



General Certificate of Secondary Education

Biology 4411

BLY3F Unit 3 Biology

Mark Scheme

2008 examination – January series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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MARK SCHEME

Information to Examiners

1. General

The mark scheme for each question shows:

- the marks available for each part of the question
- the total marks available for the question
- the typical answer or answers which are expected
- extra information to help the Examiner make his or her judgement and help to delineate what is acceptable or not worthy of credit or, in discursive answers, to give an overview of the area in which a mark or marks may be awarded.

The extra information is aligned to the appropriate answer in the left-hand part of the mark scheme and should only be applied to that item in the mark scheme.

At the beginning of a part of a question a reminder may be given, for example: where consequential marking needs to be considered in a calculation; or the answer may be on the diagram or at a different place on the script.

In general the right hand side of the mark scheme is there to provide those extra details which confuse the main part of the mark scheme yet may be helpful in ensuring that marking is straightforward and consistent.

2. Emboldening

- 2.1** In a list of acceptable answers where more than one mark is available ‘any **two** from’ is used, with the number of marks emboldened. Each of the following lines is a potential mark.
- 2.2** A bold **and** is used to indicate that both parts of the answer are required to award the mark.
- 2.3** Alternative answers acceptable for a mark are indicated by the use of **or**. (Different terms in the mark scheme are shown by a / ; eg allow smooth / free movement.)

3. Marking points

3.1 Marking of lists

This applies to questions requiring a set number of responses, but for which candidates have provided extra responses. The general principle to be followed in such a situation is that ‘right + wrong = wrong’.

Each error/contradiction negates each correct response. So, if the number of error/contradictions equals or exceeds the number of marks available for the question, no marks can be awarded.

However, responses considered to be neutral (indicated as * in example 1) are not penalised.

Example 1: What is the pH of an acidic solution? (1 mark)

Candidate	Response	Marks awarded
1	4,8	0
2	green, 5	0
3	red*, 5	1
4	red*, 8	0

Example 2: Name two planets in the solar system. (2 marks)

Candidate	Response	Marks awarded
1	Pluto, Mars, Moon	1
2	Pluto, Sun, Mars, Moon	0

3.2 Use of chemical symbols / formulae

If a candidate writes a chemical symbol / formula instead of a required chemical name, full credit can be given if the symbol / formula is correct and if, in the context of the question, such action is appropriate.

3.3 Marking procedure for calculations

Full marks can be given for a correct numerical answer, as shown in the column 'answers', without any working shown.

However if the answer is incorrect, mark(s) can be gained by correct substitution / working and this is shown in the 'extra information' column;

3.4 Interpretation of 'it'

Answers using the word 'it' should be given credit only if it is clear that the 'it' refers to the correct subject.

3.5 Errors carried forward

Any error in the answers to a structured question should be penalised once only.

Papers should be constructed in such a way that the number of times errors can be carried forward are kept to a minimum. Allowances for errors carried forward are most likely to be restricted to calculation questions and should be shown by the abbreviation e.c.f. in the marking scheme.

3.6 Phonetic spelling

The phonetic spelling of correct scientific terminology should be credited **unless** there is a possible confusion with another technical term.

3.7 Brackets

(.....) are used to indicate information which is not essential for the mark to be awarded but is included to help the examiner identify the sense of the answer required.

3.8 Unexpected Correct Answers not in the Mark Scheme

The Examiner should use professional judgement to award credit where a candidate has given an unexpected correct answer which is not covered by the mark scheme. The Examiner should consult with the Team Leader to confirm the judgement. The Team Leader should pass this answer on to the Principal Examiner with a view to informing all examiners.

BLY3F**Question 1**

question	answers	extra information	mark
(a)	B = rib C = diaphragm		1 1
(b)(i)	D	allow lower case	1
(b)(ii)	carbon dioxide		1
total			4

BLY3F**Question 2**

question	answers	extra information	mark
(a)(i)	A or C	allow lower case	1
(a)(ii)	B or D	allow lower case	1
(b)(i)	60		1
(b)(ii)	4		1
(c)	red blood cells		1
total			5

BLY3F**Question 3**

question	answers	extra information	mark
	<div><div></div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div></div>	<div>1 mark for each line</div> <div>extra line from List A Action cancels the mark</div>	<div>4</div>
total			<div>4</div>

BLY3F**Question 4**

question	answers	extra information	mark
(a)(i)	<u>on diagram:</u> arrow drawn from cell X , through air space and out through stoma above stoma		1
(a)(ii)	transpiration		1
(b)(i)	13 – 15	ignore units	1
(b)(ii)	any two from: <ul style="list-style-type: none"> • warmest / hottest / brightest time of day • water evaporates fastest • stomata open / more open 	accept warmer / hotter or sun higher in sky	2
total			5

BLY3F**Question 5**

question	answers	extra information	mark
(a)(i)	increased / thick(er)	allow more / wide(r) / broad	1
(a)(ii)	decreased		1
(b)	1	IGNORE working or lack of working correct figures from table 2.1 and 1.1 but no answer / wrong answer = 1 mark	2
total			4

BLY3F**Question 6**

question	answers	extra information	mark
(a)(i)	bladder		1
(a)(ii)	glucose	extras – CANCEL	1
	protein		1
(b)(i)	any two from: <ul style="list-style-type: none"> • kidney functions all the time / not just 3 × 8 h sessions a week • can eat high-protein foods / high salt foods • cheaper • waste of time 	allow direct quotation of correct points from the list allow can eat anything	2
(b)(ii)	have to take (immunosuppressant) drugs / consequence of this eg catch infections / may suffer brain damage / possible rejection of kidney or become ill more easily or risk of brain damage (due to anaesthetic)	allow direct quotation of correct points from the list	1
(c)(i)	urea		1
(c)(ii)	4.2		1
total			8

BLY3F**Question 7**

question	answers	extra information	mark
(a)	0.62 to 0.64	ignore working or lack of working correct figures from graph 8.4 and 2.2 but no answer / wrong answer gains 1 mark or wrong figures from graph subtracted and divided by 10 gains 1 mark or answer 0.61 gains 1 mark	2
(b)	(oxygen for) <u>aerobic</u> respiration <u>more</u> energy available owtte or no / less harmful products or no ethanol / alcohol	allow more energy produced / created / made allow converse ignore more efficient	1 1
total			4

BLY3F**Question 8**

question	answers	extra information	mark
(a)	to kill (micro)organisms / bacteria / named organism or to sterilise	allow germs ignore remove / get rid of	1
(a)(ii)	(room temperature is) suitable / best for growth / reproduction of microorganisms or suitable / best for enzymes	accept converse allow germs allow grow / culture (at room temperature) ignore not killed / live	1
(a)(iii)	to prevent entry of microorganisms owtte	apply list principle allow germs ignore dust / dirt	1
(b)	yes (no mark) microorganisms / bacteria could (only) enter B or microorganisms / bacteria etc cannot enter flask A living organisms / bacteria / etc only develop from pre-existing organisms / bacteria owtte eg 'life from life' or reference to reproduction	can be implied allow do not spontaneously generate eg they can only grow if they can get in gains 2 marks	1 1
total			5

BLY3F**Question 9**

question	answers	extra information	mark
(a)(i)	methane	apply list principle allow symbols	1
(a)(ii)	<u>anaerobic</u> respiration / (anaerobic) fermentation	ignore decay / decomposition etc	1
(b)(i)	any two from: <ul style="list-style-type: none"> manure disposed of gains fertiliser (for crops) gets (free) fuel or cheap supply of energy or (free) cooking / heating / lighting can sell crops at higher price 	allow converse allow not using wood / trees	2
(b)(ii)	<u>in the UK</u>	allow converse arguments for Sri Lanka	1
	lower temperature or not enough heat	ignore other factor(s)	
	process is slower or enzymes action slower	ignore references to efficiency / 'bacteria working'	
total			6