



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme January 2003

GCE

Biology B

Unit BYB6/7/8

Section B

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Guidance on the award of the mark for Quality of Written Communication on Section B of Unit Tests

Quality of Written Communication assessment requires candidates to:

- select and use a form and style of writing appropriate to purpose and complex subject matter;
- organise relevant information clearly and coherently, using specialist vocabulary when appropriate; and
- ensure text is legible, and spelling, grammar and punctuation are accurate, so that meaning is clear.

For a candidate to be awarded 1 mark for quality of written communication on Section B in a unit test, the minimum acceptable standard of performance should be:

- the longer parts (worth 4 marks or more) should be structured in a reasonably logical way, appropriate and relevant to the question asked;
- ideas and concepts should be explained sufficiently clearly to be readily understood. Continuous prose should be used and sentences should be generally be complete and constructed grammatically. However, minor errors of punctuation or style should not disqualify;
- appropriate AS/A level terminology should be used. Candidates should not use such phrases as ‘fighting disease’, ‘messages passing along nerves’, ‘enzymes being killed’ etc, but a single lapse would not necessarily disqualify. Technical terms should be spelled correctly, especially where confusion might occur, e.g. mitosis/meiosis, glycogen/glucagon.

The Quality of Written Communication mark is intended as a recognition of competence in written English. Award of the mark should be based on overall impression of performance on Section B. Perfection is not required, and typical slips resulting from exam pressure such as ‘of’ for ‘off’ should not be penalised. Good performance in one area may outweigh poorer performance in another. Care should be taken not to disqualify candidates whose lack of knowledge relating to certain parts of a question hampers their ability to write a clear and coherent answer; in such cases positive achievement on other questions might still be creditworthy. No allowance should be made in the award of this mark for candidates who appear to suffer from dyslexia or for whom English is a second language. Other procedures will be used by the Board for such candidates.

Examiners should record 1 or 0 at the end of Section B in the Quality of Written Communication lozenge. This mark should then be transferred to the designated box on the cover of the script.

Unit 6: Applied Ecology
Unit 7: Microbes and Disease
Unit 8: Behaviour and Population

Section B

Question 1

- | | | |
|--------|---|----------|
| (a) | homogenisation/grinding;
(differential) centrifugation;
buffered / ice cold solution; | 3 |
| (b)(i) | prevent excess water entering or leaving the chloroplasts/ same water potential;
prevent lysis / shrinkage of chloroplasts;
(<i>reject reference to cells</i>) | 2 |
| (ii) | remove any (cytoplasmic) ribosomes / other organelles;
remove enzymes;
remove any (cytoplasmic) polypeptides;
so any polypeptides originate from chloroplasts; | 2 max |
| (c) | amino acids would be used to synthesise polypeptides;
use autoradiography / UV / X- rays / photographic film; | 2 |
| (a) | <u>ATP</u> from photophosphorylation / photosynthesis/ light dependent reaction; | 1 |
| | | Total 10 |
-

Question 2

- | | | |
|---------|--|----------|
| (a) | (muscle) contraction;
respiration releases heat/ heat from metabolism/ATP breakdown; | 2 |
| (b) | higher energy value of fat;
<u>very</u> low/lower metabolic rate;
<u>very</u> low/lower consumption of food reserves / lasts longer; | 3 |
| (c) (i) | larger surface area for exchange; | 1 |
| (ii) | lowers water potential (of tissues)/ concentration increases;
liquid moves in by osmosis / diffusion; | 2 |
| (iii) | diffusion pathway too long/ diffusion related to SA:Vol ratio;
to supply enough oxygen; | 2 |
| | | Total 10 |
-

Question 3

- (a) allows comparison;
due to different sizes of organisms; 2
- (b) increase in rate of blood flow, Hb concentration increases; 1
- (c) $1.38 \times 0.132 = 0.182$ and $1.38 \times 0.038 = 0.052$ / equivalent method;
 $0.182 - 0.052 = 0.13$ / 0.129;
(correct answer of 0.13/ 0.129 gains two marks) 2
- Total 5

General principles for marking the essay

Four **skill areas** will be marked: scientific content, breadth of knowledge, relevance and quality of language. The following descriptors will form a basis for marking.

Scientific content (maximum 16 marks)

Category	Mark	Descriptor
	16	
Good	14	Most of the material of a high standard reflecting a comprehensive understanding of the principles involved and a knowledge of factual detail fully in keeping with a programme of A-level study. Some material, however, may be a little superficial. Material is accurate and free from fundamental errors but there may be minor errors which detract from the overall accuracy.
	12	
	10	
Average	8	A significant amount of the content is of an appropriate depth, reflecting the depth of treatment expected from a programme of A-level study. Generally accurate with few, if any fundamental errors. Shows a sound understanding of most of the principles involved.
	6	
	4	
Poor	2	Material presented is largely superficial and fails to reflect the depth of treatment expected from a programme of A-level study. If greater depth of knowledge is demonstrated, then there are many fundamental errors.

Breadth of knowledge (maximum 3 marks)

Mark	Descriptor
3	A balanced account making reference to most if not all areas that might realistically be covered on an A-level course of study.
2	A number of aspects covered but a lack of balance. Some topics essential to an understanding at this level not covered.
1	Unbalanced account with all or almost all material based on a single aspect.
0	Material entirely irrelevant.

Relevance (maximum 3 marks)

Mark	Descriptor
3	All materials presented is clearly relevant to the title. Allowance should be made for judicious use of introductory material.
2	Material generally selected in support of title but some of the main content of the essay is of only marginal relevance.
1	Some attempt made to relate material to the title but considerable amounts largely irrelevant.
0	Material entirely irrelevant or too limited in quantity to judge.

Quality of Written Communication (maximum 3 marks)

Mark	Descriptor
3	Material is logically presented in clear, scientific English. Technical terminology has been used effectively and accurately throughout.
2	Account is logical and generally presented in clear, scientific English. Technical terminology has been used effectively and is usually accurate.
1	The essay is generally poorly constructed and often fails to use an appropriate scientific style and terminology to express ideas.
0	Material entirely irrelevant or too limited in quantity to judge.

Total 25 marks