



General Certificate of Secondary Education

Additional Science 4463 / Physics 4451

PHY2F Unit Physics 2

Mark Scheme

2008 examination – June series

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Question 1

	answers	extra information	mark
(a)	53 (m)		1
(b)(i)	Similar shape curve drawn <u>above</u> existing line going <u>through</u> (0,0)	allow 1 mark for any upward smooth curve or straight upward line <u>above</u> existing line going through (0,0)	2
(ii)	rain on road		1
	car brakes in bad condition		1
(c)(i)	all three lines correctly labelled top line – C middle line – B bottom line – A	allow 1 mark for one correctly labelled accept 1.2 accept 0.9 accept 0.7	2
(ii)	any two from: <ul style="list-style-type: none"> (table has) <u>both</u> variables are together both (variables) could/ would affect the reaction time cannot tell original contribution need to measure one (variable) on its own need to control one of the variables 	accept tired and music as named variables accept cannot tell which variable is affecting the drive (the most) accept need to test each separately	2
total			9

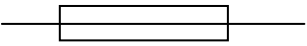
PHY2F**June 08****Question 2**

	answers	extra information	mark
(a)(i)	electrons		1
	jumper		1
(ii)	positive	accept protons accept +	1
(iii)	positively charged	accept any clear way of indicating the answer	1
(b)(i)	copper		1
	it is an (electrical) conductor	only accept if copper is identified do not accept it conducts heat accept it conducts heat and electricity accept copper is the best conductor accept correct description of conduction	1
(ii)	current		1
total			7

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Question 3

	answers	extra information	mark
(a)(i)	blue		1
(ii)	earth		1
(iii)	rubber / plastic	accept any suitable named non conductor eg polypropylene do not accept bakelite do not accept an insulator	1
(iv)			1
(b)	any two from: <ul style="list-style-type: none"> draws too high a current socket overloaded wiring gets too hot / melts (may) cause a fire (may) cause sparking (possible) physical damage to the socket 	accept power for current do not accept electricity/ electric for current accept too much current goes through the socket do not accept too many currents go through the socket it = socket do not accept circuit for socket accept socket for wiring do not accept fuse melts or blows do not accept plug/ appliances overheating a physical reason, such as stick out from the wall is insufficient ignore reference to electric shocks	2
total			6

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Question 4

	answers	extra information	mark
(a)(i)	0.6	allow 1 mark for correct substitution	2
	newtons	accept N do not accept n accept Newtons	1
(ii)	the same as		1
(b)(i)	changed velocity	accept increased/ decreased for change accept speed for velocity accept <u>change</u> direction accept getting faster/ slower accept start/ stop moving accept correct equation in terms of change in speed or change in velocity	1
(ii)	down(wards)	accept towards the ground accept ↓ do not accept south	1
(iii)	increase		1
	velocity is increasing or it is accelerating	can only credit second mark if answer is increase accept speed for velocity accept is moving faster accept an answer in terms of resultant force downwards mention of weight/ mass increasing negates second mark	1
total			8

Question 5

	answers	extra information	mark
(a)(i)	4 (V)	allow 1 mark for correct substitution	2
(ii)	5 (V) or (9 – their (a)(i)) correctly calculated	e.c.f do not allow a negative answer	1
(b)(i)	<u>thermistor</u>	c.a.o	1
(ii)	0°C to 20°C		1
total			5

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Question 6 continued

	answers	extra information	mark
(ii)	No with a reasonable reason explained only going for two weeks so or even staying for a year		1
	total exposure well under lowest limit for causing cancer or Yes with a reasonable reason explained all levels of radiation are (potentially) hazardous (1)	1 mark is for a time frame 1 mark is for correctly relating to a dose accept low doses could still cause cancer accept all levels affect you do not accept radiation dose is high(er) do not accept level of background radiation is higher in Germany	1
	harm caused by lower doses may not have been recorded (1) or evidence may not be complete or insufficient research into effect of small doses		
total			10