AQA

**General Certificate of Secondary Education**

# Science B 4462 / Biology 4411

## BLY1F     Unit Biology 1

# Report on the Examination

*2010 examination – January series*

**Science B / Biology
Foundation Tier BLY1F**

**General**

There were seven questions on the paper.  The first five questions appeared only on the Foundation Tier and were targeted at grades E, F and G.  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.

Some examiners expressed concern about illegible handwriting this year.  Although it is a small percentage, of candidates they 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)*

(a)     Nearly all of the candidates were able to name the three sense organs.  The only common error was to name the stimulus or the sense rather than the organ.

(b)     (i)     Only a quarter of candidates wrote in terms of excess sugar being stored or turned into fat.  The main error was to state that cola contained fat or that sugar is fattening.

(b)     (ii)    The majority of candidates gave acceptable answers such as heart disease, arthritis and diabetes.  Weaker candidates frequently opted for cancer.

(c)     (i)     Two thirds of candidates were able to read the graph accurately.  Answers in the range 0.45 to 0.55 were accepted.  It was often not clear whether a candidate had included a decimal point as part of the answer.

(c)     (ii)    Nearly two thirds of candidates gained two marks for the correct answer. A further tenth gained one mark for showing understanding of the method but then used the wrong data from the bar chart.

(c)     (iii)   Half of all candidates correctly referred to increased blood pressure.  Many confused salt with cholesterol and gave answers relating to blocked blood vessels.

**Question 2** *(Low demand)*

(a)     The large majority of candidates referred to camouflage, spelt in many different ways or described.  The other candidates mainly referred to insulation.

(b)     Nearly all of the candidates referred to insulation or a reasonable description.  The most common incorrect responses were insulation and flying.

(c)     Three quarters of the candidates gave correct answers referring to the prey of the owl.  The most common incorrect answer was to state that the owl would escape its predators or that predators would not notice it.

(d)     For this part most of the candidates gave correct answers linking the adaptation to food capture or to perching.


**Question 3** *(Low demand)*

(a)     A good half of candidates correctly named all three diseases.  A further fifth correctly named two diseases and most of the rest correctly named one disease.  Meningitis was the most common incorrect response.

(b)     Again nearly all of the candidates chose the correct answer which was antibodies.  Most of the other candidates gave penicillin.

(c)     (i)     Many candidates gained two marks for the description with several others gaining one mark.  It was pleasing to note that most candidates could recognise the pattern and give a good description of it.

(c)     (ii)    Just under half of the candidates gave correct responses in terms of fear of side effects or of the disease becoming less common.  Many answers were too vague to gain credit.  These included vague ideas such as parents didn't want children to have it or the children didn't want it without suggesting why.


**Question 4** *(Low demand)*

(a)     Two thirds of candidates correctly recognised that the process was sexual reproduction.  A majority of the other candidates chose cloning.

(b)     Similarly two thirds of the candidates correctly chose chromosome.  A majority of the other candidates chose embryo.

(c)     (i)     Many of the candidates chose two correct reasons in favour.  A further tenth chose one correct reason.  The main cause of error with this question was that candidates did not obey the instructions.  Use only this information to answer these questions

(c)     (ii)    Surprisingly in view of the responses to part (c)(i) only two thirds of the candidates correctly identified two reasons against the use of GM animals.  A further quarter correctly identified one reason.  Many candidates chose using GM animals can reduce the number of animals used in medical research as a reason against.  Many candidates changed their minds and swapped answers

between parts (c)(i) and (c)(ii), but largely their first choice would have gained more marks.

**Question 5** *(Low demand)*

(a)     A third of candidates correctly identified all three uses; a further third identified two uses and nearly all of the rest one use.  Most candidates identified the use of painkillers, but many were uncertain about the use of statins.

(b)     (i)     Two thirds of candidates gave the correct answer of 8 years.  Significant numbers gave 9 years.

(b)     (ii)    Only a fifth of candidates gave the correct answer of 3210 humans.  The rest of the candidates generally did not realise that they had to add together the smallest number in each of phase1, phase 2 and phase 3.

(c)     (i)     Four fifths of candidates correctly chose toxic while most of the other candidates opted for optimum dose.

(c)     (ii)    The large majority of candidates correctly chose side effects.  The other candidates chose the other alternatives in similar numbers.

**Question 6** *(Standard demand)*

(a)     Few candidates could adequately describe what was meant by natural selection. A  further tenth gained one mark.  Successful candidates generally gained one mark for survival of the fittest.  The second mark was generally gained for a correct reference to adaptation, although many implied that organisms choose to adapt.  A minority of candidates stated that survivors would go on to breed.

     Generally the answers fell into three main categories: general answers related to evolution eg we are descended from apes; answers based on natural eg something has changed naturally; answers based on selection eg  when you choose your natural partner.

(b)     A quarter of the candidates correctly identified two trends and a further third correctly identified one.  The most common error was to describe something that did not change eg still has skull and pelvis.  Many candidates failed to gain credit because they just stated that a structure changed, without saying what the change was eg the skull changed or the shape of the pelvis changes.

(c)     A sixth of candidates gave two correct reasons and a further half gave one correct reason.  The most common correct reason was a reasonable reference to religious objections closely followed by the idea that Darwin had no proof.  Many candidates made the incorrect statement that Darwin had no evidence.

     Most unsuccessful candidates referred to apes and humans eg apes are hairy, humans can talk, apes walk on hands and feet, apes are wild animals.  Other candidates stated that people did not want to be descended from apes or that apes are still alive.

(d)     Very few candidates gave a creditworthy difference between the two theories.  Most candidates had difficulty expressing ideas clearly.  Weaker candidates merely restated the question.

Many candidates stated that Darwin takes a long time, Lamarck is quick.


**Question 7** *(Standard demand)*

(a)     A fifth of candidates appreciated that the question was about accuracy.  Successful candidates mainly referred to smaller intervals between readings or sampling above 2 m.  Weaker candidates described improvements to reliability eg repeating readings or doing transects in different towns or different parts of the same town.

(b)     Most candidates demonstrated good understanding of the data, with the majority of candidates correctly choosing Parmelia in part (b)(i) and Evernia in part (b)(ii).

(c)     Hardly any of the candidates gave two correct reasons.  A further fifth gave one correct reason.  Most successful candidates correctly stated that Lecanora does not grow over the whole range.  The second most common correct response was that other factors may influence the distribution.

Many candidates did not understand the graph and thought that Lecanora had only been surveyed between 1.0 and 5.6 km from town.


**Mark Ranges and Award of Grades**
Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.