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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Science B 4462 / Biology 4411

BLY1F Unit Biology 1

Mark Scheme

2007 examination - June 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.

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.

BLY1F Question 1

	answers	extra information	mark
(a)(i)	any **two** from: • light • water • space • nutrients / ions / minerals / named • carbon dioxide / CO_2	list principle ignore oxygen / food / sun	2
(ii)	less competition for water **or** more water / nutrients / minerals available	ignore space / light / food	1
(b)	camouflage / same shape as leaf / looks like a leaf	allow 'blends in' ignore colour	1
total			4

BLY1F Question 2

	answers	extra information	mark
(a)	any **three** from: • water • ions / minerals / salts • temperature • blood sugar • heart rate • blood pressure	 allow breathing / oxygen / carbon dioxide allow sodium / chloride, other ions neutral allow heat ignore urea	3
(b)	contraceptive drug fertility drug		1 1
(c)(i)	eg nicotine, alcohol, cocaine, heroin, painkillers, tranquilisers, LSD	allow cannabis / weed or other alternative names allow tobacco ignore smoking / ecstasy	1
(ii)	alters body chemistry **or** craving / needing / dependence withdrawal symptoms on stopping	allow psychological dependence allow withdrawal described allow 'feel ill without it'	1 1
total			8

BLY1F Question 3

	answers	extra information	mark
	joining		1
	sexual		1
	identical		1
	asexual		1
	clones		1
total			5

BLY1F Question 4

	answers	extra information	mark
(a)	7.8		1
(b)	14 / 13.6	allow answer 13 without working for **1** mark 7500 ÷ 550 gains **1** mark	2
(c)	produces / increases blood cholesterol	ignore obesity	1
	affects heart **or** affects blood vessels **or** affects blood pressure	 accept clogs blood vessels	1
(d)	(increases) blood pressure	ignore references to heart / blood vessels	1
total			6

BLY1F Question 5

	answers	extra information	mark
(a)	fossils / teeth / bones / skeleton / foot prints	allow cave drawings do **not** accept scientists have seen them	1
(b)	only (some) bones remain / soft parts have decayed	accept 'no-one has ever seen one' allow no photos, no pictures, no drawings	1
(c)	any **two** from: • hunted by human • (new) predator • (new) competitor • (new) disease • environment changed / named environmental change • prey extinct / loss of food supply	 allow more predators allow natural disaster ignore not enough food	2
total			4

BLY1F Question 6

	answers	extra information	mark
(a)(i)	56	accept 54 – 58	1
(ii)	increased		1
	reasonable qualification eg slowly then more quickly **or** to 174 / 176 **or** by 138 / 140		1
(b)	any **two** from:		2
	• no immunity **or** antibodies ineffective	accept no resistance	
	• no vaccines **or** humans not immunised		
	• idea of large scale contact **or** large scale travel	do **not** accept passed on ignore no cure	
total			5

BLY1F Question 7

	answers	extra information	mark
(a)	scientists figures based on research / calculations / data **or** scientists sample whole area	ignore reasons based on bias	1
	fishermen based on impression / hearsay / experience **or** fishermen fish in well-stocked / limited areas		1
		scientists sample a wider area = **2** marks fishermen only fish in well-stocked areas = **2** marks if no marks gained fishermens' opinion **and** scientists' opinion gains **1** mark	
(b)	any **two** from: • economic considerations • political impact • pressure groups **or** fears of extinction	eg fear for jobs, profits, big demand for cod eg allow EU / government decide or laws will be passed	2
total			4

BLY1F Question 8

	answers	extra information	mark
(a)	any **two** from: • area of bed sampled • sampling time • size of net • kicking action • net position	control variables from information given	2
(b)	any **two** from: • some animals not dislodged • some animals missed / through / escaped net • invertebrates difficult to identify • invertebrates from outside area	must be ideas related to a sample ignore reliability etc	2
(c)	10 to 99 **or** 10 – 99 **or** 99 to 10 **or** 99 – 10		1
(d)	any **two** from: • increased / goes up • 0 at sample 4 • to (more than) 100	allow increase implied from all data described	2
(e)	mayfly because not found downstream of point where sewage enters stream **or** only in the unpolluted water		1 1
total			9