

Examiners' Report/
Principal Examiner Feedback

January 2015

Pearson Edexcel International A Level
in Biology (WBI03) Paper 01

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Overall Impressions

Overall, the standard on this paper was in line with previous series. Poor expression was something of a hindrance to some candidates, as was poor writing. Knowledge of the basics of the scientific method have improved over the life of this paper, but there is still a significant minority who struggle with the minutiae of variables, reliability, validity and controls.

Individual Questions

1 (a)(i) Most were students able to gain mp1 and 3 showing that they recognised the correct temperature and pH. However, many students did not gain mp2 as they were not specific enough with their answers, often only putting use a water bath and some incorrectly stating that a thermometer would control temperature. Although many students did gain mp4 showing a good knowledge of the use of buffers, some still talked about adding acids / alkalis etc which would be creditable if the details were precise enough.

1(a)(ii) Many students aware of allergy risk with enzymes and most gained marks for identification of how to minimise risk. Many students also gained mps 1 and 7. A surprising number of students did not identify alkaline solution as a risk, with many of them talking just about pH or even acid solutions. Some students did not gain marks, even though they could identify risks because they did not give ways of minimising these risks. The question needed a risk to be recognised AND then dealt with for each mark.

1(b) Many students gained 2 or 3 marks for this question. A commonly missed mark, was seen for students who were able to do the calculation but they omitted the units. Some students read values off the wrong section of the graph and some with no clear idea at all of what to do. Also seen on a number of occasions was 1/time.

1(c)(i) Generally, students were able to produce reasonable graphs, most using points joined by straight lines to gain S. Those who chose lines of best fit often didn't gain the line mark as their points were not distributed either side of the line. Many students chose axes that made their own plotting difficult and made it difficult to assess if they were plotted accurately! A minority of students plotted the graph the wrong way around (e.g lipase concentration on y axes) and some used non-linear scales.

1(c)(ii) Many students gained the 2 marks usually for repeat the experiment and mention of standard deviation.

Some were mistakenly talking about validity and about extending the values used for the IV.

1(c)(iii) This question clearly distinguished between the differing ability students. Some students gained full marks with clear answers usually including mp1, 2, 3 and 7 and sometimes including most of the mps. Other students were able to recognise enzyme concentration 3% as the correct answer but would not gain full marks as they

could not clearly describe why this was the best concentration. Other students did not recognise the correct enzyme concentration but instead usually chose the concentration of 5.5% as this gave the highest initial rate of reaction.

2(a)(i) Many students were able to gain marks for this question. Most chose to draw appropriate bar graphs. Most commonly missed was a comparison between the 3 species, using just the totals instead. Pie charts could gain some marks but it is not possible to compare species and trap type using pie charts. Also this is a problem if two separate bar charts were used instead of a combined one.

2(a)(iii) Students were generally able to make comparisons between the two types of traps, many doing this very well and gaining full marks. However, others made a reasonable comparison but with no overall conclusion, therefore not gaining mp1. The idea that there is equal effectiveness for trapping *Bactrocera cacuminatus*, was commonly not recognized, some choosing to describe the very small difference as indicating that there was a difference in the traps for this species.

2(b) Most students gained mp1 but few gained mp2 as it was common to directly quote from the text (para 10) and not actually consider how sterile males reduce population.

2(c)(i) Students often recognised mp1, use of insecticides, but did not gain mp2 as their responses were too vague e.g. 'bad for environment' or 'causes pollution'. Many gained mp3 and 4, appreciating the loss of species due to loss of pollinators. In terms of economic implications, many recognised the high cost of Perspex and talked about labour issues, although some did not refer to the cost of this.

2(c)(ii) A number good students were not at all clear what was meant by a 'social' implication and gained nothing on this question. Some talked about financial issues and gained 1 mark, but only the very best linked this to the social uses to which money might be put for the second mark.

2 (d) Some students got confused with website and putting urls etc. However, many were able to answer correctly and gain all three marks.

Paper Summary

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

- Be familiar with all nine core practicals
- Learn the details of the scientific method including variables, reliability, validity in the context of the 9 core practicals
- Apply the above also in novel situations in their preparation
- Remember that, when asked for conclusions or descriptions from or of data, manipulations of that data are normally needed to illustrate the points being made
- Note that, although sometimes it is enough to find an answer to a question in a provide passage, this sometimes may not be enough

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