



GCSE

Biology A

General Certificate of Secondary Education **A223/01**

Unit 3: Ideas in Context plus B7 (Foundation Tier)

Mark Scheme for June 2010

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of pupils of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, OCR Nationals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support which keep pace with the changing needs of today's society.

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.

© OCR 2010

Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

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.

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

This would be worth 0 marks.

Put ticks (✓) in the two correct boxes.

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

This would be worth one mark.

Put ticks (✓) in the two correct boxes.

<input checked="" type="checkbox"/>
<input type="checkbox"/>

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 should be blank (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	any two from: no where to lay eggs/less breeding sites; no food / less food / more competition; exposure to predators / predators can see them; idea of migration;	[2]	ignore no where to live/no home
	b	56 (1)	[1]	accept 56 out of 124 or 56/124 reject 45 %
	c	action stop using (long) fishing lines (1) soon because population is being reduced (by 100 000 a year) / leading to extinction; low reproductive rate / lay only a small number of eggs / slow to mature / long time for population to recover (1)	[2]	
	d	any two from: cannot count all/enough of the birds; difficult to count because birds spread over wide area / birds keep moving; by the time all the birds had been counted some would have died / been born;	[2]	ignore references to migration
	e	ban use of/stop using diclofenac (1) remove the excess carcasses (as soon as the cattle dies) (1)	[2]	
	f	idea of world wide / gone forever / all dead (1)	[1]	
	g i	any two from: idea of fewer organisms; idea of fewer species / less variety; in a (specific) place eg ecosystem, habitat, world, Earth, planet, environment; QWC (1)	[3]	ignore extinction QWC answer is clear on first reading even if incorrect.

Question		Expected Answers	Marks	Additional Guidance
1	g	ii idea of ecosystem more stable / effect on other species / keep food chains or webs going / maintains a potential resource for humans (1)	[1]	ignore reference to gene pool ignore extinction
	h	£5000 m (1)	[1]	accept 500×10 or £5 000 million or 5 000 000 000
		Total	[15]	

2	a	autotroph – rose / lettuce heterotroph – greenfly/ladybird/owl/shrew/ caterpillar/robin	[1]	both required for mark
	b	autotrophs – make own food (1) heterotrophs – do not make own food / eat food (1)	[2]	ignore references to making energy
	c	i sun (1)	[1]	
		ii food / eating / feeding;	[1]	accept consume for eat
		iii any two from: heat; movement; sound; respiration; excretion/urine; egestion/defecating/faeces; uneaten parts;	[2]	accept examples of movement eg flying ignore waste
		Total	[7]	

Question		Expected Answers	Marks	Additional Guidance
3	a	<input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> A	[2]	B in first box (1) C before A (1)
	b	storage / converted into starch (1) respiration / energy (1) converted into other chemicals / growth / repair / making seeds (1)	[3]	do not accept list of chemical without qualification
	c	any three from: humus/dead organisms; biomass / living things; inorganic materials / clay/ sand / rocks / minerals or named minerals; air; water;	[2]	3 correct = 2 marks 2 or 1 correct = 1 mark ignore examples of dead things eg worm ignore examples of living things eg worm ignore reference to fertilisers ignore names gases
		Total		[7]

4	a	temperature; carbon dioxide; light;	[2]	accept in any order ignore heat / water / minerals 3 correct = 2 marks 2 correct = 1 mark 1 correct = 0 marks
	b	any three from: errors in counting; do not know the volume of the bubbles/gases in bubble / bubbles different sizes; some of the oxygen is used by respiration; some bubbles will stick to the pond weed / not float to top; 1 minute not long enough;	[3]	ignore 'human error' on its own ignore mention changing variable such as temperature as it is only for 1 minute
		Total		[5]

Question		Expected Answers	Marks	Additional Guidance
5	a	parasite benefits / feeds on other organism (1) host is harmed (1)	[2]	ignore 'lives off' unless qualified accept disease as harm
	b	correct example (1) feature 1 (1) feature 2 (1)	[3]	features described must be appropriate to parasitic life style
	c	disease/illness/infection/death / less food production (1)	[1]	accept correct named illness eg malaria
		Total	[6]	
6		one mark for each set of words used correctly: idea that DNA is the cause of the problem / makes someone the carrier of the disease / faulty gene (1) DNA/gene taken from white blood cells (1) gene probe attaches to (mutated) gene / DNA (1) use of autoradiography to locate gene probe (1)	[4]	 ignore reference to cheek cells ignore reference to UV and fluorescence
		Total	[4]	
7	a	carbon dioxide (1) water (1)	[2]	accept either way round
	b	i any two from: to supply/use more energy/ATP; by respiration; to avoid anaerobic respiration / lactic acid build up; to contract faster / longer / idea of muscles working harder;	[2]	
		ii breathing rate increase (1) heart beat increases (1)	[2]	accept heavier/deeper breathing
		Total	[6]	

Question		Expected Answers		Marks	Additional Guidance
8	a	B A } = (1) antigens antibodies } = (1)		[2]	
	b	i donor recipient		[2]	4 correct = 2 marks 2 or 3 correct = 1 mark 1 correct = 0
		ii O (1)		[1]	
		Total		[5]	

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

www.ocr.org.uk

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

Oxford Cambridge and RSA Examinations
is a Company Limited by Guarantee
Registered in England
Registered Office: 1 Hills Road, Cambridge, CB1 2EU
Registered Company Number: 3484466
OCR is an exempt Charity



OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553