

#### INTERNATIONAL GCSE

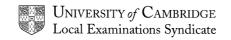
### MARK SCHEME

**MAXIMUM MARK: 40** 

SYLLABUS/COMPONENT: 0625/01

### **PHYSICS**

Paper 1 (Multiple Choice)



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	1

Question Number	Key	Question Number	Key
1	Α	21	D
2	В	22	D
3	В	23	В
4	С	24	В
5	D	25	В
6	С	26	D
7	Α	27	Α
8	D	28	Α
9	В	29	В
10	В	30	D
11	Α	31	С
12	С	32	D
13	В	33	Α
14	D	34	Α
15	В	35	С
16	Α	36	В
17	Α	37	D
18	Α	38	Α
19	В	39	D
20	D	40	В

**TOTAL 40** 



#### INTERNATIONAL GCSE

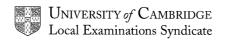
# MARK SCHEME

**MAXIMUM MARK: 80** 

SYLLABUS/COMPONENT: 0625/02

**PHYSICS** 

Paper 2 (Core)



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	2

#### NOTES ABOUT MARK SCHEME SYMBOLS

B marks are independent marks, which do not depend on any other marks. For a

B mark to be scored, the point to which it refers must actually be seen in

the candidate's answer.

M marks are method marks upon which accuracy marks (A marks) later depend.

For an M mark to be scored, the point to which it refers **must** be seen in the candidate's answer. If a candidate fails to score a particular M mark,

then none of the dependent A marks can be scored.

C marks are compensatory method marks which can be scored even if the points

to which they refer are not written down by the candidate, provided subsequent working gives evidence that they have known it, e.g. if an equation carries a C mark and the candidate does not write down the actual equation but does correct working which shows he knew the

equation, then the C mark is scored.

A marks are accuracy or answer marks which either depend on an M mark, or

allow a C mark to be scored.

c.a.o. means 'correct answer only'.

e.c.f. means 'error carried forward'. This indicates that if a candidate has

made an earlier mistake and has carried his incorrect value forward to subsequent stages of working, he may be given marks indicated by e.c.f. provided his subsequent working is correct, bearing in mind his earlier mistake. This prevents a candidate being penalised more than once for a particular mistake, but **only** applied to marks annotated

'e.c.f.'.

e.e.o.o. means 'each error or omission'.

Brackets ( ) around words or units in the mark scheme are intended to indicate

wording used to clarify the mark scheme, but the marks do not depend on seeing the words or units in brackets, e.g. 10 (J) means that the

mark is scored for '10', regardless of the unit given.

<u>Underlining</u> indicates that this **must** be seen in the answer offered, or something

very similar.

Un.pen. means 'unit penalty'. An otherwise correct answer will have one mark

deducted if the unit is wrong or missing. This **only** applies where specifically stated in the mark scheme. Elsewhere, incorrect or missing

units are condoned.

OR/or indicates alternative answers, any one of which is satisfactory for

scoring the marks.

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	2

QUESTION		<u>SCHEME</u>				TARGET GRADE	MARK	
1	(a)	8					F	B1
	(b)					er d stretched when on rule orn rule ends	, F	<u>B1</u> _2
2	(a)	(i)	10				F	B1
		(ii)	stretch O	R shape (or	suitabl	e sketch)	С	B1
	(b)	(i)	120				F	B1
		(ii)		) OR vertica row on diag		vertically down)	F	B1
		(iii)	OR increa	ase number	of bloc	/larger blocks ks pot on harder	F	<u>B1</u> _5
3	(a)	0.97 -	- 0.51				F	C1
		0.46					F	A1
	(b)	(i)	15				F	B1
		(ii)	515 e.c.f.				С	B1
		(iii)	D = M/V i (words/le	n any form, tters/mix)	seen o	r implied	F	C1
		EITH	≣R	OR		OR		
		<u>460</u> 515		<u>0.46</u> 515		$\frac{0.46}{515} \times 10^{-6} \text{ e.c.f.}$	С	C1
		0.893		8.932 × ımber of sig		893.2No e.c.f. figures)	С	C1
		0.89		8.9 × 10 <sup>-2</sup>	ŀ	890 (e.c.f. for significant figures)	С	A1
		g/cm <sup>3</sup> (0.89 OK)	kg/dm³ is	kg/cm <sup>3</sup> (NOT 8.9 <sup>-</sup>	04)	kg/m <sup>3</sup>	F	<u>B1</u> <u>9</u>

Р	Page 3		Mark Scheme	Syllabus	Paper	
			IGCSE EXAMINATIONS – JUNE 2003	0625	2	
4	(a)		of air molecules moving (allow vibrating) 'collide' = 'moving')	F	C1	
			of air molecules striking something (condone selves)	F	C1	
		idea d	of air molecules striking walls	С	A1	
	(b)	(i)	moves down	F	B1	
		(ii)	increases (e.c.f.)	F	M1	
			idea of more collisions (per unit time) (e.c.f.)	С	<u>A1</u> <u>6</u>	
5	(a)	line st	tarting at 0 °C	F	В1	
		reaso time	nably horizontal line at any temp for ≥ half the	С	M1 mark along- side	
			ontal from zero time as far as dotted line (ignore ing to R. of line)	С	graph	
	(b)	(i)	water boils OR heat loss = heat supplied (NOT evaporates/ turns to gas) mark (i)	С	B1	
		(ii)	gives water/molecules energy to escape OR break bonds OR change state OR heat loss from sides/surface/to air	С	<u>B1</u> _5	
6	(a)	(i)	normal correct, by eye	F	B1 mark	
		(ii)	reflected ray correct, by eye (ignore normal; ignore any arrow)	F	B1 side diagra	
		(iii)	both $i$ and $r$ correctly marked (condone sloppy normal and sloppy refracted ray)	F	В1)	
	(b)	OR sa (N.B.	el to ray striking mirror 1 (allow incident ray) ame direction (NOT equal/same as) sentence must be completed, i.e. no inference line on diagram)	С	<u>B1</u> _4	

F	Page 4	4 Mark Scheme IGCSE EXAMINATIONS – JUNE 2003		Syllabus 0625	Paper 2
7	(a)	680	1020 1360 1700	F	B1
•	(b)	5 poii	nts plotted $\pm \frac{1}{2}$ small square (-1 e.e.o.o.) e 0,0 (e.c.f.)	, E	B2
			onable line through his points – drawn with rule/thickness reasonable	F	B1
	(c)	(i)	flash	F	B1
			light travels quickly OR sound travels slowly (accept figure)	F	C1
			light travels faster than sound (accept figure)	F	C1
			light travels much faster than sound (accept figures)	С	A1
		(iii)	1400 - 1450 OR correct value from his graph $\pm~\frac{1}{2}~$ square	F	B1
			clear and correct indication on graph of how obtained (minimum: dot at appropriate point)	F	<u>B1</u> 10
8	(a)	extra	ge(s) OR energy (NOT electricity (condone as ), charged particles (condone as extra), current, rons (condone as extra), voltage)	С	B1
	(b)	(i)	0	С	B1
		(ii)	mention of 6V	F	B1
			mention of rising OR not instantaneous (NOT 'reads')	С	B1
		(iii)	any realistic example of something turned on/off after a time lapse, e.g. electronic egg timer, turn-off bedside radio	F	<u>B1</u> _6
9	(a)	(i)	wire shown curved between A and B	F	C1 mark along-
			wire displaced all along between A and B, and reasonably smooth	С	∫ side A1 ∫ diagram
		(ii)	idea of force (in any direction)	F	M1
			on current/current-carrying conductor	С	A1
			when in magnetic field	С	A1

F	Page 5		Mark Scheme IGCSE EXAMINATIONS – JUNE 2003	Syllabus	Paper
	(b)	line o	curved in opposite direction	<b>0625</b> F	<u>B1</u> mark along-side diagram
10	(a)	(i)	electrons OR cathode rays (NOT beta- particles)	F	B1
			something 'hitting' the screen (NOT 'form a spot')	F	B1
			idea of fluorescence (of the screen, NOT 'the gas')	С	B1
		(ii)	focus	С	B1
		(iii)	time base OR ms/cm	С	B1
		(iv)	electrons/cathode rays deflected (e.c.f. from (i); allow 'attracted' if intention clear)	F	B1
			something deflected horizontally	С	M1
			some idea of repeated sweeps/back and forth	С	A1
	(b)	(i)	(y-)input (allow y-plates)	F	B1
		(ii)	1. trace moves horizontally/sideways/left/right	С	B1
			2. trace moves vertically/up/down	С	<u>B1</u> <u>11</u>
11	(a)	Conr	nection to either side of cell, but not shorted out	F	B1
		corre	n series with lamp, and not shorted out OR ectly connected as a potential divider (condone sion of a switch)	F	B1
	(b)	(i)	$R_1 + R_2$	F	C1
			12	F	A1
		(ii)	1. Resistance = p.d./current in any form (words/letters/mix)	F	C1
			6/12 e.c.f.	С	C1
			$0.5 \text{ or } \frac{1}{2} \text{ e.c.f.}$	С	A1

P	Page 6		Mark Scheme	Syllabus	Paper
			IGCSE EXAMINATIONS – JUNE 2003	0625	2
			2. his calculated current		
			his calculated current all 3	С	B1
			his calculated current		
		A OR	R amp OR ampere somewhere in (ii)	F	B1
		(iii)	voltmeter shown correctly connected (any recognisable symbol; allow re-drawn circuit)	С	B1 mark along-side diagram
12	(a)	his w	eight	F	B1
	(b)	dista	nce OR height	F	B1
	(c)	(i)	1000N climber OR heavier OR first	F	B1
		(ii)	his answer to (i)	F	B1
	(d)	(i)	chemical (accept fuel)	С	B1
		(ii)	food (accept muscles)	С	B1
		(iii)	maintaining body function		
			heat loss K.E. sounds	С	<u>B1</u> _7

Mark first correct answer, condone extras



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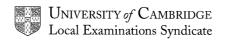
## MARK SCHEME

**MAXIMUM MARK: 80** 

SYLLABUS/COMPONENT: 0625/03

**PHYSICS** 

Paper 3 (Extended)



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	3

1	(a)	(i) (ii)	force of gravity acts on masses/weight of masses vector has direction/force has direction	B1 B1	2
	(b)	(i) (ii) (iii)	spring 1 (more difficult) any correct relevant pair of values P marked at extension 25 mm to 28 mm explanation in terms of end of proportionality each graph read at 15 N, approx. 25 mm, 19 mm difference correct, 6 mm +/- 1 mm	M1 A1 A1 B1 C1 A1	6 [8]
2	(a)		change in speed is 1.5 m/s deceleration = decrease in speed/time or 1.5/12 a = (-/+) 0.125 m/s	C1 C1 A1	3
	(b)		average speed = 1.75 m/s distance = 21 m	C1 A1	2 [5]
3	(a)		attempt to use triangle or parallelogram of forces stated scale used 950 N and 1220 N in correct relative directions correct resultant drawn in weight = 1785 N [limits 1700 N to 1850 N]	M1 A1 C1 C1 A1	5
	(b)	(i) (ii)	work = force x distance or 1500 x 3.0 work = 4500 J power = work/time or 4500/2.5 power = 1800 W	C1 A1 C1 A1	4 [9]
4	(a)		air molecules hit dust particles hits continuously/unevenly/hits cause movement in all directions air molecules fast moving/high energy	M1 A1 B1	3
	(b)		any attempt to use p x v = constant or correct proportion fraction 2 x 80/25 seen p = 6.4 x 10 (Pa)	C1 C1 A1	3
5	(a)		Y is a wire of different metal/not copper	B1	[6]
			Z is a galvanometer/millivoltmeter/milliammeter	B1	2
	(b)		2 junctions at different temperatures, accept one hot, one cold temperature difference causes e.m.f./voltage/current reading of meter changes (with temperature) 1 junction at known temperature/need for calibration	B1 B1 B1 B1	max 3
	(c)		dull or black surface	B1	1 [6]

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	3

6	(a)	(i) (ii) (iii)	incident ray, refracted ray and normal drawn all correct and meeting at a point angle of incidence and refraction correctly identified values correct within agreed limits	C1 A1 B1 B1	4
	(b)		use of sini/sinr correct substitution from candidates values value correct within agreed limits from candidate's	C1 C1	2
			values	<b>A</b> 1	3 [7]
7	(a)		value 3 x 10 m/s	<b>A</b> 1	1
	(b)		speed of light (much) greater than speed of sound or value for sound	<b>A1</b>	1
	(c)	(i)	source and receiver arrangement with detail and labels	C1 A1	
		(ii)	distance between source and receiver time between flash and bang	B1 B1	
		(iii)	speed = distance/time	B1	max 4 [6]
8	(a)	(i)	use of charge = It or I = 90/45 current = 2 A	C1 A1	
		(ii)	resistance = voltage/current or 6/2 resistance is 3 ohm	C1 A1	
		(iii)	energy = Vit or Vq or 6 x 90 energy is 540 J	C1 A1	6
	(b)		idea of energy transfer is (6) J/C	C1 A1	2 [8]
9	(a)	(i)	power = VI or 24 X 2 power is 48 W	C1 A1	
		(ii)	voltage = power/current or 48/0.4 voltage is 120 V	C1 A1	4
	(b)	(i)	no/very little energy/power lost or energy/power in = energy/power out	В1	
		(ii)	any mention of magnetic field changing magnetic field field passes through core or secondary coil induces voltage in secondary coil	B1 B1 B1 B1	
			number of turns on secondary determines voltage output	В1	max 4 [8]

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	3

10	(a)	(i) (ii)	circular line of force around wire through P arrow(s) on line anticlockwise - none wrong arrow through Q to left	M1 A1 A1	3
	(b)	(i) (ii)	none/stays same direction reverses	B1 B1	2
	(c)		at S - stronger at T - same (strength) at W - same (strength)	B1 B1 B1	3 [8]
11	(a)	(i) (ii) (iii)	source, detector named absorber/air and labels take detector reading with no source (background) detector reading with source, detector and air only detector reading with appropriate named absorber (including distance in air) same reading with absorber(including air) as background so all alpha absorbed by cardboard/paper/air, others would get through	B1 B1 B1 B1 B1 B1	max 6
	(b)		curved path stated or drawn path at right angles to magnetic field into paper	B1 B1 B1	3 [9]

**TOTAL 80** 



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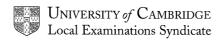
## MARK SCHEME

**MAXIMUM MARK: 60** 

SYLLABUS/COMPONENT: 0625/05

**PHYSICS** 

Practical



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	5

1.	two room temp readings (sensible) table completed, temps rising evidence of temp to better than 1 deg all temps to better than 1 deg time unit temp unit Graph temp axis labelled scale suitable plotting (check one on A) plotting (check one on B) line judgement shape thickness	1 1 1 1 1 1 1 1 1 1
	Statement Justification (adequate) OR good	1 1 2 TOTAL 15
2.	d sensible unit diagram blocks parallel and in correct position rule position shown	1 1 1 1
	r correct h sensible with unit V calculation correct c stated (sensible) at least 5 turns used	1 1 1 1
	calculation of V average calculated 2/3 sf unit sensible G estimate v correct, 2/3 sf, unit	1 1 1 1 1
		TOTAL 15
3.	three correct units both I to at least 1 dp both V to at least 1 dp R value (check first) correct both R to 2/3 sf	3 1 1 1
	correct ratio (as decimal) no unit 2/3 sf ratio 1.8 – 2.2	1 1 1 1

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0625	5

	Diagram voltmeter in parallel across the motors ammeter correct variable resistor connected to vary current through one motor correct symbols for all three	1 1 1 1
		TOTAL 15
4.	angle 30 (±1) angle 40 (±1) pins F and G at least 5cm apart	1 1 1
	GF correct and neat new GF line correct and neat	1 1
	x line correct position record of x correct unit	1 1 1
	y line correct position record of y correct unit (same as x, stated or not)	1 1 1
	correct ratio x/y no unit 2/3 sf value	1 1 1 1
		TOTAL 15



#### INTERNATIONAL GCSE

### MARK SCHEME

**MAXIMUM MARK: 40** 

SYLLABUS/COMPONENT: 0625/06

### **PHYSICS**

Alternative to Practical

	Page 1	1	Mark Scheme	Syllabus	Paper
			IGCSE EXAMINATIONS – JUNE 2003	0625	6
1	(a)		Seven correct values: 0, 2, 3, 6, 9, 10, 12 (-1 each er	ror)	2
	(b)		Graph: Scales, labelled, suitable size Axes, right way round Plots to ½ sq (-1 each error)		1 1 2
	(c)		Line shape Line thickness		1 1
			Triangle greater than ½ line and method used Correct interpolation to ½ sq		1 1
				TOTAL	10
2	(a)		36° (±1°)		1
	(b)		Refracted ray drawn $22^{\circ} (\pm 1^{\circ})$ normal correct (by eye) neat, thin, correct lines		1 1 1 1
	(c)		Correct refracted ray (by eye) with arrow		1
	(d)		Separation (LHS) at least 5cm Separation (RHS) at least 5cm		1 1
				TOTAL	8
3	(a)	(i)	Voltmeter across lamp		1
		(ii)	Variable resistor/rheostat		1
	(b)		Correct position		1
	(c)		V A $\Omega$ correct R at 9.8V = 8.16666 (any sf) all R to 2/3 sf consistent 2 sf or consistent 3 sf		1 1 1 1 1
				TOTAL	9
4	(a)	(i)	6.8cm (68mm)		1
		(ii)	6.8 unit, mm		1 1
	(b)	(i)	3.8/3.77 or 0.38/0.377 mm or cm as appropriate		1 1

		_	mark conomo	<b>- J</b> a a.c	. 460.
			IGCSE EXAMINATIONS – JUNE 2003	0625	6
		(ii)	0.94/0.95 (or evidence of division by 4)		1
		(iii)	0.75094/0.75095		1
	(c)		Thickness of string/thickness of marks on string/strete string/metre rule measures to 1mm	ching of	1
				TOTAL	. 8
5	(a)	(i)	polystyrene		1
		(ii)	Least steep curve (or numbers suitably quoted)		1
	(b)		Three from: Thickness of insulator Room temp. Starting temp. Mass/vol./amount of water Using same can		3
				TOTAL	_ 5

Mark Scheme

**Syllabus** 

Paper

Page 2

#### Grade thresholds taken for Syllabus 0625 (Physics) in the June 2003 examination.

	maximum	minimum mark required for grade:			
	mark available	А	С	E	F
Component 1	40	-	29	23	19
Component 2	80	-	45	34	26
Component 3	80	53	32	-	-
Component 5	60	42	33	21	13
Component 6	40	34	26	20	15

The threshold (minimum mark) for B is set halfway between those for Grades A and C. The threshold (minimum mark) for D is set halfway between those for Grades C and E. The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.

Grade A\* does not exist at the level of an individual component.