General Certificate of Secondary Education

Science B 4462 / Biology 4411

BLY1F **Unit Biology 1**

Report on the Examination

2011 examination – June series

Science B / Biology
Foundation Tier BLY1F

General

There were nine questions on the paper.   The first seven 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.

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)*

(a)   (i)   An overwhelming number of candidates correctly chose 'carbon dioxide'. Those who did not generally opted for 'sulphur dioxide'.

(a)   (ii)   The majority of candidates correctly chose 'sulphur dioxide'. Most of the rest chose 'methane'.

(b)   (i)   A large majority of candidates correctly chose 'reduces land available for animals and plants'. Surprisingly the majority of the rest of the candidates thought that quarrying releases methane.

(b)   (ii)   Although a majority of candidates chose 'metals' it was surprising how many chose 'paper'.

(c)   (i)   The vast majority of candidates correctly chose 'pesticide. Most of the rest chose 'fertiliser'.

(c)   (ii)   Just over half of the candidates correctly chose 'kill other animals', the rest opting almost equally for 'kill plants' or 'increase biodiversity'.

Question 2 *(Low Demand)*

This question provided no difficulty for the vast majority of candidates. What errors occurred were usually as a result of not making the connections clear.

Question 3 *(Low Demand)*

(a)   Few candidates labelled all structures correctly. The egg and the skin cell were often confused.   The embryo was often not recognised.

(b)   Although the word 'ethical' was emboldened, a majority of the candidates ignored this fact and opted for 'the method used in animal cloning has not been evaluated'.   There was no information in the question to indicate lack of evaluation.

Question 4 *(Low Demand)*

(a)   This question provided no difficulty for the vast majority of candidates. What errors occurred were usually as a result of not making the connections clear.

(b)   Effector is a term that is not understood by the majority of candidates. Only a minority of candidates correctly chose both 'glands' and 'muscles'. The majority of candidates chose options that included either or both of 'sensory neurones' and 'motor neurones'.

Question 5 *(Low Demand)*

(a)   Only a minority of candidates gave an answer in terms of 'use for pleasure'.   The most common correct answer was for 'fun'. By far the most common error was to describe recreational drugs as 'illegal' or to just give an example of a recreational drug, eg caffeine. Some candidates appeared to confuse 'recreational' with 're-created' and talked about making them again.

(b)   (i)   A majority of candidates arrived at the correct answer '45'. The vast majority of mistakes arose when a candidate did not have a calculator and had to use longhand methods to do the calculation. Candidates should be advised to bring a calculator with them to the exam. Examiners assume that candidates have a calculator when setting questions.   Many candidates divided 7 by 315.

(b)   (ii)   A majority of candidates correctly chose the 'coffee', the rest opting in almost equal numbers for 'tea' and 'cola'.

(c)   It was pleasing to note that the majority of candidates arrived at the correct conclusion.

Question 6 *(Low Demand)*

(a)   It was pleasing to note that almost half of the candidates could correctly name two of the hormones. Centres should note that hybrid abbreviations such as LSH and FHS do not gain credit.

(b)   A majority of candidates gave 'egg' or one of its synonyms. A surprising number gave 'fertilised eggs' or 'ovaries'.

(c)   (i)   A majority of candidates gave acceptable answers in terms of 'not having to remember to take it' or 'lasting longer'. There were however frequent references to side effects and cost, neither of which were referred to in the data.

(c)   (ii)   Only a third of candidates were able to suggest a reasonable disadvantage. Acceptable answers included references to pain or references to 'having to wait three years to take it out'. As in part (i) references to side effects and to cost were common.

Question 7 *(Low Demand)*

(a)   Many candidates correctly identified an increase in temperature as being the most likely answer and often linked this with global warming. Candidates should be aware that the direction of a change is usually required to gain credit. A significant minority simply referred to a temperature change, without indicating if this was an increase of decrease. A surprising number of candidates did not appear to know the meaning of climate, with some writing about climate increasing or decreasing. Many candidates focused on the adaptation of the sheep in terms of size or thickness of coat. This may have been the reasoning behind the quite common suggestion that colder winters increased the chance of survival.

(b)   (i)   Less than half of the candidates gave answers in terms of genetic material. The most common error was to answer the question with a feature of the sheep, eg horns, legs, mass, height, and fur.

(b)   (ii)   A majority of candidates answered in terms of natural selection or evolution. Others often gave 'global warming'*.*

Question 8 *(Standard Demand)*

(a)   Most candidates were able to give at least one correct variable. The most common incorrect answers were 'number of people in the study' and many candidates gave 'placebo' and 'rosuvastatin' as separate points.

(b)   Only a minority of candidates gave a reasonable example, usually 'dummy tablet' or 'fake tablet'.   Many thought the placebo would be another statin, whilst a worrying number thought the placebo would be a drug to give or increase your risk of a heart attack.

(c)   Only a minority of candidates gave correct answers such as '17802 people' and 'large numbers'. Many candidates thought it was a reliable study because it had produced the 54% less likely to have a heart attack result. Others related the study to how well it had been controlled giving examples such as 'all participants were 50+', etc.

(d)   A majority of candidates were able to quote 'statin group 54% less likely to get heart attack', although 'it showed the statin worked' and 'the trial was successful' were also frequently given.
A number of students attempted to use the sufficient information mark point but many students didn't make their answer conclusive enough, many said had the results early, had the results already without quantifying the results.

(e)   Few correct answers to this question gave the word 'bias', but with every possible spelling imaginable.   Many students stated that the manufacturer would lie about the results or cheat or persuade the people to give false results.   A small minority stated that an independent study was required to ensure impartiality.
Incorrect answers included the idea 'that the manufacturers would not want to become ill, have side effects, or die from the unknown results of the drugs'. Others stated that the manufacturers would not fit the criteria for the study, eg 'they were too young' or 'they might have a heart condition'. Many stated that 'they wanted as little to do with the study as possible so they were not to blame if anything went wrong' or 'they didn't wish to be sued or held liable'.

(f)   Most candidates were able to give at least one of the marking points, usually indicating lower LDL levels or lower saturated fat levels. Some answers also indicated the effect of fat or cholesterol on arterial walls.   Many errors came from misinterpreting the data, eg '209 people had rosuvastatin and 278 people had placebo'. Many answers were not comparative, eg 'low LDL' or 'high HDL' with no indication of what the level in the other group was.

Question 9 *(Standard Demand)*

Only a minority of candidates gained 2 of the available marks. 3 and 4 mark answers were rare; but it was a pleasure to see the clear and concise answers presented by these candidates. However, most candidates lost marks through poor use of language and too vague an understanding of the role of white blood cells. The poor use of scientific terms lost many candidates marks. Particularly common errors were: confusing an infection with the pathogen causing the infection and the frequent use of verbs such as 'fighting' and 'attacking'. 'White blood cells fight the disease' was a particularly common statement.
The most commonly scored mark was the production of antibodies, with production of antibodies and engulfing bacteria less common. The final marking point was often scored for the role of antitoxins, but rarely for clear expression of the idea of memory cells or rapid production of antibodies.
Many weaker candidates tried to give an account of how immunity is gained, but this rarely contained the detail necessary to score marks for the role of white blood cells.

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

UMS conversion calculator www.aqa.org.uk/umsconversion