THEMER APRIS

CAMBRIDGE INTERNATIONAL EXAMINATIONS

NOVEMBER 2002

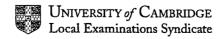
INTERNATIONAL GCSE

MARKSCHEME

MAXIMUM MARK: 80

SYLLABUS/COMPONENT: 0625/3

PHYSICS (EXTENDED)



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Accept De E norted on time axis	BD correct, (straight line i.e. constant acceleration) DE correct, (constant speed or slightly reducing speed only) EF correct, (speed reduced to zero, gradient steeper than BD)	3	B1 B1 B1	3
No labels -1	b(i) force = 2 (N) work = (2 x 0.6) = 1.2 J*	2	C1 A1	Andrews.
	(ii) k.e. = 0.5mv ² = 0.5 x 0.2 x 2.5 x2.5 = 0.625 J*	3	C1 C1 A1	5_
	c velocity - vector, speed scalar direction changes so velocity changes	2	B1 B1	2
	d work done against friction (more)friction on EF (k)e. changed to heat less k.e. changed to p.e.	3	B1 B1 B1 B1	M2 **
	2 a(i) outline, ruler pivoted (at centre), mass one side, rock other side	2	QT C1 A1	<u>M3</u> 13
	mass or 100 x distance to pivot = mass of rock x distance rock to pivot	3	B 1 B1	5
	b put water in cylinder, read value insert rock until covered, read value difference in values is volume of rock	2	B1 B1 B1	M2*
(accept 3.6)	c density = mass/volume or $88/24$ = 3.7 g/cm^3 * (accept $3\frac{7}{3} \text{ g/cm}^3$)	2	C1 A1 QT	2 9
*	3 a junction of two metals, other ends to meter/alternative arrangements two metals named,meter labelled	2	C1 A1	2
in the state of th	b(i) meter calibrated in degrees or read value and use calibration chart (ii) change in temp. causes change in voltage/current	2	B1 B1	2
	c high temperatures rapidly changing temperatures (هم احس المستمل دينهمديني) any valid physical reason e.g. distance reading needed, small site etc	2	B1 B1 B1 QT	<u>M2^K</u> 6
	4 a(i) L = VIt/(m ₁ - m ₂) exact for 2 eq. VIt=(m ₁ -m ₂) L only for m ₂ -m ₁ (ii) = 12 x 2 x 3750 / 40 = 2250 J/g * or 2.25 x 10 J/kg	_2 _2	C1 A1	C1,A1
	b (great) energy needed to separate molecules of liquid	2	B1 B1 QT	2

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5 a(i) C marked vertically under/at any peak (including on axis)	B1
R marked on NEXT trough (either way)	2 B1
	1 B1 3
(ii) half a wavelength	
h 6 - why or 240/4 2	C1
b f = v/w or 340/1.3	2 44 2
= 260 Hz*	OT 5
en jaron karantari kan	QI 3
6 a(i) 43 ±1	A1
(ii) angle r for this ray is 90	B1
angle c is angle i (in denser medium)(giving angle = 900)	2 B1 3
b(i) 3 x 10 ⁹ m/s ^{**}	(A1
(ii) speed in air/speed in medium	- AI
-15 (no up to 0)	2 MA
(iii) angle i = 0 / along normal / at 90 to surface	1 B1
(iv) increased/more/larger	<u> </u>
(IV) Increased/more/larger	
en en en la companya de la companya La companya de la co	QT 8
7 a(i) steel	1 A1
(ii) insert bar in coil(switch on, leave, switch off)	I B1
(iii) to control/measure current or stop circuit/coil overheating	1 B1 3
(III) to dorition intodedia durioni di diap di dalla dell'aventicating	
b(i) R = 12/4	C1
= 3 ohms*	2 A1
	<u> </u>
(ii) $P = 12 \times 4$	_
= 48 W*	² A1
(iii) E = 48 x 5	C1 2 A1 6
=240 J*	<u>2 A1</u> 6
	<u>.</u>
c(i) <u>5 (V)</u>	<u> </u>
(ii) sum of p.d.'s = circuit supply p.d.	C1
above + detail eg across each component/ in closed circuit etc	2 A1 3
	QT 12
8 a (magnetic field) from left to right/ N to S	1 B1 1
b(i) movement at right angles/between poles, up or down	C1
(vertically)down, stated or reference to arrow on diagram or label	2 A1
(ii) mention of Fleming's L.H.R. or interacting fields	C1
full explanation leading to correct direction e.g. That finger show	2 A1 4
Tull explanation reading to content e.g. with Tinges Toru	^
c use coil instead of single wire	B1
mount coil on bearings	B1
arrange suitable contacts e.g slip/slit rings and commutator	2 B1 M2
	QT 7

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9 a(i) curve upwards between plates		C1	
curve upwards between plates + straight line	2	A1	
(ii) top +, bottom -	1	B1	
(iii) to left, arrow and C marking any point on the beam between X and P	1	B1	4
∫ b cathode/heater, labelled		B1	
Y anode labelled		B1	
correct arrangement of cathode with anode cylinder		B1	
suitable power supplies to heater/ anode-cathode (either to score)	4	B1	4
		QT	8
10 a half-life 4 days [≇]	<u> </u>	<u>A1</u>	1
b at least two points worked out		M1≠	į.
suitable curve completed	2	<u>A1</u>	2
c by 20 days little radioactivity left, after 1 day about 85% left	L	<u>B1</u>	1
d $\stackrel{A}{\sim} X \longrightarrow \stackrel{\circ}{\sim} e + \stackrel{A}{\sim} Y$ top line, A1/ bottom line A1	1	<u>A2</u>	2
		QT	6
or OB (not e or Balone) PAPER TOTAL			
PAPER TOTAL			80
·			
AX -> e/B+AY (CI)			

mark on diag