

Mark Scheme (Results)

November 2010

IGCSE

IGCSE Science (Double Award) (4437) Paper 1F

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IGCSE SCIENCE 4437/1F - November 2010

Question Number	Answer	Mark
1(a)	B;	(1)

Question Number	Answer	Mark
1(b)	D;	(1)

Question Number	Answer	Mark
1(c)	A;	(1)

Question Number	Answer	Mark
1(d)	D;	(1)

Question Number	Answer	Mark
1(e)	C;	(1)

Question Number	Answer	Mark
1(f)	B;	(1)

Question Number	Answer	Mark
1(g)	D;	(1)

Question Number	Answer	Mark														
2(a)	<table border="1"> <thead> <tr> <th>Structure</th> <th>Letter</th> </tr> </thead> <tbody> <tr> <td>Lower epidermis</td> <td>A</td> </tr> <tr> <td>Air space</td> <td>F;</td> </tr> <tr> <td>Palisade cells</td> <td>B;</td> </tr> <tr> <td>Spongy cells</td> <td>C;</td> </tr> <tr> <td>Guard cell</td> <td>D;</td> </tr> <tr> <td>Stomata</td> <td>E;</td> </tr> </tbody> </table>	Structure	Letter	Lower epidermis	A	Air space	F;	Palisade cells	B;	Spongy cells	C;	Guard cell	D;	Stomata	E;	(5)
Structure	Letter															
Lower epidermis	A															
Air space	F;															
Palisade cells	B;															
Spongy cells	C;															
Guard cell	D;															
Stomata	E;															

Question Number	Answer	Mark
2(b)	carbon dioxide + water;; \longrightarrow glucose + oxygen;;	(4)

Question Number	Answer	Mark
2(c)(i)	increases / eq;	(1)

Question Number	Answer	Mark
2(c)(ii)	decreases / eq;	(1)

Question Number	Answer	Mark
3(a)	lines correctly drawn;;;	(3)

Question Number	Answer	Mark
3(b)(i)	carbon monoxide;	(1)

Question Number	Answer	Mark
3(b)(ii)	tar;	(1)

Question Number	Answer	Mark
3(b)(iii)	nicotine;	(1)

Question Number	Answer	Mark
4(a)(i)	oak tree;	(1)

Question Number	Answer	Mark
4(a)(ii)	shrew;	(1)

Question Number	Answer	Mark
4(a)(iii)	(sun)light ; chloroplasts / chlorophyll;	(2)

Question Number	Answer	Mark
4(b)	shape;	(1)

Question Number	Answer	Mark
5(a)(i)	explants;	(1)

Question Number	Answer	Mark
5(a)(ii)	micropropagation;	(1)

Question Number	Answer	Mark
5(a)(iii)	in vitro;	(1)

Question Number	Answer	Mark
5(a)(iv)	cloning;	(1)

Question Number	Answer	Mark
5(a)(v)	sterile;	(1)

Question Number	Answer	Mark
5(b)	insulin / eq;	(1)

Question Number	Answer	Mark
6(a)(i)	phloem;	(1)

Question Number	Answer	Mark
6(a)(ii)	leaves make sugar / roots do not; needed for respiration / growth / storage / photosynthesis / eq;	(1)

Question Number	Answer	Mark																		
6(b)	<table border="1"> <thead> <tr> <th>Statement</th> <th>advantage</th> <th>disadvantage</th> </tr> </thead> <tbody> <tr> <td>Harmless to other organisms</td> <td>✓</td> <td></td> </tr> <tr> <td>Acts slowly</td> <td></td> <td>✓</td> </tr> <tr> <td>Some pests survive</td> <td></td> <td>✓;</td> </tr> <tr> <td>Pests unlikely to develop resistance</td> <td>✓</td> <td></td> </tr> <tr> <td>No need to use more than once</td> <td>✓;</td> <td></td> </tr> </tbody> </table> <p>2 correct = 1 4 correct = 2 5 correct = 3</p>	Statement	advantage	disadvantage	Harmless to other organisms	✓		Acts slowly		✓	Some pests survive		✓;	Pests unlikely to develop resistance	✓		No need to use more than once	✓;		(1)
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Question Number	Answer	Mark										
7	<table border="1"> <thead> <tr> <th>Name of structure</th> <th>Order of size</th> </tr> </thead> <tbody> <tr> <td>brain</td> <td>3</td> </tr> <tr> <td>nucleus</td> <td>1</td> </tr> <tr> <td>nervous system</td> <td>4</td> </tr> <tr> <td>nerve cell</td> <td>2</td> </tr> </tbody> </table> <p>4 = 3, 2 = 2 and 1 = 1;;;</p>	Name of structure	Order of size	brain	3	nucleus	1	nervous system	4	nerve cell	2	(3)
Name of structure	Order of size											
brain	3											
nucleus	1											
nervous system	4											
nerve cell	2											

Question Number	Answer	Mark
8	bacteria; decomposition / decomposers; oxygen use; respiration; death of organisms / suffocate; mineral ions / named mineral ion / nutrients; ignore fertiliser growth of algae / growth of plants / eq; eutrophication;	(5)

Question Number	Answer	Mark
9(a)(i)	iris labelled; pupil labelled; pupil larger in dim light;	(3)

Question Number	Answer	Mark
9(a)(ii)	muscle; 1 name of muscle contracts / shortens / eq;	(2)

Question Number	Answer	Mark
9(a)(iii)	more light / eq; allow sight / to see / get image / eq;	(2)

Question Number	Answer	Mark
9(b)	ciliary muscle; contracts / shortens / eq; suspensory ligaments; slacken / relax / eq; lens; fattens / eq;	(3)

Question Number	Answer	Mark
10(a)	haemoglobin; no nucleus; large surface area; biconcave / concave / doughnut / eq; thin (membrane);	(2)

Question Number	Answer	Mark
10(b)(i)	alternative form of a gene / eq;	(1)

Question Number	Answer	Mark
10(b)(ii)	Nn and Nn; N and n and N and n; NN, Nn, Nn, nn;	(3)

Question Number	Answer	Mark
10(b)(iii)	normal and sickled; R carrier	(1)

Question Number	Answer	Mark
11(a)	increases; levels off / drops by a beat / decreases (at 60) / eq;	(2)

Question Number	Answer	Mark
11(b)	respiration / energy; muscles; oxygen; glucose; adrenaline; (removal of) lactic acid / carbon dioxide;	(4)

Question Number	Answer	Mark
12(a)	fast growing; lots of eggs;	(2)

Question Number	Answer	Mark
12(b)	grows faster than Chinese; Allow less eggs than Chinese	(1)

Question Number	Answer	Mark
12(c)	selective breeding / artificial selection;	(1)

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