

June 2003

INTERNATIONAL GCSE

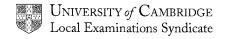
MARK SCHEME

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 [6]
5	(a)		Y is a wire of different metal/not copper Z is a galvanometer/millivoltmeter/milliammeter	B1 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	
			values	A 1	3 [7]
7	(a)		value 3 x 10 m/s	A 1	1
	(b)		speed of light (much) greater than speed of sound or value for sound	A 1	1
	(c)	(i)	source and receiver arrangement with detail and labels	C1 A1	
		(ii)	distance between source and receiver	B1 B1	
		(iii)	time between flash and bang 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	C 1	
		(iii)	resistance is 3 ohm energy = Vit or Vq or 6 x 90	A1 C1	
			energy is 540 J	A 1	6
	(b)		idea of energy transfer is (6) J/C	C1 A1	2 [8]
9	(a)	(i)	power = VI or 24 X 2	C1	
		(ii)	power is 48 W voltage = power/current or 48/0.4	A1 C1	_
			voltage is 120 V	A 1	4
	(b)	(i)	no/very little energy/power lost or energy/power in = energy/power out	B1	
		(ii)	any mention of magnetic field changing magnetic field	B1 B1	
			field passes through core or secondary coil	B1 B1	
			induces voltage in secondary coil number of turns on secondary determines voltage		4
			output	B1	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	B1 B1 B1 B1 B1	
	(b)		would get through curved path stated or drawn path at right angles to magnetic field into paper	B1 B1 B1 B1	max 6 3 [9]

TOTAL 80