

Additional Science A

General Certificate of Secondary Education **A216/01**

Unit 2: Modules B5, C5, P5 (Foundation Tier)

Mark Scheme for June 2010

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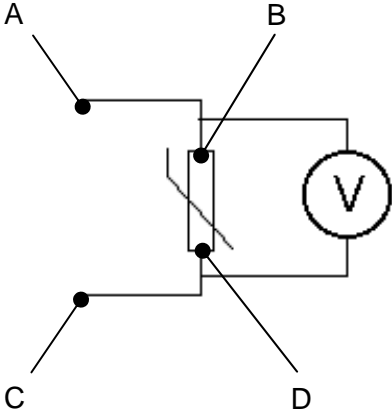
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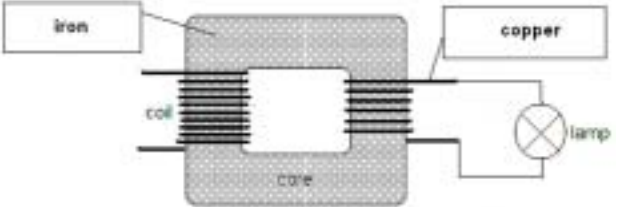
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Question		Expected Answers	Marks	Additional Guidance
1	a	rain (onto land) (1) (idea of water / rain) dissolves salt /picks up salt / washes salt (1) (salt) taken by rivers / streams (to the sea) (1) idea of erosion (1)	[3]	ignore rocks fall into the sea/ corrosion
	b		[2]	mark each column separately, 1 mark for each correct column a column is correct if the correct box, and no other, is indicated, though it may have more than one line attached to it
	c	i	5 (1)	[1]
		ii	10 (1)	[1]
	d	bacteria in the soil <input type="checkbox"/> ...roots of some plants <input checked="" type="checkbox"/> (1) eating <input type="checkbox"/> decomposers <input type="checkbox"/>	[1]	
Total			[8]	

Question		Expected Answers	Marks	Additional Guidance
2	a	It conducts electricity. <input checked="" type="checkbox"/> (1)	[2]	
		It is non-magnetic. <input type="checkbox"/>		
		It is malleable. <input checked="" type="checkbox"/> (1)		
		It is very hard. <input type="checkbox"/>		
		It is silvery. <input type="checkbox"/>		
	b	i 40% (1)	[1]	
		ii quartz (1)	[1]	
	c	i	[1]	
		...to melt a compound <input type="checkbox"/>		
		...to purify a compound <input type="checkbox"/>		
		...to make a compound <input type="checkbox"/>		
		... to decompose a compound <input checked="" type="checkbox"/> (1)		
		ii negative (electrode) / cathode (1)	[1]	
Total			[6]	

Question		Expected Answers	Marks	Additional Guidance
3	a	resistance (1) temperature (1)	[2]	
	b	9 Ω (1)	[1]	
	c		[1]	<p>look for V in a circle [not a square] with lines to either end of thermistor [accept the 'V' on its side] one end connected anywhere between A and B the other end connect anywhere between C and D The voltmeter maybe 'inside' the circuit</p> <p>accept diagram at bottom of page If there is an answer in both positions, neither crossed out, mark the top one only.</p> <p>Candidates answer should be on the printed diagram. IF NOT, they may have drawn another diagram which can score the marks.</p>
Total			[4]	

Question		Expected Answers	Marks	Additional Guidance						
4	a		[2]	all correct = 2 marks one or two correct = 1 mark more than one line from or to any box negates that box						
	b	<p>any two from: more / increased current;</p> <p>less / decreased resistance;</p> <p>uses the term 'parallel' correctly;</p> <p>now has two ways of getting round / goes through the other resistor or the other part / whole or full circuit;</p>	[2]	<p>accept more charge flowing around ignore any ref to ammeter reading. ignore more electricity/voltage/power</p> <p>two resistors in parallel have less resistance =2</p> <p>ignore nothing stopping the electricity</p>						
	c	<table border="1"> <thead> <tr> <th>switch</th> <th>ammeter reading</th> </tr> </thead> <tbody> <tr> <td>open</td> <td>2</td> </tr> <tr> <td>closed</td> <td>4</td> </tr> </tbody> </table> <p>(1)</p>	switch	ammeter reading	open	2	closed	4	[1]	
switch	ammeter reading									
open	2									
closed	4									
Total			[5]							

Question		Expected Answers	Marks	Additional Guidance
5	a	 <p>The diagram shows a transformer with a rectangular iron core. The left vertical limb is labeled 'iron'. A primary coil with 10 turns is wound around the left limb and is labeled 'coil'. The right vertical limb is labeled 'copper'. A secondary coil with 5 turns is wound around the right limb. The secondary circuit is connected to a lamp, represented by a circle with an 'X' inside, labeled 'lamp'. The bottom horizontal limb of the core is labeled 'core'.</p>	[2]	each correct entry for 1 mark
	b	230 V a.c.	[1]	
	c	24 (1) W (1)	[2]	accept watt(s) instead of W independent marking allow units in first space if second space blank
Total			[5]	

Question		Expected Answers	Marks	Additional Guidance
6	a	<p>any three from the following:</p> <p><i>Clone</i> - the new plant/cutting/it is a clone</p> <p><i>Hormone</i> - Links hormone/auxin to growth or development [of any part of the plant]</p> <p><i>unspecialised cells</i> - infers that these are the cells which actually develop/ change/ specialise/ differentiate [into something else]</p> <p>xylem cells – infers that these develop from the unspecialised cells</p>	[3]	<p>IGNORE ANY INCORRECT STATEMENTS, unless they actually contradict a correct statement.</p> <p>Eg ignore ‘cutting is a clone of the DNA’ ignore “They clone cells that are needed”</p> <p>ignore ‘the hormones <u>in</u> the plant’, “the cutting gives off a hormone”, “hormone stimulates plant” ‘auxin is a hormone’ – not enough for a mark</p> <p>the hormone auxin helps the plant respond to light. BOD for growth</p> <p>accept ‘unspecialised cells grow <u>into any cell</u>’</p> <p>ignore ‘unspecialised cells grow’ ignore “all plant cells are unspecialised” ignore ‘the unspecialised cells in the cutting means <u>it</u> can grow into something else”</p> <p>ignore ‘meristem’</p> <p>“unspecialised cells develop into xylem cells” = 2 “[meristem cells] develop into xylem cells” = 1</p>
	b	mentions light/photosynthesis (1)	[1]	ignore any mention of ‘Sun’, but accept ‘sunlight’ reject incorrect statements, e.g. Plant gets its food from the sunlight
Total			[4]	

Question		Expected Answers			Marks	Additional Guidance
7	a		process	cell growth	mitosis	[2] four rows correct = 2 marks three or two rows correct = 1 mark one or none correct = 0 marks more than one tick on any one row negates that row.
			more organelles are formed	✓		
			the cell divides		✓	
			copies of chromosomes are made	✓		
			copies of chromosomes separate		✓	
	b	24 (1)			[1]	
	c	i	cell wall	<input type="checkbox"/>	(1)	[1]
nucleus			<input checked="" type="checkbox"/>			
cytoplasm			<input type="checkbox"/>			
cell membrane			<input type="checkbox"/>			
		ii	double helix (1)			[1]
Total					[5]	

Question		Expected Answers	Marks	Additional Guidance
8	a	They disappear... <input type="checkbox"/>	[1]	
		They divide. <input checked="" type="checkbox"/> (1)		
		They form a hard crust. <input type="checkbox"/>		
		They are specialised. <input type="checkbox"/>		
	b	They make it taste nice. <input type="checkbox"/>	[1]	
		They increase its height. <input checked="" type="checkbox"/> (1)		
		They make it colourful. <input type="checkbox"/>		
		They decrease its thickness. <input type="checkbox"/>		
		Total	[2]	

Question		Expected Answers	Marks	Additional Guidance
9	a	G T C A	[1]	four correct = 1 mark
	b	i		
		cell wall <input type="checkbox"/>	[1]	
		nucleus <input type="checkbox"/>		
		cytoplasm <input checked="" type="checkbox"/> (1)		
		cell membrane <input type="checkbox"/>		
		ii Donny	[1]	
Total			[3]	

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