Version 1.0: 0108

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Science B 4462 / Biology 4411

BLY1H Unit Biology 1

Report on the Examination

2008 Examination – January Series

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Set and published by the Assessment and Qualifications Alliance.

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Science B / Biology
Higher Tier BLY1H

General

There were eight questions on the paper. The first two (termed Standard Demand) were common to Foundation and Higher Tiers. These were targeted at grades C and D. Questions 3 and 4 were also Standard Demand. The remaining questions were High Demand, targeted at grades B, A and A*.

Candidates should be advised to write in black ink or black ball point pen only as the scanning process involved in on-line marking does not pick up pale colours well. Furthermore candidates should be advised to ensure that if their answers extend beyond the printed lines or space then they should keep these extensions away from the edges of the page as they may be removed during scanning.

Some examiners expressed concern about the apparent increase in illegible handwriting this year. Although it is still a very small percentage, candidates should be aware that if the examiner cannot read the script they will not be awarded any marks for that part.

Fundamental knowledge and understanding of How Science Works in the world at large, as well as in the laboratory, were tested throughout this paper. This means that candidates should be reminded that it is essential to read all of the question carefully, analyse the information provided and think about their response before writing their answer.

Question 1 *(Standard Demand)*

In part (a)(i) the word 'recreational' proved to be a problem to many students. The most common incorrect answers were 'used regularly' and 'illegal'. In part (a)(ii) only a minority of candidates gained both marks. Many gained one mark for stating that the drugs contained addictive substances, but very few mentioned the effects on body chemistry.

In part (b)(i) a majority of candidates ignored the link between cannabis an cocaine, referring instead to other substances in the table. In part (b)(ii) almost 50% of the candidates were able to pick out Class B drugs, but relatively few were able to point out that use of these was correlated with the uptake of two Class A drugs.

Question 2 *(Standard Demand)*

Part (a) involved reading the given information, then sorting out variables. Less than 50% candidates gained both marks, the most common incorrect answers being 'the concentration of copper' and 'the number of invertebrate species'.

In spite of the instructions, many of the students drew lines or curves on the graph, thereby forfeiting at least one of the two marks in part (b). A significant number of candidates read the value at 21 species B surviving, presumably working this out as half of the maximum number of species B surviving. The number of survivors at 200 ppm was often treated as an anomalous result and not included in the line

In part (c)(i) the majority of candidates failed to understand the graph and merely stated that 'species C had the fewest survivors'. In part (c)(ii) it was apparent from their answers that few candidates had done any fieldwork involving counting invertebrates. Few appreciated the word 'convenient' in the questions and went on to give answers in terms of the cost of chemicals. Many thought that chemicals would be poured into the water, thus polluting it.

Question 3 *(High Demand)*

Answers to this question were disappointing. Although the knee jerk reflex involves only two neurones, the fact that the receptor and the muscle were both labelled should have enabled candidates to identify the two neurones.

In part (a) the sensory neuron was correctly identified much more frequently than the motor neuron. Common errors in identifying C were 'synapse' and 'reflex arc'. A surprising number got all three correct responses in entirely the wrong sequence.

In part (b) some reference to a chemical or a transmitter was required but most candidates answered in terms of 'a relay neuron' or 'a synapse'.

In part (c) only 50% of the candidates correctly identified the muscle. The most common incorrect responses were: hammer, tendon, knee and 'leg moves'.

Question 4 *(High Demand)*

In part (a) most candidates realised that the animal would produce less sweat, but only half of them linked this to cooler external temperature.

In part (b) there was much confusion between breathing and respiration which made many answers difficult to judge. As many candidates stated that water was required for respiration as those who knew that water is produced by respiration.

Question 5 *(High Demand)*

In part (a) it was pleasing to note that the majority of candidates gained at least two marks for this question. The misconception that antibodies remain in the body for long periods still persists for many candidates.

In part (b) many candidates did not seem to appreciate the difference between bias and reliable evidence, often transposing the answers to (b)(i) and (b)(ii). In part (b)(i) many candidates offered 'small sample' and many others 'reliance on parents' opinion', but only 10 % identified both ideas. In part (b)(ii) it was surprising that only half of the candidates recognised that payment by solicitors could lead to bias.

Question 6 *(High Demand)*

The skill in part (a) was to select the correct figures to add and subtract. Only one third of the candidates obtained the correct answer. Some answers involved every number on the diagram. Other candidates correctly calculated 3.2 and then added or subtracted the +3 figure for the ocean.

In part (b) most candidates produced correct responses. A common statement was that 'trees release carbon dioxide when they are cut down' inferring that trees act rather like balloons.

Very few candidates gained three marks in part (c). Most candidates stated that carbon dioxide traps heat, but many thought that heat was trapped on its way in from the Sun. Only 5% of students stated that heat was radiated by Earth. It was alarming how many candidates stated that carbon dioxide 'destroys the ozone layer allowing more UV light in'.

Question 7*(High Demand)*

In part (a) almost half the candidates gained two marks, usually for stating that the birds did not require to fly because there were no predators and that food was on the ground. Only rarely did they link smaller wings to mutation or variation. Similarly relatively few linked adaptation to success in breeding and passing on genes. A majority gave Lamarckian explanations in terms of inheritance of characteristics obtained during lifetime.

In part (b) the majority of candidates tried to explain the extinction of the dodo rather than answering the question which was about uncertainty.

Question 8 *(High Demand)*

(a) It was disappointing that only a third of the candidates could answer these straight-forward questions in part (a). In part (a)(i) 'Nucleus' was the most common answer. In part (a)(ii) many candidates referred to sharp knives or similar implements.

In part (b) most candidates realised that the two plants would have identical genetic information, or that asexual reproduction had taken place, but few put the two ideas together.

The majority of candidates did little more than repeat the question in part (c). Very few realised that herbicides are sprayed to kill weeds and that the spray would kill the weeds but not the crop plants.

In part (d) it was depressing to find depressing that so few appreciate that crop plants are not 'natural'. Most answers were in terms of 'not natural', 'not ethical', 'against religion', 'against God'. Centres should be aware that these 'catch-all' statements will not gain credit in Biology examinations. The danger of cross-pollination with wild plants was the most common correct answer.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results Statistics** page of the AQA Website.