



General Certificate of Education

Mathematics 6360

MD01 Decision 1

Report on the Examination

2007 examination - January series

Further copies of this Report are available to download from the AQA Website: www.aqa.org.uk

Copyright © 2007 AQA and its licensors. All rights reserved.

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

General

The overall performance was significantly better than in previous series. Candidates were prepared for the demands of the paper and there were very few weak scripts. However, some appeared to struggle towards the end of the paper.

Candidates presented their work well with clear diagrams shown. For instance, some candidates used coloured pens/pencils to help demonstrate their alternating path. This helped examiners to follow their answers. A number of centres continue not to ensure candidates write their names on their inserts and attach them to their answer books. There is then a very real chance that inserts could go missing.

Question 1

Candidates must list the order in which edges are added to their spanning tree. A significant number of candidates started using the correct algorithm but failed to persevere to the end of the question.

Question 2

Part (a) was well answered with virtually all candidates gaining full marks. Answers to part (b) were significantly better than similar questions in previous years, although some candidates did not show their path clearly or did multiple paths on the same diagram. Candidates are strongly advised to write down their alternating path in addition to showing the path on their bipartite graph.

Question 3

Parts (a) and (b) were well answered, although some candidates confused 'From' and 'To' in the table. Part (c) was usually well answered; however, some candidates worked on the matrix and did not make their tour clear. Candidates are advised to list their tour. Part (d) discriminated between candidates: 66 was a common wrong answer, indicating a lack of understanding of upper bounds.

Question 4

This question discriminated well. The number of swaps was generally correct, but a large number of candidates wrote 6, 6, 6 etc for the number of comparisons. Only the most able candidates answered part (b) correctly.

Question 5

This question was well answered by the majority of candidates. Candidates were able to produce the trace table but some failed to include $C = 0$ and $D = 0$. Many candidates thought that the purpose of the algorithm was to make $C = D$.

Question 6

All candidates were able to score on this question although fully correct solutions were rare. Parts (a) and (b) were well answered. In part (c), drawing the lines $y = 2x$ and $y = 3x$ proved to be beyond a significant number of candidates. Some candidates who correctly drew all the lines failed to clearly indicate the feasible region. In part (d), many candidates drew 'profit' lines. A surprising number of candidates failed to find the exact value of the intersection. Although the graph would indicate the maximum point, candidates should solve the simultaneous equations to find the exact values of intersections. Candidates must check that their answer is sensible.

Question 7

All candidates were able to score on this question. Dijkstra's algorithm was correctly used in part (a) by the majority, but candidates must clearly show their working at each vertex. There

were errors as candidates failed to apply the algorithm consistently throughout the network. Candidates were able to correctly solve the Chinese postman problem in part (b), but some did not list the three alternatives and some were unable to find the correct minimum pairing. A small number of candidates did not use the given total of 2280.

Question 8

Although this question discriminated between candidates, it was answered poorly by many. Candidates must be able to apply their knowledge in questions, but graph theory as a topic is important. This part of the specification appears to have been overlooked by many centres. The understanding of Hamiltonian and Eulerian was often confused.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.