OCR
RECOGNISING ACHIEVEMENT

GCSE

Additional Science A

General Certificate of Secondary Education

Unit **A216/01:** Modules B5, C5, P5 (Foundation Tier)

Mark Scheme for June 2011

Oxford Cambridge and RSA Examinations

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OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

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Facsimile: 01223 552610
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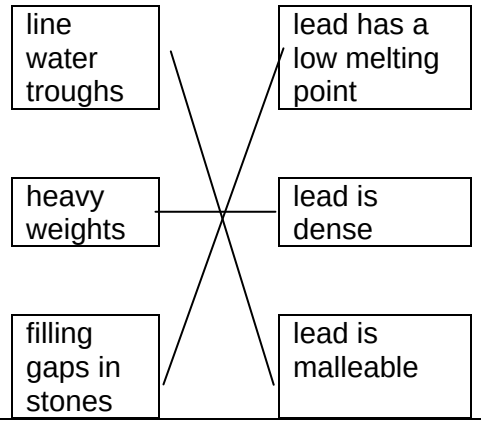
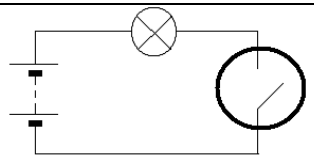
<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Mark</th><th>Guidance</th></tr>
<tr><td>1</td><td>a</td><td></td><td>Pbs PBs (PbS) $PbSO_4$</td><td>1</td><td></td></tr>
<tr><td></td><td>b</td><td></td><td>idea of more impurities (in modern ores) ORA ;

idea of the good / Roman / high grade ores have been used up ORA ;</td><td>2</td><td>ignore references to the amount of lead, the answer must be in terms of amount of impurities

if refers to modern ores
accept have less lead sulfide
not have less lead

gives a reason for the lack of high grade ore
suggests what the other impurities might be</td></tr>
<tr><td></td><td>c</td><td></td><td>lead oxide + lead sulfide ➔ lead + sulfur dioxide</td><td>1</td><td>reactants in either order
products in either order</td></tr>
<tr><td></td><td>d</td><td></td><td>
<table>
<tr><th>description</th><th>silicon dioxide only</th><th>sulfur dioxide only</th><th>both</th><th>neither</th></tr>
<tr><td>high melting point</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>low melting point</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>covalent bonds</td><td></td><td></td><td>✓</td><td></td></tr>
<tr><td>ionic bonds</td><td></td><td></td><td></td><td>✓</td></tr>
<tr><td>giant structure</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>simple molecular compound</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>weak forces between</td><td></td><td>✓</td><td></td><td></td></tr>
</table>
</td><td>4</td><td>7 ticks correct = 4
6 or 5 ticks correct = 3
4 or 3 ticks correct = 2
2 ticks correct = 1
1 tick = 0</td></tr>
</table>

Question			Answer	Mark	Guidance
	e		**use** **property**  	**2**	all three lines correct = 2 2 or 1 lines correct = 1
	f	i	**2.125%** **47%** **50%** **53%**	**1**	
		ii	**any three from:** bubbles / fizzes / red-brown / smell; ties bromine OR lead formation to electrodes; to the correct electrode; lead collects at the **bottom**;	**3**	**accept** bromine formed at anode / positive electrode = 2 OR **accept** lead formed at cathode / negative electrode = 2
			Total	**[14]**	

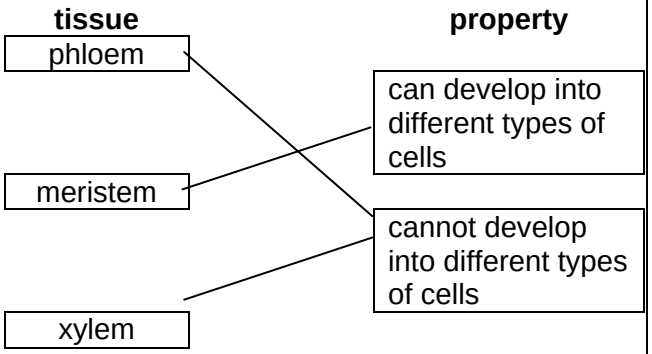
Question			Answer	Mark	Guidance
2	a			1	
	b		lamp → heats up switch → changes resistance battery → pushes charge...	2	all three lines correct = 2 2 or 1 lines correct = 1
	c		**any two from:** (closed switch) allows charge to move AW; (the charge moves) around the circuit AW; delivering energy (from the battery to the lamp);	2	**accept** electrons instead of charge **not** electricity instead of charge this may be implied **accept** AW for delivering e.g. taking / giving
			Total	[5]	

3	a		All three resistors have the same ... ☐ ✓ (1) ☐	1	
	b		voltage (1)	1	
	c	i	6 (V) (1)	1	
		ii	18 (W) (1)	1	
	d		power (1)	1	
			Total	[5]	

Question			Answer	Mark	Guidance
4	a		voltage (1) current (1)	2	
	b		☐ ☐ ☐ Move the magnet more quickly into ... ☑ (1) Increase the number of turns ... ☑ (1) ☐	2	
			Total	[4]	

5	a		two (1) four (1)	2	
	b	i	nucleus (1)	1	**accept** mitochondria / chromosomes / genes
		ii	cytoplasm (1)	1	**accept** ribosome
			Total	[4]	

Question			Answer	Mark	Guidance
6	a		**B** (1)	1	if no answer given, check the table
	b		**any three from:** meiosis (1) idea that [gametes have] 39 chromosomes / haploid / half the chromosomes (1) links [gamete fusion] to zygote / embryo (1) [gametes fuse] to give full number / diploid / double the number of chromosomes (1)	3	NB 'Gametes fuse' is in the stem **accept** mis-spelling of meiosis [ie but not if a 'T' is present!] **accept** 'reduction division' instead of meiosis unless stated otherwise, assume that the candidate is referring to gametes as the product of cell division this mark not available if candidate implies chromosomes come from both parents **ignore** 'cells / chromosomes split in half' **allow** 'half the <u>genetic</u> information' 'gametes fuse and double the number of chromosomes' = 1 **ignore** 'gametes double the number of chromosomes' **ignore** 'half the chromosomes from each parent' in the context of this marking point references to fusing and to halving must be in the correct context
			Total	[4]	

Question			Answer	Mark	Guidance
7	a		(plant) hormone (1) to help roots to form/grow (1)	2	**accept** auxins **allow** 'rooting powder' as a 1 mark answer
	b			2	3 correct lines = 2 marks 1 or 2 correct lines = 1 mark
	c		… some cells… mitosis ☐ ✓ (1) ☐	1	
	d		Chromosomes separate ☐ ☐ ✓ (1) ☐	1	
			Total	**[6]**	

			Paper Total	**[42]**	

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

14 – 19 Qualifications (General)
Telephone: 01223 553998
Facsimile: 01223 552627
Email: general.qualifications@ocr.org.uk

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Telephone: 01223 552552
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