OCR
RECOGNISING ACHIEVEMENT

GCSE

Biology A

General Certificate of Secondary Education **A221/01**

Unit 1: Modules B1, B2, B3

Mark Scheme for June 2010

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Guidance for Examiners

> Additional Guidance within any mark scheme takes precedence over the following guidance.

1. Mark strictly to the mark scheme.

2. Make no deductions for wrong work after an acceptable answer unless the mark scheme says otherwise.

3. Accept any clear, unambiguous response which is correct, e.g. mis-spellings if phonetically correct (but check additional guidance).

4. Abbreviations, annotations and conventions used in the detailed mark scheme:

/	= alternative and acceptable answers for the same marking point
(1)	= separates marking points
not/reject	= answers which are not worthy of credit
ignore	= statements which are irrelevant - applies to neutral answers
allow/accept	= answers that can be accepted
(words)	= words which are not essential to gain credit
<u>words</u>	= underlined words must be present in answer to score a mark
ecf	= error carried forward
AW/owtte	= alternative wording
ORA	= or reverse argument

    E.g. mark scheme shows 'work done in lifting / (change in) gravitational potential energy' (1)
    > work done = 0 marks
    > work done lifting = 1 mark
    > change in potential energy = 0 marks
    > gravitational potential energy = 1 mark

5. Annotations:
    The following annotations are available on SCORIS.

✓	= correct response
✗	= incorrect response
bod	= benefit of the doubt
nbod	= benefit of the doubt **not** given
ECF	= error carried forward
^	= information omitted
I	= ignore
R	= reject

6. If a candidate alters his/her response, examiners should accept the alteration.

7. Crossed out answers should be considered only if no other response has been made. When marking crossed out responses, accept correct answers which are clear and unambiguous.

E.g.
For a one mark question, where ticks in boxes 3 and 4 are required for the mark:

Put ticks (✓) in the two correct boxes.	Put ticks (✓) in the two correct boxes.	Put ticks (✓) in the two correct boxes.
☐	☐	⊰
☐	☐	⊰
✓	⊰	✓
⊰	⊰	✓
☐	☐	☐
This would be worth 0 marks.	This would be worth one mark.	This would be worth one mark.

8. The list principle:
   If a list of responses greater than the number requested is given, work through the list from the beginning. Award one mark for each correct response, ignore any neutral response, and deduct one mark for any incorrect response, e.g. one which has an error of science. If the number of incorrect responses is equal to or greater than the number of correct responses, no marks are awarded. A neutral response is correct but irrelevant to the question.

9. Marking method for tick boxes:

   Always check the additional guidance.

   If there is a set of boxes, some of which should be ticked and others left empty, then judge the entire set of boxes.
   If there is at least one tick, ignore crosses. If there are no ticks, accept clear, unambiguous indications, e.g. shading or crosses.
   Credit should be given for each box correctly ticked. If more boxes are ticked than there are correct answers, then deduct one mark for each additional tick. Candidates cannot score less than zero marks.

   E.g. If a question requires candidates to identify a city in England, then in the boxes

Edinburgh	
Manchester	
Paris	
Southampton	

   the second and fourth boxes should have ticks (or other clear indication of choice) and the first and third <u>should be blank</u> (or have indication of choice crossed out).

Edinburgh			✓			✓	✓	✓	✓	
Manchester	✓	✗	✓	✓	✓				✓	
Paris				✓	✓		✓	✓	✓	
Southampton	✓	✗		✓		✓	✓		✓	
Score:	**2**	**2**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**NR**

Question			Expected Answers	Marks	Additional Guidance
1	**a**		nucleus (1)	**[1]**	**accept** phonetic spelling **accept** indication on diagram
	b		to store glucose from digestion ☐ to describe how to make proteins ✓ (1) to release energy by respiration ☐ to transport materials around the c☐	**[1]**	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
	c		... very long DNA molecules ... ✓ (1) ... very short DNA molecules ... ☐ ... very short chromosomes ... ☐ ... very long chromosomes ... ☐	**[1]**	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
			Total	**[3]**	

Question			Expected Answers	Marks	Additional Guidance
2	a		23 (1)	[1]	**accept** underline, tick, all four distractors crossed out
	b		both from her mother ☐ both from her father ☐ neither ... ☐ one from ... ... and one from ... ✓ (1)	[1]	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
	c		... one dominant allele. ☐ ... two dominant alleles. ☐ ... one recessive allele. ☐ ... two recessive alleles. ✓ (1) ... one ... ... and one ... ☐	[1]	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
			Total	**[3]**	

3			discussion of privacy issue eg right to know vs right not to tell (1) any correct statement to Amrit (1) any correct statement to Raj (1)	[3]	responses must clearly indicate Amrit/employee or Raj/ employer
			Total	**[3]**	

Question			Expected Answers	Marks	Additional Guidance
4	**a**		... using high frequency sound. ☐ ... engulfing them. ✓ ... drowning them. ☐ ... digesting them. ✓ ... making antibodies. ✓ ... using an electrical impulse. ☐ ... making antigens. ☐ ... using high speed collisions. ☐ ... injecting them with hormones. ☐	**[2]**	3 correct responses = 2 marks 2 or 1 correct responses = 1 mark if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc

Question			Expected Answers	Marks	Additional Guidance
4	**b**		presence of nitrogen gas ☐ acidic ☐ cold ☐ wet ☐ (1) presence of food ☐ (1) dry ☐ warm ☑ (1) presence of carbon dioxide ☐	**[3]**	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
	c		**any three from:** saliva – enzymes/chemicals; sweat - acidic / chemicals; tears - enzymes / chemicals; <u>stomach</u> – acid; mucous/wax – traps microorganisms;	**[3]**	name of barrier **must** be linked to correct method of operating **allow** 'clots and scabs covering wounds' **ignore** non-biological names **ignore** gut
			Total	**[8]**	

Question			Expected Answers	Marks	Additional Guidance
5	**a**		smoke cigarettes ☐ exercise regularly ☑ (1) drink a lot of alcohol ☐ have a poor diet ☐ reduce his stress level ☑ (1)	**[2]**	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
	b		artery; decrease; oxygen; heart;	**[2]**	all four correct = 2 marks two or three correct = 1 mark one correct = 0 marks **accept** clear deletion of incorrect alternative
	c		<table><tr><th>high risk</th><th>low risk</th></tr><tr><td>C</td><td>A B D</td></tr></table>	**[2]**	four correct = 2 marks three or two correct = 1 mark **ignore** same letter in both boxes the letters must be clear
			Total	**[6]**	

Mark Scheme

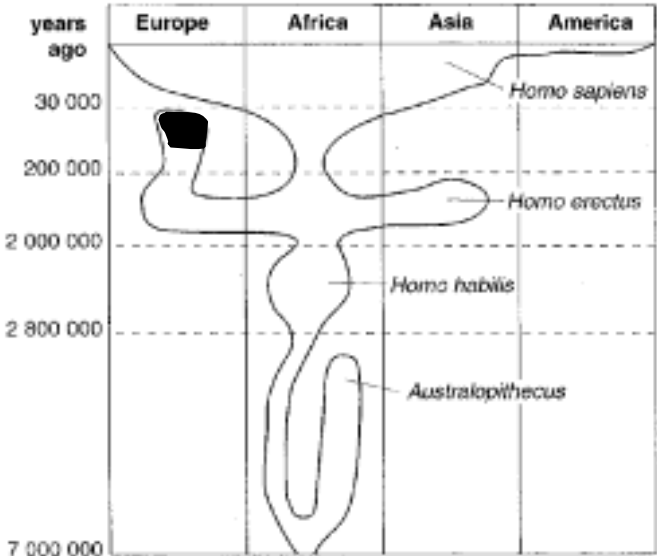| Question			Expected Answers	Marks	Additional Guidance
6	**a**		Peter (1)	**[1]**	
	b		Ranjit (1)	**[1]**	
	c		Stella (1)	**[1]**	
	d		Jane **and** Ranjit (1)	**[1]**	either way round
			Total	**[4]**	

7				**[2]**	three correct lines = 2 marks two correct lines = 1 mark one correct line only = 0 marks more than three lines – deduct 1 mark for each additional line
			Total	**[2]**	

Question			Expected Answers	Marks	Additional Guidance
8	**a**		... Dead Sea Scrolls ☐ stories ... ☐ the fossil record ☑ (1) ... on other planets ☐ ... in DNA ☑ (1) ... internet ... ☐	**[2]**	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
	b		could; natural;	**[1]**	two correct = 1 mark **accept** clear deletion of incorrect alternative
	c		**some** species find it hard to survive / become extinct (1) new adaptations become favourable (1)	**[2]**	one mark is for differential survival / or clear named example a second mark for some being better adapted
			Total	**[5]**	

Question			Expected Answers	Marks	Additional Guidance
9	a			[1]	shading may be extended into the 'L' shape then give mark shaded area must not extend significantly beyond the L shape shading must not go into central area
	b	i	All ... ... common ancestor. ☑ (1) Only one ... ... common ancestor. ☐ *Australopithecus* ... ☐ None ... ... common ancestor. ☐ *Homo erectus* ... ☐	[1]	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc

Question			Expected Answers	Marks	Additional Guidance
9	b	ii	... central evolution. ☐ ... convergent evolution. ☐ ... divergent evolution. ☑ (1) ... negative evolution. ☐	[1]	if no ticks, allow any other indication of correct response eg underlining, cross, shaded, smiley face etc
		iii	*Homo sapiens* (1)	[1]	**accept** humans
	c		**any two from:** idea that brain got bigger / larger / complex / developed; (better chance of) survival / breeding / pass on genes; idea of intelligence eg brighter / smarter; example of intelligence e.g. using tools / speech / talking / writing / fire ;	[2]	**ignore** live longer **ignore** learning / knowledge **/** thinking / self aware / memory **ignore** communication / building / hunting / farming / use of hands/ bipedal
	d		**any two from:** idea that not enough evidence / data / results; idea of conflicting data/evidence/results / two different explanations or interpretations; loss of sponsorship etc;	[2]	**ignore** reference to God **ignore** arguments about loss of face; **ignore** reference to "thinking you are right" **ignore** no evidence **ignore** reference to different experiments. do **not** credit specific reference to Darwin or theories of evolution
			Total	[8]	

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