UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2006 question paper

0625 PHYSICS

0625/03 Paper 3, maximum raw mark 80

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do 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*.

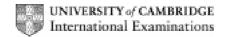
All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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 May/June 2006 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



(b) acceleration = change in v/change in t or 12/8 etc = 1.5 m/s² A1 (c) distance = area under graph between t = 20 and t = 25 C1 = 24 m to 28 m A1 (d) F = ma or 4000 x 1.2 C1 = 4800 N A1 (e) more passengers got on (so mass increased) driver pressed accelerator less (so force decreased) more traffic or going uphill any two lines B2 any closed triangle or parallelogram forces in correct directions relative to each other C1 correct resultant indicated C1 correct resultant indicated C1 cresultant 7.7 N to 8.1 N A1 scale stated B1 resultant vertically upwards B1 (a) work = force x distance = force of gravity/weight x (vertical) distance/height A1 (b) (i) work = (100 x 8) = 800 J	F	Page 2	Mark Scheme	Syllabus	Paper]	
straight line joining 0,0 and 8,12 straight line joining 8,12 and 20,12 B1 (b) acceleration = change in v/change in t or 12/8 etc = 1.5 m/s² C1 (c) distance = area under graph between t = 20 and t = 25			IGCSE – May/June 2006	0625	03		
Cc distance = area under graph between t = 20 and t = 25	(a)	straight	t line joining 0,0 and 8,12		B1	;	
= 24 m to 28 m A1 (d) F = ma or 4000 x 1.2	(b)	acceler					
= 4800 N (e) more passengers got on (so mass increased) driver pressed accelerator less (so force decreased) more traffic or going uphill any closed triangle or parallelogram forces in correct directions relative to each other C1 correct resultant indicated C1 correct resultant rot 8.1 N scale stated B1 resultant vertically upwards (a) work = force x distance	(c)	distanc					
any closed triangle or parallelogram forces in correct directions relative to each other correct resultant indicated resultant 7.7 N to 8.1 N scale stated resultant vertically upwards (a) work = force x distance = force of gravity/weight x (vertical) distance/height (b) (i) work = (100 x 8) = 800 J (iii) power = (800/5) = 160 W (iiii) increases the k.e. of the water (ignore heat/sound) (a) on surface/throughout; no bubbles/bubbles; all temps./b.p.; s.v.p. < at. pressure; svp = at. pressure (b) energy/work to separate molecules (against) forces of attraction between water molecules (to break bonds C1) The k.e./speed of the molecules does not increase (c) Wt = mL or 120 x 1 = 0.05 x L L = 120/0.05	(d)						
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The k.e./speed of the molecules does not increase B1 (c) Wt = mL or $120 \times 1 = 0.05 \times L$ C1 $L = 120/0.05$ C1	(b)	(against) forces of attraction between water molecules					
L = 120/0.05 C1		· ·					
	(c)	L = 120	0/0.05		C1		
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	Page 3		3	Mark Scheme	Syllabus	Paper				
				IGCSE – May/June 2006	0625	03				
5	(a)		increase surface area of tank blow air over surface/put in windy place							
	(b)	(i)	сар	oillary tube longer or liquid with lower expansivity		B1				
		(ii)		B1	2					
	(c)	$p_1 v_1 \\ p_2 =$	$p_1v_1 = p_2v_2$ or 1 x 10 ⁵ x 150 = p_2 x50 $p_2 = 3 \times 10^5$ (Pa)							
6	(a)	viole	t ray	efracted away from normal refracted more than red ray in prism further refracted from red ray to screen		B1 B1 B1	3			
	(b)	1.52 sin r r = 2		M1 C1 A1	3					
	(c)	(i)	3 x	10 ⁸ m/s		A1				
		(ii)	san	ne as (i)		A1	2 [8]			
7	(a)	Long	jitudi	inal or pressure waves		B1	1			
	(b)	a coi a coi		B1 B1	2					
	(c)	oscillation/vibration/backwards and forwards along PY (consider pressure waves as alternative)								
	(d)	wave PX(=	C1 A1	2 [7]						
8	(a)	I = V I = 1		or 9/6		C1 A1	2			
	(b)	(i)	8 ol	hm		A1				
		(ii)	6 V			A1	2			
	(c)	(i)	brig	htness decreases/dimmer		B1				
		(ii)		istance of circuit greater rent through lamp falls		B1 B1	3			
	(d)	(i)	4 o	hm		A1				
		(ii)	4 ol	hm		A1	2 [9]			

Page 4				Mark Scheme		Paper	
				IGCSE – May/June 2006	0625	03	
(a)	240	۷a.	c. t	o primary, 12 V a.c. to secondary		B1 B1 B1	3
(b)	(i)	mι	ıst I	be constantly changing magnetic field		B1	
	(ii)				,	B1 B1	3
(c)	(i)	18	W			A1	
	(ii)	54	0 J			A1	2 [8]
(a)	bring rod close but not touching plate touch metal plate with earth lead remove lead and then rod						3
(b)	(i)	Q				C1 A1	
	(ii)	V	= =	20 (ma) x 10 (kΩ) 200 V		C1 A1	M3 [6]
line	line1 into paper positive or +2 line 2 out of paper or opposite of line 1 negative or -1 line 3 no deflection no charge					B1 B1 B1 B1 B1	6 [6]
	(a) (b) (c) (ine	(a) prima 240 turns (b) (i) (ii) (ii) (ii) (iii) (iiii) (iiii) (iiiiiiii	(a) primary 240 V a turns rat (b) (i) mu (ii) ma (c) (i) 18 (ii) 54 (a) bring roo touch moremove (b) (i) Q (ii) V line 1 into para positive line 2 out of negation in the paragation of	(a) primary and 240 V a.c. to turns ratio so (b) (i) must lead magnitude (c) (ii) 18 W (ii) 540 J (a) bring rod cleatouch metal remove lead (b) (i) Q = (ii) V = (iii) V = (iii) V = (iii) V = (iii) V = (iiii) V = (iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	 IGCSE – May/June 2006 (a) primary and secondary coils on iron core labelled 240 V a.c. to primary, 12 V a.c. to secondary turns ratio shown or stated 20:1, stepdown (b) (i) must be constantly changing magnetic field (ii) magnetic field of primary passes through core to secondary magnetic field of secondary cuts coil, induces output (c) (i) 18 W (ii) 540 J (a) bring rod close but not touching plate touch metal plate with earth lead remove lead and then rod (b) (i) Q = 20 (mA) x 15 (s) = 0.30 C (ii) V = 20 (ma) x 10 (kΩ) = 200 V line1 into paper positive or +2 line 2 out of paper or opposite of line 1 negative or -1 line 3 no deflection 	IGCSE - May/June 2006 0625	IGCSE – May/June 2006 0625 03 (a) primary and secondary coils on iron core labelled 240 V a.c. to primary, 12 V a.c. to secondary turns ratio shown or stated 20:1, stepdown B1 (b) (i) must be constantly changing magnetic field B1 (ii) magnetic field of primary passes through core to secondary magnetic field of secondary cuts coil, induces output B1 (c) (i) 18 W A1 (ii) 540 J A1 (a) bring rod close but not touching plate touch metal plate with earth lead remove lead and then rod M1 (b) (i) Q = 20 (mA) x 15 (s) = 0.30 C C1 (ii) V = 20 (ma) x 10 (kΩ) = 200 V C1 line1 into paper positive or +2 B1 line 2 out of paper or opposite of line 1 negative or -1 B1 line 3 no deflection B1