CAMBRIDGE
INTERNATIONAL EXAMINATIONS

NOVEMBER 2002

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK : 80

SYLLABUS/COMPONENT : 0625/2

PHYSICS
(CORE)

UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

QU.			SCHEME	TARGET GRADE	MARK
1.	(a)	(i)	greater	F	M1
		(ii)	P.E. (or equiv.) has increased OR work done lifting case	F	A1
	(b)	(i)	greater	F	M1
		(ii)	it is moving OR now has K.E. (or equiv.)	F	A1 4
2.	(a)		insulator	F	B1
	(b)		radiation	F	B1
	(c)		conductor	F	B1
	(d)		convection	F	B1 4
3.	(a)		arrow(s) clockwise	C	B1
	(b)		3 circles (by eye) around wire (need not be concentric, ignore other lines)	F	B1
			circles concentric with wire (by eye)	C	B1 3
4.	(a)	(i)	1020 - 610	F	C1
			410 (g)	F	A1
		(ii)	mass/volume	F	C1
			his (i)/500	F	C1
			0.82 e.c.f.	F	A1
			g/cm^3	C	B1
		(iii)	use measuring cylinder/pipette/narrower jug /burette	C	B1
	(b)		level shown below oil level	C	B1 8

5.	(a)	changes into a different nucleus/substance/isotope/nuclide OR loses/emits part of itself/particles OR loses/emits an alpha/beta particle/gamma ray OR mass decreases OR different mass no.	F	B1
	(b)	evidence of 2 half-lives	C	C1
		56 (years)	C	A1
				3
6.	(a)	temperature NOTHING ELSE	F	B1
		solid turns to liquid OR liquid turns to solid	F	B1
	(b)	last 2 both ticked	C	B1
	(c)	(i) horizontal straight line (nothing else)	F	B1
		(ii) B.P. correctly marked at horizontal line (condone extras) ↓ allow 100°C i.e. on temp axis MUST BE CLEAR	C	B1
				5
7.	(a)	rub them together	F	B1
	(b)	G.L.E. (leaf deflects) OR pick up fluff etc OR crackles when discharged OR makes hair rise etc	F	B1
	(c)	region (or equiv.)	C	B1
		where electric charge experiences a force/attraction/repulsion NOT "effect"	C	B1
	(d)	(i) moves away/repel/deflects/spins	F	M1
		(ii) like charges (NOT poles) repel	F	A1
	(e)	copper is a conductor (or similar comment)/copper can't be charged B0 for conductor of heat	C	B1
				7
8.	(a)	volt OR volts OR V	F	B1
	(b)	resistance = p.d./current in any form, allow symbols or mixture (allow B1 for just p.d./ current)	2F	B2
	(c)	4.7 = V/0.5	F	C1
		2.35 (V)	F	A1
	(d)	(i) increases OR is a maximum	F	B1
		(ii) decreases OR minimum condone "to zero"	F	B1
	(e)	10 - 4.7	C	C1
		5.3 (Ω)	C	A1
				9

9.	(a)	avoid problems with echoes	C		B1
	(b)	time would have been too small to measure (with stopwatch) OR to give a greater time interval OR for accuracy	C		B1
	(c)	tape-measure OR trundle wheel OR metre rule OR range-finder OR calibrated strides	F		B1
	(d)	light travels fast/ instantaneously/ at 3 x 10^8 m/s	C		B1
		sound travels slowly/ slower/ at 330 (±30) m/s	F		B1
		(Note: "sound travels much slower than light" OR "light travels much faster than sound" scores B1,B1) "sound travels slower than light" etc gets B1, B0			
	(e)	speed = distance/time allow $s = 2d/t$	F		C1
		238/0.7	F		C1
		340	F		A1
		m/s	C		B1
	(f)	effect of air movement OR take average OR repetition to check NOT "for accuracy", unless adequately explained	C		B1
					10

10.	(a)	(i) moves (ignore any direction) NOT vibrates	F		B1
		(ii) conductor experiences force in magnetic field	C		B1
		current-carrying conductor	C		B1
		(iii) moves in opposite direction to (i)	F		B1
	(b)	(i) commutator OR split ring allow commuter NOT slip rings	C		B1
		brush OR contact NOT spring	F		B1
		magnet OR pole	F		B1
		(ii) commutator OR split ring e.c.f. from (i)	C		B1
		(iii) rotates/moves other way/to the left rotates anticlockwise	F		B1
					9

allow answers in form of current in field experiences a force

11.	(a)	current causes magnetic field	F	B1
		iron reeds magnetised	C	B1
		magnetised in same direction OR adjacent ends opposite polarity	C	B1
		(ends) attract each other	C	B1
	(b)	temperature rises	F	B1
		resistance decreases	F	B1
		(eventually) enough current to close relay	C	B1
		current flows in lamp circuit *or equiv.*	C	B1
				8

12.	(a)	(i) ray refracted down at A *condone dispersion; mark worst ray*	F	M1
		not below normal	C	A1
		refracted down at 2nd surface	F	B1
		(ii) refraction / *refracted OR deviation*	F	B1
	(b)	violet greater refraction than red ~~at A~~	F	B1
		2 rays diverging all the way to the screen ~~from A~~ *condone repetition of errors in (i)*	C	B1
	(c)	spectrum (or equiv.) *OR colours OR rainbow* *NOT dispersion*	F	B1
	(d)	(i) X marked ~~above~~ *beyond* position of red	F	B1
		(ii) not in visible spectrum OR invisible	C	B1
		(iii) any example of a suitable I.R. detector *NOT "IR/heat sensor/detector"*	C	B1
				10
