

Mark Scheme (Results)

November 2012

360Science

GCSE Additional Science
Structured Paper P2 (5020F/1F)

GCSE Physics
Structured Paper P2 (5048F/1F)

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5020F/1F and 5048F/1F Mark Scheme – November 2012

Question Number	Answer				Acceptable answers	Mark
1		measureme nt	equipment			(3)
		time	stopwatch			
		weight	newton-meter			
		height	metre rule			
	::: allow any recognisable spellings No mark for a cell if more than one answer in that cell					

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
2(a)(i)	attract;			1

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
2(a)(ii)	repel;			1

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
2(a)(iii)	attract;			1

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
2(b) com	woollen jumper;			1

Question Number	Answer	Acceptable answers	Mark
3(a)(i)	10 ;	range 9.5 – 10.5	(4)
(ii)	A ;	at start / beginning / first section /	
(iii)	D ;	0 to 18 m/s	
(iv)	E ;	top /25 (m/s) end / last / downward slope if numbers used must have unit	

Question Number	Answer		Acceptable answers	Reject	Mark
3(b)	substitution ;	$\frac{18(-0)}{20}$	0.9 ecf if graph read as 19 or 17 1 mark for 0.95 or 0.85 correct answer with no working shown 2 marks		(2)
	evaluation ;	0.90 (m/s ²)			

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
4(a)(i)	94 ;			(1)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
4(a)(ii)	145 ;	239-94		(1)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
4(b)(i) com	fission ;			(1)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
4(b)(ii)	Any 2 from the following 1. thermal/heat energy ; 2. steam <u>turns/powers</u> turbine ; 3. turbine <u>turns/powers</u> generator ;	water is heated/steam produced		(2)

Question Number	Answer	Mark												
5(a)	<table><tr><th>energy type</th><th>T</th><th>M</th><th>B</th></tr><tr><td>gravitational potential energy is greatest at</td><td></td><td></td><td></td></tr><tr><td>kinetic energy is greatest at</td><td></td><td></td><td></td></tr></table> <p>Both ticks for 1 mark More than two ticks no marks Accept any unambiguous mark such as a cross for a tick.</p>	energy type	T	M	B	gravitational potential energy is greatest at				kinetic energy is greatest at				(1)
energy type	T	M	B											
gravitational potential energy is greatest at														
kinetic energy is greatest at														

Question Number	Answer	Acceptable answers	Mark
5(b)	substitution ; 3 X 460 X 25 evaluation ; 35 000 (J)	Accept 34 500 power of ten error 1 max correct answer with no working shown 2 marks	(2)

Question Number	Answer	Acceptable answers	Mark
6(a)	Any one from the following 1. air resistance ; 2. (K).E. → thermal ; 3. resultant force slows it down ; 4. ball bounces ;	wind resistance / drag / friction (K).E. → sound air slows it down	(1)

Question Number	Answer	Acceptable answers	Mark
6(b) (i)	38 ;		(1)

Question Number	Answer		Acceptable answers	Mark
6(b) (ii)	substitution ; evaluation;	<u>20</u> ; or <u>20</u> 38 ecf from (b) (i) 0.53 (s)	correct answer with no working shown 2 marks	(2)

Question Number	Answer	Acceptable answers	Mark
7(a)	helium nuclei ;		(1)

Question Number	Answer	Acceptable answers	Mark
7(b)	Any one from the following 1. damage to cells ; 2. damage to tissue ; 3. damage to DNA ; 4. mutation ; 5. cancer ;	{ ionisation/damage } to { cells/(named) organs } poison the blood stream ignore 'very ionising'	(1)

Question Number	Answer	Acceptable answers	Mark
7(c)	Any one of the following 1. limited range in air of alpha particles 2. low penetration ; 3. low activity	smoke detector will be too far from people alpha won't travel far enough alpha travel short distance alpha stopped by paper/skin/container shielded by the case limited quantity of americium-241 ;	(1)

Question Number	Answer	Acceptable answers	Mark
7(d)	working seen on graph ; 440 (years) ;	evidence of halving of activity 430-450 accept 420 for 1 mark correct answer with no working shown 2 marks	(2)

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