

JUNE 2002

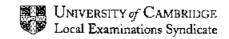
INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 80

SYLLABUS/COMPONENT: 0625/3

PHYSICS (EXTENDED)



Page 1	Mark Scheme	Syllabus	Paper
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1	a	height of stairs/number and height of each stair	В1	
		time weight/mass (x g) any attempt at repeat and average for time only	B1 B1 B1	4
	b	work = force or weight x distance power = work/time	B1 B1	2
		potential any 2: kinetic energy (to move)/heat(and sound)/energy to move arms etc	B1 B2 QT	3 9
2	a(i)	acceleration/increasing speed	B1	
	a(ii)	deceleration/decreasing speed acceleration in (ii) both stated as constant/uniform	B1 B1	3
	b	overall fall in speed/bouncing/change in direction/ball squashed/ time very small/sudden/instantaneous at bounce any 2	B2	2
		1.5 (m/s) 17.5 (m/s)	A1 A1	2
	d	speed scalar and velocity vector/ velocity has direction direction does not affect speed change direction affects velocity change/ has + and - effect etc	B1 B1 B1 1	M2
	e	any use of area of triangle/use of average speed x time 3.0 m / 3.4 m range	C1 A1	2
	f	use of change in speed/time or 8/.8 10 m/s/s	M1 A1	2
			QT	13
3	а	vapour mols higher (total) energies than liquid mols/ correct ref. to k.e./p.e. only most energetic molecules can leave liquid	B1 B1	2
	b	increased temp(of liquid)/increase surface area/blow air over surface, any 2	B 2	2
	С	overcome attractive forces in liquid separate molecules to (much) greater distances apart	B1 B1	2

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l a		p.v. is a constant, (so p.l. is a constant), however expressed	C1		
		80 x 1 = 1 x 3.8, however expressed 1 = 21 mm	C1 A1		
b	(i)	put in (melting) ice and put in steam (over boiling water)	M1		
		mark piston position for one or both fixed points	A1		
		Any reference to wait for equilibrium, however expressed Divide length between fixed points into 100 or other suitable calibration	A1 A1	М3	
	(ii)		М1		
			A1		
			A1 QT	M2 8	
a		angle i = angle r	₿1		
			M1		
		part shaded, beyond candidates reflected ray from end of mirror only	A 1	3	
b		any construction which attempts to use angle i ≃ angle r	C1		
			Ā1	2	
С		virtual/upright/ same size or distance as object/laterally inverted, any 2	B 2	2	
		(real/ inverted/ magnified/ diminished each disqualifies one correct answer)	QT	7	
a		use of frequency = velocity/wavelength	C1		
		= 6 x 10 ¹⁴ Hz	A1	2	
b	(i)		C1		
			Α1		
,	(11)	value so big time is negligible however expressed	B1	3	
С		<u> </u>	B 1		
			B1		
	1		B 1		
			QT	7	
а			В1		
	-	electrons deposited on other sphere, becomes negative	B1	2	
b	,		В1		
			B 1	2	
C((i) ($(2 \times 10^{10} \times 1.6 \times 10^{-17})$			
,,	***		A1		
(i	Iŧ)		Ç1		
			A1		
			QT	7	

Page 3	Mark Scheme	Syllabus	Paper
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8	a a	240/15 or 15/240 or primary volts/sec volts or sec volts/primary volts = 16 or 0.0625	C1 A1	2
	b	any d.c. shown regardless of shape or position half wave rectified shown	C1 A1	2
	c d	diode only conducts in one direction conducts on one half cycle of a.c. but not on opposite half cycle battery in correct place, correct polarity	B1 B1 B1	2
	• • •	power = VI or power = 12×2 = 24 W energy = VIt where t is in secs or energy = $12 \times 2 \times 1.08 \times 10 / 0.024 \times 30$ = 2.6×10^{9} J / 0.72 kWh (allow e.c.f. from (i))	C1 A1 C1 A1 QT	
9	a	connect terminals of 1V supply to Y's, note scale reading (up/down as 1V) measure equal intervals up(and down) scale to give voltage scale	B1 B1	2
	b	C connected to one Y terminal D connected to other Y terminal	B1 B1	2 .
	С	p.d. A to $F = p.d.$ (B to $C + C$ to $D + D$ to E)	B2 QT	2 6
1	a	source and detector above liquid surface set-up correct for detecting alpha radiation with suitably placed absorber	C1 A1	2
	b	take reading with no absorber and through cardboard/paper subtract readings to give alpha estimate	B1 B1	2
	С	any "distance" precaution any shielding precaution any other, but must be related to this situation	B1 B1 B1 M2 QT 6	
		PAPER TOTAL		80