Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

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Pearson Edexcel International Advanced Subsidiary Level In Biology (WBI11)
Paper 01 Molecules, Diet, Transport, and Health

Introduction

We saw a wide range of responses from candidates, with some really excellent responses from the more able candidates. The MCQs generated a range of responses as did the calculations. There seemed fewer responses left blank with the majority of candidates attempting each question. The one levels-based question did generate a number of level 3 responses, but some candidates still need schooling on how to structure their responses to access all six marks. A vast number of centres are using our mark schemes and examiners reports to prepare their candidates; this is evident in the answers where mark points have appeared on previous mark schemes.

Question 1

The three MCQs at the beginning of this question did not cause too many problems to candidates. Probably the commonest misconception was that 1-4 α bonds are absent in amylopectin.

Part (c) however did cause problems as there were several incorrectly drawn peptide bonds. Two common errors were to put two Hs on the N and to put an O between the C and the N.

Question 2

There were some very good responses in part (a), with some going beyond the expectations of the specification and discussing tumour suppressor genes and proto-oncogenes. Candidates who did write about these genes were awarded a mark as an alternative to our second mark point.

Candidates are very good now at answering 'compare and contrast' questions and (b)(i) was no exception, even though it was data presented in a table that they were asked to 'compare and contrast'.

The calculation in the MCQ was not a problem overall but the calculation in (iii) did cause problems. Most candidates could read the values from the graph and calculate a value of 20. However, few looked carefully at the y axis label and did not express their answer as 20 per hundred thousand.

Mixed responses were seen in (iv). Although we saw both our mark points there were very few candidates who gained both marks.

Question 3

The three MCQs at the beginning of question 3 scored well; questions on blood clotting are familiar to candidates and they have learnt the steps involved thoroughly.

Responses to part (b) were invariably quite good. Many candidates correctly identified the pulmonary artery as being the one that takes blood to the lungs so gained the first two-mark points. Then provided they stated that it would be the cells or tissues that would have insufficient oxygen they could be awarded mark point three, gaining full marks. The last two-

mark points were not awarded as frequently. Many candidates thought that the heartbeat faster to increase the pressure of the blood so that this would force the clot out of the way. Several candidates thought that the difficulty in breathing was a direct consequence of lack of oxygen, not appreciating that this was to increase gas exchange.

The quality of responses in part (c) depended on how carefully candidates read the question and appreciated that it was the lack of HSP47 that could be significant. However, if they failed to do this, they could still access most of the marks. There were candidates who missed the point of the question and wrote about bears hibernating and not injuring themselves and humans not hibernating and being more likely to injure themselves as they were active, so the findings would not be useful.

Question 4

Part (a) was novel; we have not asked about the difference between CVD and CHD before. Most candidates could tell us that CHD affected the coronary artery only. Many candidates then went onto state that CVD affected other arteries so did not score the mark as arteries was not generalised enough and did not include the heart.

The two calculations in (b) were done reasonably well.

There were some good responses to (c) parts (i) and (ii); candidates have a good understanding of how high blood pressure can caused CVD and they know about the other risk factors.

The final part to (c) was not so well done, even by the more able candidates. Candidates did not look carefully at the graphs and therefore tended to write generalisations about all four graphs. Statements such as 'As the BMI and WHR increase so does the risk of CVD and CHD.' were common.

Question 5

When there are two words in a term and the question is worth two marks, candidates are expected to define each word to gain full marks. In part (a), the first mark was frequently awarded but the second mark rarely. Some candidates lost marks for not making it clear whether they were referring to strands or molecules in their response.

Part (b) generally scored 1 mark. Few candidates used the mark allocation to guide them into giving two roles of the enzyme.

A wide range of responses were seen to part (c). Some candidates interpreted the information accurately, applying their knowledge of the work of Meselson and Stahl to complete the graphs. Carelessness cost those candidates who did not draw their peaks accurately on the graphs.

Question 6

Part (a) of this question was quite high scoring. The data was straightforward, and candidates just had to ensure that they gave two different conclusions and not one conclusion and its converse.

In part (b), most candidates could give two side effects of taking statins, but fewer could use the information to explain how an increase in receptors would reduce blood cholesterol levels.

In part (c), it was encouraging to see more answers presented in correct standard form. Part (ii) was less well-answered with few candidates giving enough detail to score more than 1 mark. Usually the second mark point. A range of responses were seen in part (iii) with most candidates suggesting the second option on our mark scheme.

Question 7

In part (a), our additional guidance mark was most frequently awarded as candidates could tell us that one solute was polar and was non-polar but then did not explain why the former could not cross the membrane and why the latter could. As predicted, a few candidates muddled up polar and non-polar if they were trying to explain which solute could cross and which could not.

Candidates frequently scored mark point in part (b) and many got close to scoring mark point 2 but did not make it clear that the aqueous environment was on both sides of the membrane.

Part (c) was high scoring. We have asked for differences between saturated and unsaturated fatty acids, lipids and phospholipids several times in previous series.

Part (d) did not score quite so highly as candidates did not identify that the question was really examining them on the role of proteins in transport mechanism., so few linked channel proteins to facilitated diffusion and carrier proteins to active transport.

The calculation was generally done well provided candidates took care in measuring the distance between X and Y on the diagram. There are still some candidates who are not sure whether a zero on the end of a value counts as a significant figure or not, so answers of 2.20×10^5 etc were seen.

The explanation required in part (e) is another one that has been asked several times in previous series so did not really cause too many problems to candidates.

Question 8

The responses to part (a) were disappointing. Candidates needed to use their knowledge of two parts of the specification: effects of mutation and the structure of collagen. Both these topic areas have been tested before. Most candidates picked up their marks for the effects of mutations on the amino acids part of the mark scheme. Very few candidates referred specifically to collagen so did not access full marks.

Candidates are frequently asked to do a genetic cross and overall are very good at doing them. However, the mark that always remains elusive is the one for stating the corresponding phenotypes for each genotype. This series' question was no exception. A few of the less able candidate tried to put the OI allele on the X chromosome and do a sex-linked genetic cross; there were some marks accessible if the candidate selected this inappropriate method.

The only levels-based question on this paper saw a cross-section of responses with very few responses left blank. A good number of responses gained level three marks. Common errors included not looking at both the advantages and disadvantages of the screening methods, writing generic responses without addressing the individual methods given in the question, writing about screening the parents before conceiving and confusing embryos, fetuses, babies and children. The more able candidates logically worked their way through each method writing something for each method which overall included disadvantages and advantages.

Summary

A few suggestions for improving candidate performance are given below.

- Candidate should avoid repeating information in the stem of the question in their answers as this will not gain marks.
- 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 on the calculator.
- 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.