

Mark Scheme (RESULTS)

June 2008

GCE

GCE Biology (6103/03)

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

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)	1. reference to difference in energy source /eq ; 2. reference to source of organic matter /eq ;	(2)

Question Number	Answer	Mark
1(b)	i. holozoic /eq ; ii. mutualistic / symbiotic / eq ; NOT commensal iii. parasitic /eq ; iv. saprobiontic / saprophytic / eq ;	(4)

Question Number	Answer	Mark
2(a)	nutrient enrichment of water / eq;	(1)

Question Number	Answer	Mark
2(b)(i)	1. $6200/800 \times 100$; OR $[(7000 - 800) \div 800] \times 100$ 2. 775(%) ;	(2)

Question Number	Answer	Mark
2(b)(ii)	(1971 to 1975 / increase) 1. (treatment / nitrate) {provided / used} for {protein / amino acid} synthesis ; 2. so increased growth /eq ; (1975 to 1976 / decrease) 3. growth of algae {limited / eq} by the supply of nutrients ; 4. (algae) started to die ; 5. animals eating them ; 6. another factor became limiting e.g. competition for light / shading effects ;	max (4)

Question Number	Answer	Mark
2(c)	<ol style="list-style-type: none"> 1. more algae would mean more food for {primary consumer / herbivores / eq} ; 2. (primary consumers) would increase in number / eq ; 3. reference to effect on organisms further up the food chain ; 4. reference to algae shading out other plants / algae release toxins which kill {animals / organisms / eq} ; 5. {bacteria / decomposers} {increase in number / eq} ; 6. (bacteria) would {use up oxygen in the water / increase the BOD / eq} ; 7. reference to the change in oxygen affects {aerobic / anaerobic} organism e.g. fish die / bloodworms increase ; 	max (3)

Question Number	Answer	Mark
2(d)(i)	<ol style="list-style-type: none"> 1. idea of collecting pondweed growing in {stated / known} {volume / area} of water ; 2. separate weed from water / dry the weed ; 3. find the {mass / weight} of weed / eq ; 4. reference to repeats / more than one sample taken ; 5. (estimate) the {volume / area} of the pond / eq ; 6. idea of how the total biomass of pond calculated ; 	max (4)

Question Number	Answer	Mark
2(d)(ii)	<ol style="list-style-type: none"> 1. biomass takes into account the {mass / size / eq} of organisms / numbers take no account of {mass / size} of organisms / eq ; 2. (therefore) possible to compare with other biomass values / (valid) comparisons not possible with numbers / eq ; 	(2)

Question Number	Answer	Mark
3(a)	<p>A photosynthesis ;</p> <p>B respiration / decomposition / putrefaction ; NOT decay</p> <p>C combustion ;</p>	(3)

Question Number	Answer	Mark
3(b)	<ol style="list-style-type: none"> 1. overall trend {increasing / eq} ; 2. {steady / linear / eq} increase to {1973 / 1974} ; 3. period of {increase and decrease / fluctuation} between {1973 / 1974} and {1982 / 1983 / 1984 / 1985} ; 4. decrease between 1979 and 1983 ; 5. increase from 1983 (with some fluctuations) ; 6. correct manipulation of data e.g. overall 58×10^6 barrels per day ; 	max (3)

Question Number	Answer	Mark
3(c)	<p>YES, because -</p> <ol style="list-style-type: none"> 1. there is an overall increasing trend in both graphs / eq ; 2. there are fluctuations on both graphs / eq ; <p>NO, because -</p> <ol style="list-style-type: none"> 3. the {peaks and troughs / fluctuations} of the graphs do not match / eq ; 	max (2)

Question Number	Answer	Mark
3(d)	<ol style="list-style-type: none"> 1. {traps / eq} {heat / infrared / eq} (in the atmosphere) / eq ; 2. methane / CFC / nitrous oxide / water vapour / eq ; 	(2)

Question Number	Answer	Mark
3(e)	natural gas / coal / lignite / anthracite ;	(1)

Question Number	Answer	Mark
3(f)	<ol style="list-style-type: none"> 1. idea of meeting present needs ; 2. idea of ensuring future supplies / last a long time / eq ; 3. (energy crops) are a renewable resource / eq ; 	max (2)

Question Number	Answer	Mark
3(g)	<ol style="list-style-type: none"> 1. none of the habitats supported all three species ; 2. planting willow {removes / eq} lapwing / eq ; 3. planting willow increases the numbers of snipe /eq ; 4. planting willow allows woodcock to appear / eq ; 5. credit any correct manipulation of data ; 	max (3)