



General Certificate of Education

Mathematics 6360

MD01 Decision 1

Report on the Examination

2007 examination - June series

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General

In general, candidates were prepared for the demands of this paper and there were very few weak scripts. The candidates presented their work well with clear diagrams shown. Some candidates used coloured pens to help demonstrate their alternating path, which helped examiners to follow their answer.

Question 1

There were a few errors in part (a), significantly more than on similar questions on past papers. This was probably a consequence of the matrix presentation.

Very few failed to score in part (b).

In part (c), a significant number of candidates could not identify two paths. Many candidates presented solutions in a satisfactory manner, continuing the past trend, but there were still some candidates who believed that several paths on one diagram, with no colour or other clear differentiation, will suffice. Some candidates do not distinguish clearly between paths and their final solution. Candidates should be clear that the path needs to be clearly defined.

Question 2

In part (a), only a few candidates used the wrong sort. Overall, the question was well answered, often very concisely, but still clearly. A minority failed on the second or later pass. A larger minority wasted some time because far too much was written down: sometimes three or four sides of working.

Question 3

Part (a)(i) was answered well, a continuing trend on this type of question. Many candidates had crossed out 66 at K , thus preventing full marks. A few candidates did not distinguish well between crossed out figures and final figures at vertices and others crossed out with far too much enthusiasm: it is then difficult to check the correctness of the algorithm.

Part (b) caught out a significant number of candidates as they did not check the entire required route.

Question 4

There is still a minority of candidates who fail to make clear the order of edge selection, but generally the first three parts were well done, although a few failed to label the minimum spanning tree. Part (a)(iv) was often incorrect, with finding the seventh and eighth edges proving to be difficult for a significant number of candidates. Edge BC appeared regularly.

Responses to part (b) showed a real advance over previous papers, with many fully correct and well-presented solutions. The Chinese postman was usually well done, with the vast majority identifying the three possibilities. A small number had 6 odd nodes even though the specification states that there will be no more than 4. It was encouraging to see that the given total was used and there was only a small number who wanted to add up all the edges.

Question 5

In part (a), the inequalities $x \geq 50$, $y \geq 50$ and $x + y \geq 140$ were often not clearly and precisely enough explained: some thought $x \geq 50 \Rightarrow x \geq 50$ would suffice! Others perhaps thought they were too obvious to bother about.

Responses to part (b)(i) were quite variable. Many candidates, including those who were otherwise very able, drew the lines very poorly; some were completely defeated by them. On the other hand, there were a number of candidates who did poorly on most other questions –

including the rest of this one – but here produced complete, neat and accurate graphs. The scale caused problems, particularly dealing with 140. About half the candidates failed to draw an objective line, and for those who drew the objective line many had an incorrect gradient.

Part (b)(iii) differentiated quite well. Most candidates who answered this appreciated that a vertex should be considered but often did not consider enough or had no objective line to help. A few did not realise the need for integral coordinates.

Teachers may wish to work with students on:

- drawing straight lines which do not cross the axes,
- drawing objective lines,
- the use of integer solutions where appropriate to a model.

Question 6

Part (a)(i) was usually well done, although a few failed to return to G. However, part (a)(ii) was not done well by most, and several who might have known what to do failed to earn full marks because their method was simply not clear. Future candidates should study the mark scheme for this part to ensure they are able to do themselves justice. There were many nonsense answers to part (a)(iii), after wrong answers to previous parts, appearing to imply that a minimum can be greater than a maximum!

Parts (b)(i) and (b)(ii) were often given in reverse order, and parts (b)(iii) and (b)(iv) were poorly answered. $\frac{n!}{2}$ was a more popular answer than the correct one.

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