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Introduction

This paper was the third of the new specification and it was clear that some candidates had been well-prepared for this exam, by their centres, using the limited number of past papers available.

Centres are clearly passing on our advice to their candidates and there was a noticeable improvement in the answers to the new command 'compare and contrast'.

A range of responses were seen on all questions, including the multiple choice questions, and the paper yielded a wide spread of marks.

Question 1

Candidates were on familiar territory with this question, as CVD was on the previous specification. The more able candidates had no problem in describing two conclusions from the graph in (i) and offering one difference for the graph in (ii). The weaker candidates generally described one conclusion, usually the effect of smoking, and one difference. The multiple choice was generally answered correctly.

Question 2

(a) Candidates are generally good at drawing genetic diagrams and many scored the full 3 marks. Those who did not score full marks tended to be those who did not show which genotype corresponded to which phenotype.

(b) Candidates who read the question properly scored the full 3 marks. Some gave us the ratio and not the actual number of rabbits. Where necessary, we awarded a consequential error from part (a).

Question 3

(a) Completion of this table scored the full range of marks, with the more able candidates getting the full 6 marks. Marks were lost by candidates who did not consider carefully enough the solubility of thrombin and fibrin; they knew that one of the molecules was soluble and one insoluble but did get them the wrong way around. The other reason that full marks were not scored was because some candidates did not give two roles of fibrin or else were vague in their answer, not specifying the reason that a clot is formed.

(b) This question did cause problems to candidates, probably because this is a new topic to the specification, so they are not aware of what is expected in the answer. Some candidates completely missed the point of the question and wrote about the difference in the hormones present in men and women.

Question 4

(a) A range of responses was seen to the two multiple choice questions, particularly to the first one which was not answered so well.

Parts (iii) and (iv) were very poorly answered, even by the more able candidates. We think that in part (iii), candidates did not pick up on the fact that the conclusions had to be about the 'relative' sweetness of the two types of sugar. In part (iv), candidates picked out the question was about sugars and launched into a description of the Benedict's test, which incidentally would not have worked on sucrose anyway. In part (b), the candidates were back on familiar territory and, provided they phrased their answer appropriately for the command word, most easily picked up at least 2 of the 3 marks.

Question 5

(a) The multiple choices saw a range of responses, with only the more able candidates scoring all 3 marks.

(b) Explaining the graph in (i) was poorly done as many candidates simply described what was shown or else named the uptake process without giving a reason for their choice. Many candidates could correctly draw the line on the graph in (ii); the commonest error was to not extend the line up to the same vertical height on the graph as substance L.

(c) Candidates scored better in this part of the question. In (i) our third mark point was rarely seen. In part (ii), the less able candidates did not appreciate that the 'rate' of uptake would increase.

Question 6

(a) Candidates found this question very straightforward.

(b) Part (i) caused candidates more problems than we expected. The names of the types of mutations are clearly listed in the spec but we saw a whole range of other terms which we did not think were strictly appropriate.

Part (ii) was the first levels-based question on the paper and although we did see some high-scoring responses, many candidates did little more than describe the three types of mutations that we had already tested them on in part (i), without using any information from the table to describe the changes that could occur to the amino acid sequence.

Question 7

(a) Candidates made a really good attempt at all three components to part (a) and were not fazed by the slightly unusual format of the graph. It is worth stressing to candidates how the command word 'estimate' should be answered; there were a number of estimates that had more decimal places than could be read from the graph.

(b) These two multiple choice questions were intended to be discriminating and indeed they were; we were pleased to see candidates at least have a guess at them and not simply leave them blank.

Candidates have a good understanding of how arteries are adapted for blood flow and some good responses were seen in (iii).

(c) Candidates were not phased about questions being asked in the unfamiliar context of compliance and attempted both parts (i) and (ii).

In (i) we saw a number of responses where candidates only repeated the stem of the question and talked about the arteries expanding instead of showing that they knew this meant that they were widening in diameter. There was also a lot of confusion between the elastic fibres and smooth muscle cells and many candidates do not appreciate the difference between the effect of the elastic fibres stretching and the elastic fibres recoiling.

Candidates are clearly familiar with the sequence of events leading to CVD but some need to tighten up on their wording and make it clear that it is the arteries that are affected and that it is the 'cells' and 'tissues' that are deprived of oxygen.

Question 8

(a) We saw all sorts of drawings of aspartate, many of which were correct. Candidates should be encouraged to take care with their drawings and not to lose easy marks but rushing what might seem a straightforward question. In this particular drawing the negative sign on the O of the R group was omitted by a number of candidates.

(b) Candidates have a good understanding of the specificity of enzymes for their substrates and the significance of the active site. Full marks were not gained by a number of candidates because they did not write their answer in the context of the question so did not write about the several steps in the cycle or the number of different substrates formed.

(c) For part (i) there were three possible methods that could be used to diagnose OTC deficiency, one for each mark. The vast majority of candidates only described one method, with only the more able describing two methods.

Part (ii) was the second of our levels-based questions and scored higher than the one in question 6. The majority of candidates addressed the data in the table, and many explained that translation of the mRNA would result in the production of a functioning OTC enzyme. The more able candidates attempted to describe the role of the phospholipid particle in the treatment but did not link this back to the properties of a phospholipid bilayer.

Paper Summary

Centres can improve the performance of their candidates in a number of ways:

- candidates need to be taught the meaning of the command words listed in the spec and encouraged to identify the command word at the start of a question before they attempt to write their response
- the importance of writing their answer in the context of the question needs constant reinforcement to candidates; there are still a large number of candidates who write generic answers, regurgitating their knowledge and not applying it
- the various maths skills need specifically teaching to candidates, especially to those who are not doing mathematics courses at A level. Relatively straightforward marks can be picked up if candidates are aware of giving their answers to an appropriate number of decimal places or significant figures and remember to add units
- candidates can be trained how to approach the levels-based questions. They firstly need to identify the command word used and then they need to identify the different components to the question. For example, in question 8(c)(i) there were three components: the diagram of the urea cycle, the diagram of the particle and the table. If a candidate is to access the level 3 marks, all three components must be addressed
- candidates should be encouraged to check the mark allocation of a question as this will help guide them with what to write and how much. The importance of this is illustrated in question 1 part (a)(i) where the mark allocation of 2 indicates that two conclusions are required.

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