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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the November 2005 question paper

0625 PHYSICS

0625/02 Paper 2 (Theory)

Maximum mark 80

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

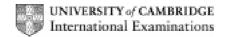
All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

• CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



Page 1	Mark Scheme	Syllabus	Paper
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			MARK
1	(a)	8.5 (cm)	B1
	(b)	19.0 OR 19 (± 0.1) (cm)	B1
	(c)	his (b) – his (a)	C1
		his correct subtraction	A 1
			[4]
2	(a)	distance/time	C 1
		25/2	C1
		12.5	A 1
		m/s	B1
	(b)	less OR decreased OR slowing down	B1
	(c)	more than ecf	В1
			[6]
3	(a)	skate	M1
		small area (in contact with ice)	A1
	(b)	large area) wind causes large force on side of truck) any 2 vehicle liable to blow over)	B1,B1
			[4]
4	(a)	40 or 160	B1
	(b)	720	B1
	(c)	$W = F \times d$	C 1
		720 x 0.2	C1
		144	A 1
		J OR joule	B1
	(d)	his (c) /1.2	C 1
		his(c)/1.2 correctly evaluated	C 1
		0.5 x his (c) /1.2 correctly evaluated i.e. 60 gets C1, C1, A1 and 120 gets C1, C1, A0)	A1
		W OR watt OR J/s	B1
			[10]

Page 2	Mark Scheme	Syllabus	Paper
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5 (a)		level in tube lower, or equivalent			
	(b)	air has expanded (could be scored in (a) , but not twice) OR Kinetic Theory application to pressure			
	(c)	any e.g.	sensible comment limited temp range, air bubbles out of tube, slow acting, large volume of air, change in air pressure, no scale	B 1	
			large volume of all, change in all pressure, no seale	[3]	
6	(a)	(i)	current (in coil)	В1	
			magnetic field (around coil)	B 1	
		(ii)	magnetised OR attract	В1	
	(b)	curre	ent zero at first (even if only at origin)	В1	
		horiz	zontal first part	В1	
		verti	cal rise somewhere	B 1	
		horiz	zontal final part	B 1	
				[7]	
7	(a)	three rays parallel and horizontal			
	(b)	(i)	both principal foci marked	B 1	
		(ii)	refraction at mid-line, then through F (allow 2 surface refractions if lead back to mid-line)	B1	
		(iii)	ray through F to mid-line, then parallel (allow as (ii))	B1	
		(iv)	image drawn between axis and intersection, perpendicular to axisC (condone no labelling)	B1	
			drawing accuracy mark for image 2 squares tall ± 2mm <u>and</u> 4 squares away ± 2mm	В1	
				[6]	
8	(a)	(i)	iron OR steel OR any ferromagnetic material (B0 if magnetised stated)	B1	
		(ii)	 nothing ecf from (i) nothing 	B1 B1	
	(b)	L.H.	compass pointing to R	B 1	
		top o	compass pointing to L	B1	

Page 3	Mark Scheme	Syllabus	Paper
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		botto	m compa	ass pointing to L	B1	
					[6]	
9	(a)	1 co	rrect		C1	
		2 co	2 correct			
		4 co	4 correct			
	(b)	(i)		mponents shown in series (any order) n (a) for symbols	В1	
		(ii)	voltmet	er connected across cell, either our diag or his	B1	
		(iii)	both		B1	
		(iv)	0.5		B1	
		(v)	current	stops OR ammeters read zero OR other bulb goes out	B1	
					[8]	
10	(a)	10 x 4 x 6.5			C1	
		260	A 1			
	(b)	D = I	M/V in ar	ny form, words, letters, numbers, mixed	C1	
		250/	his V	ecf if written down	C1	
		0.96	1538	any no. of sig figs ecf	C1	
		0.96	ecf		A 1	
		g/cm	³ unless	inconsistent with his figures	В1	
					[7]	

Page 4	Mark Scheme	Syllabus	Paper
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11	(a)	electrons			
	(b)	Α		В1	
	(c)	(i)	D	В1	
		(ii)	idea of detecting electrons/making spot visible	В1	
	(d)	defle	cts them	В1	
	(e)	no ai	r OR no molecules OR no particles OR "nothing"	В1	
		to sto	op/slow down/absorb the electrons/cathode rays	В1	
				[7]	
12	(a)	(i)	time taken for (B0 for half the time)	В1	
			activity/count-rate/mass etc.	В1	
			to decrease to half original value	В1	
		(ii)	radiation due to surroundings	В1	
	(b)	(i)	80 – 25	C1	
			55 cao	A 1	
		(ii)	1. 27.5 ecf	В1	
			2. 52.5 ecf	В1	
		(iii)	15 ± 1 ecf	В1	
		(iv)	background remains, even when source has decayed	В1	
		(v)	curve to the left of existing one	В1	
			flattening out at 25 count/min	В1	
				[12	