Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

November 2021

Pearson Edexcel Advanced Level In Biology (9BIO) Paper 01 Advanced Biochemistry, Microbiology and Genetics

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November 2021
Publications Code 9BIO_01_2110_ER
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Introduction

A wide range of responses were given for the items on this paper, with all of the mark points seen. The multiple choice questions saw a range of distractors selected but did not really caused any issues.
Centres are clearly using past paper questions to help prepare their candidates for this exam. Candidates are more familiar with the expectations of this specification and have a better understanding of some of our command words and the requirements of the levels-based questions.

Question 1

In part (a), candidates clearly knew that PCR resulted in an increase in the number of DNA molecules and scored the first mark point. Fewer candidates extended their answer to explain why this was actually necessary.
Similarly in part (b), candidates knew that each person's DNA is unique but did not then link this to why the DNA profiles would be different.

Question 2

Most candidates knew that maltose was a disaccharide and glucose was a monosaccharide but could not then take this information into (a)(ii) to explain the results shown in the graph for respiration of glucose and maltose. Many candidates, other than the more able, missed the point of part (b) and simply wrote a description of the results.

Question 3

The multiple choice question at the start of this question caught the less able candidates out as they did not think through the formation of a triglyceride and only subtracted one water molecule. The pie chart caused very few problems as did the calculation.
Candidates know the CVD story very well but the second mark point in part (b)(ii) was less often awarded as candidates omitted to state where the plaque build up was. Part (c) was reasonably well-answered provided candidates got hydrophilic and hydrophobic the correct way round.

Question 4

A range of responses were seen for the multiple choice questions in this question.
In part (c), candidates could describe the dipole nature of water and link this to the formation of hydrogen bonds but only the more able candidates could link this correctly to the transpiration stream.

Question 5

Surprisingly, in part (a)(i), very few candidates could describe the structure of a ribosome. More candidates knew the function of this structure in translation but could not pin point the specific role of actually holding the tRNA in place on the mRNA.
In part (b), candidates recognised the differences in the mitochondria from the cancer cell compared to one from a normal cell. However, parts (ii) and (iii) rarely scored full marks as candidates did not extend their answers sufficiently to make two statements for each of the questions.

Question 6

In part (a)(i) it was clear that candidates knew that absorption spectra and action spectra are two different things and many knew which way round they went. However, marks were lost as responses referred to colours of light and not wavelengths. There were some good attempts in part (ii) to explain the position of the seaweeds on the submerged rocks. Very few candidates realised that the brown and red seaweeds were positioned separately to avoid competition.
The calculation scored well except for candidates who expressed their answer as 1.93 recurring, and candidates generally picked up a couple of marks in part (ii). This question is another example of where candidates do not use the mark allocation to judge how much to write; stating that water is more effective for washing but is not a solvent for fucoxanthin is not going to gain three marks.

Question 7

In part (b) candidate responses clearly showed that candidates know that the prescription of antibiotics should be appropriate to reduce the spread of resistance but few could link the presence of an antibiotic to it acting as a selection pressure.
The ratio calculation in part (c)(i) scored very poorly. Candidates really struggle with expressing ratios. Another maths skill that candidates struggle with is expressing answers in standard form and this cost some candidates marks in part (ii).
There were some very good attempts to evaluate the data in part (iii) but again, candidates were not making enough points to be awarded the full 4 marks. Unfortunately, some candidates described the animals as being resistant to the antibiotics and not the bacteria. This may have been picked up if candidates read through their answer once it was written.

Question 8

There was evidence that candidates are being taught how to approach a 'compare and contrast' question; there were far more actual comparisons and fewer separate descriptions in part (a).
Candidates clearly have been taught using past mark schemes as they are becoming better at answering immunology questions (parts (b)(i) and (ii)). However there are still a large proportion of candidates who write about killing viruses or using dead viruses. Again, some careful checking of answers may help reduce this error.
Candidates made good attempts to answer part (iii); being so topical no doubt made a difference here. Although it is evident that many candidates are being taught how to approach these level-based questions, there are still those who cannot identify all the components in a question that need to be addressed. In this question, a candidate had to make sure that they wrote an explanation and not a description i.e. used some science to say why. They then had to make sure that they wrote about the three components of the question: the advantage of vaccinating the girls, the advantage of vaccinating the boys and the advantage of vaccinating in schools.

Question 9

All of our mark points for part (a) were seen but very rarely in one response. This is another example of where candidates simply are not writing enough in their responses to match the mark allocation.
This was the case in the second of our levels-based question as well. The table shows four parts of the body and therefore all four parts should be explained if the candidate is to have access to the higher levels. Some of the more able candidates realised that they had been given some information about the red blood cells of the seals and included an explanation for this in their response.
Part (c) was not particularly well-answered. Partly because the responses were descriptions of the graph and not explanations and partly because candidates had not considered why the diagram of the seal had been included so missed the point that the blood had to retain some oxygen to supply the brain.
Part (d) did not score as well as it should for the reasons already discussed for other items: lack of explanation and insufficient points made.

Summary

A few suggestions for improving candidate performance are given below.

- Candidates need to take notice of the mark allocation for each item to help them decide if they have written enough points to be awarded that many marks.

- Consider the questions asked in the early question parts as they are quite often trying to give you a clue to what is expected in the latter question parts.
- Check the command word for each question before attempting your response. In particular, if the command word is 'explain, then make sure you have used some science to say why something has happened. Your answer should include terms like: because, therefore, as a result, so. Appendix 7 in the specification lists all the command words and their meanings.
- Use appendix 6 in the spec to check that you are able to carry out the range of maths skills that can be asked in the paper.
- Always read through your answers very carefully as it is easy to make some silly mistakes under the exam pressure. Think about each word you have used and make sure that you have actually written what you meant to write. This goes for calculations too where it is easy to press the wrong button.
- In levels-based questions, before you start writing, identify the command word and then each component in the question. Each component must be addressed if you are to access the higher level marks.
- Any information you are given in a question is there for a reason, albeit in a table, a graph, a diagram or in the text of the question, so make sure you use it.

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