Examiners' Report
Principal Examiner Feedback

January 2017

Pearson Edexcel
International Advanced Subsidiary Level
in Biology (WBI03)
Paper 01 Biology and Research

General Points

Overall, the standard on this paper was in line with previous series. Some candidates still seem to struggle with intricacies of the investigative process. The distinctions between the different variable types (dependent, independent and control) indicating that few candidates struggled to make good use of time.

Question 1(ai)

This question was answered well, with many candidates getting the mark for storage time. However, a significant minority answered volume of DCPIP.

Question 1(aii)

Variable selected well so many candidates gained mark points 1/2/3, although MP3 was less common as candidates were using 'amount' as opposed to 'mass' of sugar. Candidates did less well on how the variable is controlled so less hitting MP2/4/6. For MP4 candidates were omitting to say 'same/constant/stated' for time and temperature. Many candidates again writing 'Volume of DCPIP', many writing about pH and some thinking it was mass of pineapple.

Question 1(aiii)

Most candidates scored at least one mark here. A number did not state clearly that the water needed to be of an equal volume each time. A number of candidate suggested heating up the jam to make it less viscous. Very few discussed filtering or standardising the stirring the jam and water. A significant minority misread the question and discussed the method of titration with DCPIP.

Question 1(bi)

Correctly labelled axes were apparent in most answers and most had a suitable scale. The majority of candidates gained credit for accurate plotting. However, some chose very unsuitable scales for the y-axis and could not get the plot mark due to this. The mark for a line of best fit was less commonly achieved, with many drawing point-to-point or extrapolating.

Question1 (bii)

It is still the case that candidates are not generally very good at setting out answers to calculation questions in a way that is easy to follow. The most common error was to choose inappropriate start and end points. Rounding errors also cost a significant number a mark.

The full range of marks was awarded here but only a few gained full marks. Rounding errors were fairly common. The most common error was not selecting 14.3 and 7.7 as end points.

Question1 (biii)

As with question (bii), the full range of marks was awarded here. Whilst a significant number of candidates gained full marks, rounding errors were still fairly common amongst the others. The most common error was not selecting 24.8 and 14.3 for mp1.

Question 1(c)

Most candidates gained mp2 and mp3 – although, some misinterpreted '% loss of Vit C' as 'Vit C content' and so got the reverse trend. Few stated clearly that Vit C levels fell with all the processes, but examiners were sometimes able to piece this together form the answer give. Relatively few candidates manipulated the data successfully for the sixth mark point.

Question 2(a)

Most candidates scored 2, if not full marks. The most common and successful responses linked together mp3, 4 and 5.

Question 2(b)

This was generally well done with most drawing a cycle. Omission of days and a stage were the most common errors.

Question 2(c)

Only the best candidates scored full marks on this question. Manipulation of data was often not attempted and was frequently incorrect when it was, especially in relation to MP2. Most candidates calculated hugely inflated figure for MP2, often in the millions. Candidates should be taught to do a sense check of their answers to calculations. Because of this they concluded that the treatment was not cost effective and did not gain mp3. Many more mentioned the costs associated with mp4 and mp5.

Question 2(di)

Most candidates scored one mark on this question – with most failing to gain the second mark for not giving a consequence of their first point.

Question 2(dii)

By far the majority of candidates gained both marks for this question. It was the least discriminating question of the paper.

Question 2(eii)

A range of abilities was seen on this question. Many candidates scored the first mark point, identifying a trend (although there were still quite a few vague references to correlations). Considerably fewer linked the decrease in the number of colonies to higher mortality of gnats.

Question 2(f)

This question was tackled well by the majority.

Paper Summary

Based on their performance on this paper, students are offered the following advice:

- Ensure that you are familiar with all of the nine core practicals.
- Within the context of the 9 core practicals learn the details of the scientific method including variables, accuracy and validity.
- Ensure you are confident at accurately plotting graphs and drawing tables, this is an important skill, and an area that students often lose marks in.
- Ensure that you are familiar with data handling, understanding the importance of manipulating data and using this in your answers. These are often needed to illustrate the points being made.
- Note that, although sometimes it is enough to find an answer to a question in a provided passage, this sometimes may not be enough, read the question carefully to determine what it is asking of you.
- The specification states that: "The first question will be based on an area of one (or more) of the specified core practicals, but will generally be set in a novel situation". Details need to be applied with relevance to the particular situation