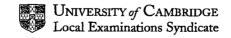


## **NOVEMBER 2002**

## INTERNATIONAL GCSE

## MARK SCHEME MAXIMUM MARK: 60 SYLLABUS/COMPONENT: 0652/2 PHYSICAL SCIENCE (CORE)



Page 1	Mark Scheme	Syllabus	Paper
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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	
	(d)		suitable suggestion	1	1	
	• ,		(e.g. looking over heads at golf match, submarine, etc.)		•	
				Tot	al 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	
	,	,	*but penalise once only			
	(b)		Test: use of limewater	1		
	<b>\</b> ,		Result: goes cloudy / milky	+1	2	
				Tot	al 5	
			A Company of the Comp		ai J.,	
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	
	d		(Use of 10 x 3 with final answer 30 1 max)			
			[Calculation of total area under graph with $0 \rightarrow A$ correct give 2 max]			
	(c)		6 m/s	. 1	1	
	• •					

Total 7

Page 2	Mark Scheme	Syllabus	Paper
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4	(a)	(i) (ii)	12 2 8 2 (all three) ecf	1 1	2
	(b)	(i)	copper, magnesium, sodium	1	
	` .	(ii)	potassium, rubidium, caesium or francium		
			(accept correct symbols) ANY ONE	1	
		(iii)	oxides of metals		
			react with acids		
			to form salts		
			form alkali when reacts with water ANY 2	2	4
				Tota	al 6
5	(a)		Diagram correctly completed (voltmeter connected in parallel with incorrect component(s) 1)	2	2
	(b)	(i)	R = V/I or substitution of correct values R = 5	1	
		(ii)	ohm or $\Omega$	· 1	3
		(***/	Olifi Of \$2	•	3
	(c)		15 ( $\Omega$ ) or ecf (no unit penalty)	1	1
	(d)		V = IR or correct substitution ecf	1	
			V = 12 (V)	1	2
				Tota	al 8
6	(a)	(i)	Na loses one electron (to form an ion)	1	
			CI gains one electron (to form an ion)	1	2
			(Na gains electrons and C1 loses electrons give 1)		
		(ii)	oppositely charged ions attract	1	
	ia•		strongly or strong bonds / forces	1	2
	(b)		add (dilute nitric acid then) aqueous silver nitrate / lead nitrate	1	
			white precipitate forms	+1	2
			(not accept bleaching)		
				Tota	al 6

Page 3	Mark Scheme	Syllabus	Paper
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7	(a)	(i) (ii) (iii)	any idea that it stops betas going straight to detector  Geiger Mueller tube or other suitable / photographic film / solid state background radiation / radiation from earth or sun etc.	1 1 1	3
	(b)		use tongs to handle / do not point at anyone / lead screening / clothes NOT just protective clothes / photo film badge	1	1
	(c)		alphas very short range air would absorb them / lose energy quickly / cause much ionisation	1	2
	(d)	(i) (ii)	mass of alphas greater than betas mention of charge on alphas opposite to betas	1 1 1	1
- 4	(e)		no charge on gamma rays / gammas are e-m waves	1	1
				Total	10
8	(a)	(i)	(12 x 20) + (1 x 42) (12 x 6 + 1x42 scores zero) 282 (ignore unit)	1	~
		(ii) (iii) (iv)	C <sub>21</sub> H <sub>44</sub> alkane (series) not paraffins test: add bromine (water) or pot. (per) manganate (VII) result for alkanes: no change in colour result for alkenes: goes colourless (not clear / transparent)	1 1 1 +1 +1	7
	(b)	(i)	<ol> <li>water (accept steam or H<sub>2</sub>O) (1)</li> <li>carbon monoxide (accept CO) (1)</li> <li>Any 3</li> </ol>		
		(ii) (iii)	3. carbon dioxide (accept $CO_2$ ) (1) 4. carbon (not soot) (1) idea that only liquid wax will soak up the wick / fuel to keep wick burning candles made from $C_{20}H_{42}$ may sag / bend / melt C > 20 gives a higher melting point	3 1 1	3 1 2
			O - 20 giros a inglisi ilisaang ponit	•	_

Total 13