



General Certificate of Secondary Education

Science B 4462 / Biology 4411

BLY1F Unit Biology 1

Report on the Examination

2011 examination – January series

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Science B / Biology
Foundation Tier BLY1F**General**

There were eight questions on the paper. The first six questions appeared only on the Foundation Tier and were targeted at grades E, F and G (Low Demand). The final two questions (termed Standard Demand) were common to Foundation and Higher Tiers. These were targeted at grades C and D.

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.

Many examiners expressed concern about illegible handwriting this year. Although it is a 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 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 (Low Demand)

Overall, candidates made good attempts at suggesting how each of the adaptations benefitted the plants

- a) The most common acceptable answers related to large surface area or to light weight. Many candidates simply repeated the stem of the question e.g. 'The leaves are adapted ...' without saying how they were adapted. A few referred to reasons, without giving any adaptation, for floating e.g. 'it floats to get more light.' A significant minority thought the leaf was flat to allow animals (mostly frogs) to sit or stand on it.
- b) A majority of candidates answered in terms of the shape allowing snow to fall off easily, with some pleasingly going beyond the scope of the question by suggesting that this allowed more light to reach the leaves or less weight on the branches. By far the most common error was to suggest that the shape protects part of the tree, usually the trunk or roots from the snow. A few candidates suggested the leaves insulated the tree from the snow.
- c) A vast majority of the candidates correctly suggested the thorns would offer protection. The only mistakes seen were the idea of the thorns reducing water loss or providing water storage.
- d) This was the most challenging part of the question. Whilst many candidates correctly identified water storage as the adaptation, others identified the link to water but had difficulty expressing this clearly e.g. 'catch / collect / trap more rain/water' and 'the plant doesn't need water'. Other incorrect answers referred to 'catching more light', 'providing shade', 'conserving heat' and vague references to surface area.

Question 2 (Low Demand)

- a) Parts (a)(i) and (a)(ii) provided no difficulties for the vast majority of the candidates. Part (a)(iii) was less well answered, many candidates misreading the scale and giving the answer 2 million years.

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- b) Rather less than half of the candidates could offer a sensible suggestion. The most common unacceptable answer involved the candidates stating that the answers were from the graph therefore they had to be true. A significant number seemed to have been distracted by the word Earth from the stem, e.g. 'we have no evidence from other planets' or 'this is the only planet with oxygen for fire'. Weaker candidates often stated 'we would not be here today if we did not have ancestors'.
 - c) The vast majority of candidates correctly opted for Darwin; the remainder guessing at the other two scientists in approximately equal numbers.

Question 3 (Low Demand)

- a) It was pleasing to note that the vast majority of candidates gained full marks for this question. The only common error was to link cigarette smoke or alcohol to the birth of babies with abnormal limbs.
- b) (i) A large majority of candidates correctly chose ecstasy, other candidates opting for drugs unclassified by the Government.
- b) (ii) Over half the candidates answered 'no' then went on to give a correct piece of evidence to support the answer. However, many candidates failed to mention the class of drug in their answer. Others commented on other aspects of drugs other than harm, e.g. 'cost', 'availability' or 'social acceptability'. A number expanded an answer around the legality of drugs rather than their classification.
- c) A large majority of candidates correctly opted for 'for pleasure', but a sizeable minority opted for 'to cure disease'.

Question 4 (Low Demand)

Less than half of the candidates obtained full marks, but the vast majority gained at least two of the marks. Candidates were most uncertain about the descriptions of tissue culture and embryo transplantation.

Question 5 (Low Demand)

- a) Just over half of the candidates chose the correct conditions linked to obesity. Almost all the candidates obtained two or more marks, the only common error being to select an incorrect alternative rather than arthritis.
- b) Parts (b)(i) and 5(b)(ii) provided no difficulties for candidates.
- c) It was pleasing to note that over half of the candidates gave a correct proportion. It should be noted that '1 in 2' is a correct answer, but that '1 to 2' is not.
- d) A vast majority of candidates chose the correct meal in (d)(i), but in (d)(ii) only about half of the candidates were able to give two correct reasons for their choice. Many took the word diet and expanded it to balanced diet including e.g. '5 a day'. Others simply stated that a salad meal was the healthiest without giving any data from the table or any facts to back this up. The greatest difficulty was with poor choice of language, such as a 'small amount' rather than 'least'.

Question 6 (Low Demand)

- a) Only half of the candidates correctly opted for methane, most of the others opting for sulfur dioxide.
- b) Most of the candidates correctly opted for fertiliser but a significant number opted for pesticide.
- c) Most candidates correctly opted for fuel, but a significant number opted for biodiversity.
- d) Most of the candidates correctly opted for greenhouse effect, but a significant number opted for toxic chemicals.

Question 7 (Standard Demand)

- a) Less than half of the candidates could correctly name one of these two hormones. Significantly, under a fifth of the candidates did not attempt the question. Oestrogen was often given rather than FSH and LH
- b) It was pleasing to note that many of the candidates gained at least two of the four marks. Most candidates understood that the eggs and sperm were mixed together, that an embryo was made and that it was inserted into the woman. The majority of candidates lost marks by making vague generalised statements e.g. few stated that the eggs were taken from the ovary, just that they were taken from the woman. Very few candidates mentioned that the fertilised egg divided to form the embryo. For many candidates, the embryo just came into being as it was inserted into the woman. Candidates stated that the embryos were inserted into an interesting variety of organs - the chief one was the vagina, but ovaries, fallopian tubes and even the stomach featured. A common misconception was 'the sperm going into the embryo' or that 'sperms and eggs were taken and placed in an embryo'.

Question 8 (Standard Demand)

- a) It was apparent from their responses that only around a quarter of the candidates actually knew what a control variable was. Most candidates gave one correct response: that the same amount of food had been used at the start. However many candidates went on to give "type of seed" as their second response. For candidates who answered in terms of dishes, many seemed to think that size mattered, or the height they were placed at (even though the text did not mention this at all) or the fact that there were six dishes was vitally important. For candidates who answered in terms of location, many expected the examiners to assume that because it had been stated that the dishes were nailed to a piece of wood, when they stated that the piece of wood was placed in the garden, the dishes were, per se, also in the garden. Most candidates who responded in terms of time gave correct statements.
- b) The vast majority of candidates correctly identified the sunflower seed.
- c) (i) This question was quite well answered with candidates losing marks only where they were not specific enough with regard to name or data. Hardly any candidates circled the "Yes" category. Some candidates gave descriptions such as the 'birds' favourite foods did not contain much fat' but did not give names or data to reveal what these favourite foods/fat content were. Another common

mistake was to fail to name the seeds when quoting intermediate values e.g. "some lower fat seeds are more popular than those with high fat"
Some students do expect examiners to do too much work on their behalf e.g. "highest % of fat had 4 and the lowest 99"

- c) (ii) Almost all the candidates gained at least one mark for this question, but only a quarter of them gained both marks. Most marks were lost by candidates who gave vague answers - the seeds were "fairly popular", or the seeds were "visited quite often" or "birds liked to eat these seeds" rather than making categorical statements like "most popular" etc
Many candidates ignored Table 1 and gave 2 responses relating to Table 2, meaning that answers relating to fat and % eaten were common.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.