognition that distance travelled = area under graph		
		OR distance travelled = ½ max speed x time	1	
		insertion of correct values ( ½ x 10 x 3)	1	
		correct value (15)	1	3
	ri .	(Use of 10 x 3 with final answer 30 1 max)	•	-
		[Calculation of total area under graph with 0 → A correct give 2 max]		
		[Canada and and and and and and and and an		
	(c)	6 m/s	. 1	1
	\ <del>-</del> /		•	-
		· · · · · · · · · · · · · · · · · · ·		

Total 7

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Page 2	Mark Scheme	Sylla	· D	er
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12 (a) (i) (ii) 2 8 2 (all three) ecf 1 copper, magnesium, sodium (b) (i) potassium, rubidium, caesium or francium (ii) (accept correct symbols) ANY ONE oxides of metals (iii) react with acids to form salts ANY 2 2 form alkali when reacts with water Total 6 5 (a) Diagram correctly completed 2 2 (voltmeter connected in parallel with incorrect component(s) 1) R = V/I or substitution of correct values (b) (i) R = 5(ii) ohm or  $\boldsymbol{\Omega}$ 3 (c) 15 ( $\Omega$ ) or ecf (no unit penalty) (d) V = IR or correct substitution V = 12 (V) Total 8 (i) Na loses one electron (to form an ion) (a) C1 gains one electron (to form an ion) 2 (Na gains electrons and C1 loses electrons give 1) (ii) oppositely charged ions attract strongly or strong bonds / forces 2 (b) add (dilute nitric acid then) aqueous silver nitrate / lead nitrate white precipitate forms 2 (not accept bleaching) Total 6

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any idea that it stops betas going straight to detector 7 (a) (i) 1 Geiger Mueller tube or other suitable / photographic film / solid state (ii) background radiation / radiation from earth or sun etc. 3 (iii) use tongs to handle / do not point at anyone / lead screening / clothes (b) NOT just protective clothes / photo film badge alphas very short range (c) air would absorb them / lose energy quickly / cause much ionisation 1 2 mass of alphas greater than betas (d) (i) (ii) mention of charge 2 on alphas opposite to betas no charge on gamma rays / gammas are e-m waves (e) Total 10  $(12 \times 20) + (1 \times 42) (12 \times 6 + 1 \times 42)$  scores zero) 282 (ignore unit) (ii) C<sub>21</sub> H<sub>44</sub> (iii) alkane (series) not paraffins test: add bromine (water) or pot. (per) manganate (VII) (iv) result for alkanes: no change in colour result for alkenes: goes colourless (not clear / transparent) (i) water (accept steam or H<sub>2</sub>O) (1) (b) 1. carbon monoxide (accept CO) (1) 2. Any 3 carbon dioxide (accept CO<sub>2</sub>) (1) 3. carbon (not soot) (1) idea that only liquid wax will soak up the wick / fuel to keep wick burning (ii) candles made from C<sub>20</sub>H<sub>42</sub> may sag / bend / melt (iii) C > 20 gives a higher melting point 2

Total 13