

Mark Scheme (Results)

June 2010

GCE

GCE Biology (6BI07/01)

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Quality of Written Communication

Questions which involve the writing of continuous prose will expect candidates to:

- write legibly, with accurate use of spelling, grammar and punctuation in order to make the meaning clear
- select and use a form and style of writing appropriate to purpose and to complex subject matter
- organise information clearly and coherently, using specialist vocabulary when appropriate.

Full marks will be awarded if the candidate has demonstrated the above abilities.

Questions where QWC is likely to be particularly important are indicated (QWC) in the mark scheme, but this does not preclude others.

GENERAL INFORMATION

The following symbols are used in the mark schemes for all questions:

| Symbol | Meaning of symbol |
|--------------------|--|
| ; semi colon | Indicates the end of a marking point |
| eq | Indicates that credit should be given for other correct alternatives to a word or statement, as discussed in the Standardisation meeting |
| / oblique | Words or phrases separated by an oblique are alternatives to each other |
| { } curly brackets | Indicate the beginning and end of a list of alternatives (separated by obliques) where necessary to avoid confusion |
| () round brackets | Words inside round brackets are to aid understanding of the marking point but are not required to award the point |
| [] square brackets | Words inside square brackets are instructions or guidance for examiners |
| [CE] or [TE] | Consecutive error / transferred error |

Crossed out work

If a candidate has crossed out an answer and written new text, the crossed out work can be ignored. If the candidate has crossed out work but written no new text, the crossed out work for that question or part question should be marked, as far as it is possible to do so.

Spelling and clarity

In general, an error made in an early part of a question is penalised when it occurs but not subsequently. The candidate is penalised once only and can gain credit in later parts of the question by correct reasoning from the earlier incorrect answer.

No marks are awarded specifically for quality of language in the written papers, except for the essays in the synoptic paper. Use of English is however taken into account as follows:

- the spelling of technical terms must be sufficiently correct for the answer to be unambiguous
e.g. for amylase, 'ammalase' is acceptable whereas 'amylose' is not
e.g. for glycogen, 'glicojen' is acceptable whereas 'glucagen' is not
e.g. for ileum, 'illeum' is acceptable whereas 'ilium' is not
e.g. for mitosis, 'mytosis' is acceptable whereas 'meitosis' is not
- candidates must make their meaning clear to the examiner to gain the mark.
- a correct statement that is contradicted by an incorrect statement in the same part of an answer gains no mark - irrelevant material should be ignored

| Question Number | Answer | Mark |
|-----------------|---|------------|
| 1(a)(i) | <ol style="list-style-type: none"> 1. temperature ; 2. 55 °C ; 3. pH ; 4. >7-14 ; 5. size of film / thickness of gelatine ; 6. appropriate reference to linear dimension / area / no greater than 5 x 5 (cm) / not > 2mm (thickness) ; 7. volume of enzymes /eq ; 8. >=5<100 ml ; | max (4) |

| Question Number | Answer | Mark |
|-----------------|---|------------|
| 1(a)(ii) | <p>Allow appropriate reference to risk and method of reduction.</p> <ol style="list-style-type: none"> 1. respiration / breathing problems / eq ; 2. use coated enzymes / eq / wear mask ; 3. possible skin reaction to enzyme /eq ; 4. wear gloves / wash with copious water / wash bench down / dry up spills ; 5. getting enzyme into blood through cut ; 6. wear plaster / gloves ; 7. high level of alkali damages skin / eyes ; 8. gloves / goggles as appropriate ; 9. reference to enzyme damage to eyes ; 10. wear goggles / eq ; | max (4) |

| Question Number | Answer | Mark |
|-----------------|--------|------|
| 1(b)(i) | 236 ; | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 1(b)(ii) | <ol style="list-style-type: none"> axes correct (x-[Savinase], y- $1 \div \text{time} \times 1000$) ; axes labelled with units for x axis ; correct plotting (7 points including origin) ; suitable line of best fit / line joining points drawn with straight edge ; | (4) |

| Question Number | Answer | Mark |
|-----------------|--|------------|
| 1(b)(iii) | <ol style="list-style-type: none"> as concentration goes up , rate (accept in this case (ecf) / $1 \div (\text{mean}) \text{ time} \times 1000$, goes up) / eq ; ref to increase in number of active sites / eq ; above 2% concentration (or their graphs suggestion (ecf) of E, higher concentrations, have no effect on rate / reaches plateau at 2% (or suitable from their graph) ; substrate concentration limiting / eq ; | max (3) |

| Question Number | Answer | Mark |
|-----------------|---|------------|
| 1(b)(iv) | <ol style="list-style-type: none"> reference to wide range / variability of data ; greater reliability for data at {1% / 4% / 5%} / eq ; reference to more data needed for 1.5% to allow better assessment of reliability ; reference to outliers / anomalies ; | max (2) |

| Question Number | Answer | Mark |
|-----------------|--|------------|
| 1(b)(v) | <ol style="list-style-type: none">1. reference to (idea of) best concentration to use (ignore value) ;2. reference to no improvement above this concentration ;3. enzyme costs money ;4. reference to reduced cost effectiveness at higher concentrations ; | max (2) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 2(a)(i) | title should refer to columns 1 and 2 ; | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------------|
| 2(a)(ii) | <ol style="list-style-type: none"> 1. check for any bias of sponsor (e.g. funding source) ; 2. check for credentials of contributor ; 3. reference to cross check with another source ; 4. reference to evidence of peer reviewing ; | max (2) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 2(a)(iii) | <ol style="list-style-type: none"> 1. no does not / eq ; 2. (because) numbers generally rise over time / eq ; 3. (but) numbers do rise (much) in 1990s / fall 1994 to 1996 ; | (3) |

| Question Number | Answer | Mark |
|-----------------|---|------------|
| 2(b)(i) | <p>No mark for type of visual chosen</p> <ol style="list-style-type: none"> 1. any diagram which depicts (roughly) correct proportions ; 2. bar or histogram should have axes labelled / pie chart needs title and percentages in the segments ; 3. pie has key to what segments are or directly labelled; bar / histogram has key or bars labelled on axis ; | max (2) |

| Question Number | Answer | Mark |
|-----------------|--|------------|
| 2(b)(ii) | <ol style="list-style-type: none"> 1. yes they would ; 2. as they think habitat loss is considered most important reason for species loss ; 3. (lines 30-39) discuss (better) spending of money on this ; 4. majority would NOT agree with points made in these lines about hunting (accept converse answer) ; | max (3) |

| Question Number | Answer | Mark |
|-----------------|---|------------|
| 2(c) | <ol style="list-style-type: none"> 1. need to add IUCN red list reference to book / website / address / url ; ®just IUCN 2. date, 1996 ; 3. Wikipedia article url / address / title of article ; ® just Wikipedia 4. date site visits ; 5. IUCN leaflet ; ® just IUCN 6. date 2008 ; 7. reference to title of newspaper / journal with household questionnaire ; 8. some detail included, date, institution(s), author(s) ; | max (4) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 2(d)(i) | <ol style="list-style-type: none"> 1. Economic ; 2. about possible uses of money in conservation of different types / eq ; | (2) |

| Question Number | Answer | Mark |
|-----------------|---|--------------------|
| 2(d)(ii) | <p>(Cannot have same ref. as (d)(i))</p> <p>First mark for implication and line reference Next two marks for reasons e.g.</p> <ol style="list-style-type: none"> 1. ethical, lines 47-48 ; 2. ethics of keeping animals in zoos ; 3. cage environment ; 4. ethical, lines 38-39 ; 5. ethics of hunting animals ; 6. (wrong if) for ornaments, dubious medications, trophies etc / might lead to extinction ; 7. social, lines 49-54 ; 8. part of this (social) is education ; 9. teaching, awareness ; 10. environmental, lines 30-31 ; 11. correct reference to appropriate habitat ; 12. as only place organisms can properly exist ; | <p>max (3)</p> |

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