



AS

Further Mathematics

7366/2D

Report on the examination

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Question 1

Just under half of the students were awarded the mark.

Question 2

Nearly three-quarters of the students were awarded the mark.

Question 3

In part (a), nearly all students were awarded the single mark available. Similarly, in part (b)(i) just under 90% of the students were awarded the mark. Students were slightly more successful in part (b)(ii), with just over 90% of the students being awarded the mark.

Question 4

In part (a), nearly all students could translate the information in the table into a bipartite graph, and over 90% were able to produce the correct bipartite graph. Part (b) was found more challenging with just under 70% of the students being awarded the two marks; most students could find at least one correct assignment, but some struggled to find the second correct pair assignment.

Question 5

In part (a), nearly 90% of the students were awarded at least 2 marks, with approximately two-thirds of the students being awarded all three marks. The most common error was to make a numerical mistake with a latest finish time.

In part (b), most students could identify that activity E had a float of four days. However. Most students struggled to then explain the effect of the delay of activity E in relation to its initial float and the subsequent effect this would have on the minimum completion time of the project.

Question 6

In part (a) most students were able to show a correct left multiplication or right multiplication with 0. However, just over one-third of students were able to complete a fully reasoned argument with both left and right multiplication and the conclusion that 0 is the identity.

In part (b), most students were able to form an equation of the correct form. Just over one-quarter of the students were able to find the correct inverse and therefore be awarded both marks. By far the most common mistake in part (b) was to assume that the inverse a^{-1} was simply $1 / a$ during the intermediate algebra.

Question 7

Most students were successful in part (a), with just over three-quarters of students being awarded both marks. Some students forgot the final connection $F-A$, and some students didn't use the nearest neighbour algorithm at all, instead finding things such as minimum spanning trees.

Over 60% of the students were awarded all three marks in part (b). Where students weren't awarded all three marks, the most common reason was selecting any incorrect arc in their minimum spanning tree.

In part (c), just under two-thirds of all students were awarded the single mark for a correct comparison between their lower bound and Maria's claim.

Question 8

In part (a), just under three-quarters of all students were awarded all four marks. The vast majority of students were able to draw all three straight lines correctly, but then some students identified the wrong region as the feasible region.

In part (b) just under half of the students were awarded all three marks, and the vast majority of students were awarded at least one mark.

Question 9

In part (a) most students could find four or more correct row minima or column maxima. These students typically went on to clearly state the values of the maximum of the row minimum and the minimum of the column maxima. However, fewer students could then provide a complete and clear line of reasoning that the game did not have a stable solution based upon the values of the maximum of the row minima and the minimum of the column maxima.

In part (b), most students were able to reduce the payoff matrix to a two by two matrix through the use of dominance. Similarly, most students were able to introduce a probability variable and write down the two expected gains for Caroline. The most common mistakes were made in the solving of the linear equation created by setting the two gains equal to each other.

Mark Ranges and Award of Grades

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