

Biology A

General Certificate of Secondary Education

Unit **A223/02**: Ideas in Context plus B7 (Higher Tier)

Mark Scheme for June 2011

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Question			Answer	Mark	Guidance
1	a	i	because the whole cream was <u>tested</u> / individual ingredients have not been <u>tested</u> (1)	1	
		ii	idea of need creams with just one substance missing OR test ingredients (1)	1	ignore idea of changing concentration
	b		any two from: could have been digitally enhanced; idea that it could have happened anyway / other factor responsible; idea that measurements are subjective and not objective; does not give a time period; small sample size / repetition needed;	2	accept any reasonable example e.g. botox, other skin products used, any good lifestyle habit, cosmetic surgery
	c		idea of bias / scientists could feel under pressure / obligated to produce the result the manufacturers wanted (1) fear of loss of funding or job or wages (1)	2	ignore reference to lying or explicit bribery
	d	i	any two from: independently; tested / experimented / trial / evidence gathered / statistics / findings / proof; same test as used on medicines; it's in a <u>journal</u> ;	2	ignore university Professor ignore scientific fact / claim accept scientific study ignore Peter has no evidence or Peter is only using his opinion
		ii	she thought the cream was only 70 % successful on her wrinkles (1) but it only worked on 70% of the people who used it (1)	2	
		iii	idea that you get the same effect whatever the dose (1)	1	
	e		Sun / ageing prevents production of, or reduces or damages fibrillin or collagen (1) idea of affecting elasticity (1)	2	ignore DNA / protein / vitamin D
Total				[13]	

Question		Answer	Mark	Guidance
2	a	the Sun (1)	1	accept any clear indication of correct answer
	b	makes own food or organic materials / chemical energy (1) by photosynthesis (1)	2	ignore reference to heterotrophs
	c	i 100 - (60 + 30) (1) 10% (1)	2	10% scores both marks
		ii 5% (1)	1	
	d	any three from: e.g. heat or keeping warm; movement; decay; uneaten or undigested food such as bones; excretion or waste; making sounds; QWC (1)	4	ignore reference to respiration the candidate's response must engage with the question and if you can read the response and it makes sense without having to re-read it then award the QWC mark
Total			[10]	

3	a	any two from: storage; glucose soluble / starch insoluble; idea that starch has low osmotic effect / glucose high osmotic effect;	2	
	b	uses energy (1) against (diffusion) gradient / concentration gradient (1)	2	allow uptake independent of concentration
	c	i carbon dioxide (1)	1	
		ii light (1)	1	accept sunlight
		iii temperature / heat / chlorophyll (1)	1	reject too much heat / temperature too high ignore water
Total			[7]	

Question		Answer	Mark	Guidance	
4	a	both benefit OR a (close) relationship between two organisms (1) one may gain but the other does not suffer or gain (1)	2	ignore any reference to “host” ignore contact reject reference to parasite	
	b	parasite gains (1) host suffers (1)	2		
	c	correct name (1) correct feature (1) how feature is used (1)	3	correctly named parasite = 1 mark then does feature match the parasite = 1 mark then does feature match the explanation = 1 mark e.g. tapeworm – hooks – to hold onto gut = 3 marks tapeworm – hooks – absorb food = 2 marks look for feature and explanation anywhere in answer if no correct parasite, candidate can get max 1 for feature linked to explanation	
	d	i	any two from: shortness of breath; lack of energy / tiredness or weakness; pains; swelling;	2	ignore reference to red blood cells / lack of oxygen / headache
		ii	recessive / co-dominant (1) idea of only some or half of Hb / RBC are affected (1)	2	
Total			[11]		

Question		Answer	Mark	Guidance
5	a	<p>any three from: idea that aerobic provides more energy / a lot of energy / ORA; requires oxygen / ORA; produces carbon dioxide / water / ORA; does not produce lactic acid / ORA; continuous (energy) release / slower / ORA;</p>	3	<p>assume that "it" means aerobic</p> <p>reject aerobic requires MORE oxygen</p> <p>reject anaerobic produces MORE lactic acid</p> <p>ignore reference to oxygen debt</p>
	b	<p>any two from: not enough oxygen available; lactic acid; got rid of or broken down by oxygen;</p>	2	<p>oxygen breaks down lactic acid = 2 marks</p>
Total			[5]	

Question		Answer	Mark	Guidance																																	
6	a	one (1) three (1) co dominant (1) recessive (1)	4																																		
	b	i 3 marks <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>A</td><td>B</td></tr> <tr><td>O</td><td>AO</td><td>BO</td></tr> <tr><td>O</td><td>AO</td><td>BO</td></tr> </table> OR 3 marks <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>A</td><td>B</td></tr> <tr><td>O</td><td>AO</td><td>BO</td></tr> </table> OR 3 marks <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>I^A</td><td>I^B</td></tr> <tr><td>I^O</td><td>I^AI^O</td><td>I^BI^O</td></tr> <tr><td>I^O</td><td>I^AI^O</td><td>I^BI^O</td></tr> </table>		A	B	O	AO	BO	O	AO	BO		A	B	O	AO	BO		I ^A	I ^B	I ^O	I ^A I ^O	I ^B I ^O	I ^O	I ^A I ^O	I ^B I ^O	3	accept if drawn other way round AB parental genotype correct; OO parental genotype correct; all offspring genotypes correct; this would score 2 marks <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>A</td><td>B</td></tr> <tr><td>O</td><td>A</td><td>B</td></tr> <tr><td>O</td><td>A</td><td>B</td></tr> </table>		A	B	O	A	B	O	A	B
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		ii A (1) B (1)	2	accept either way round every wrong answer over 2 negates a correct answer reject AO or BO																																	
Total			[9]																																		

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