AQA

AS-LEVEL
FURTHER MATHEMATICS

7366/2D Paper 2 Discrete
Report on the Examination

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Question 1

The majority of students obtained the correct answer.

Question 2

The vast majority of students obtained the correct answer.

Question 3

This question was attempted well, with over half of all students gaining 3 or more marks. The most common reason for marks not being awarded was for using variables representing the number of chicken eggs and the number of duck eggs, rather than the number of town boxes and the number of country boxes. Other reasons include making an error in one of the inequalities, or omitting one or more of the inequalities.

Question 4

In part (a)(i), the overwhelming majority of students were able to get at least 2 of the 3 marks, for getting all earliest start times correct. As is often the case with activity networks, errors were made in the latest finish times.

Almost all students were awarded the mark in part (a)(ii), where a follow-through mark enabled those students who had made an error in part (a)(i) to still be successful.

Just over a half of students were awarded the mark in part (b), where a fully correct answer was required.

In part (c)(i), approximately one-third of students were awarded the mark. The most common reason for the mark not being awarded was the lack of a comparison between the two required values, with students often only providing one of the two values and so giving an incomplete explanation.

Students fared better in part (c)(ii), with approximately half being awarded the mark. There were many good situations suggested, with the most common correct answer being ‘a network with all critical activities on a single critical path’. The most common reasons for not being awarded the mark here was a situation where the claim would not be true, and for an incomplete or confused description.

Question 5

In part (a)(i), 80% of students were awarded the mark for stating 1 is the identity element of the set.

Just over a half of students were awarded both marks in part (a)(ii), for correctly finding both self-inverse elements. Where marks were not awarded, it was often for stating that one or more of the other elements were also self-inverse.

In part (b)(i), only a few students were not awarded the mark.

In part (b)(ii), the modal mark was 2 out of 3, with most students evaluating two appropriate expressions correctly, but then not going on to complete the mathematical argument.

Question 6

Well over a half of students received all 3 marks in part (a). They had learnt well the procedure for determining a stable solution of a game. Where marks were lost, it was often the final R mark because the argument was incomplete.

95% of students were awarded the mark in part (b), for correctly identifying the play-safe strategies.

Approximately a half of students were awarded both marks in part (c), with three-quarters of them gaining at least one mark. The most common reason for marks not being awarded was for not linking the necessary calculations with the '**at least 3** games' part of the command sentence.

Question 7

Nearly two-thirds of students were awarded both marks in part (a)(i). By far the most common mistake was to treat this as a minimisation problem, or to mistakenly include an incorrect arc in the maximum spanning tree.

Over 70% of students gained both marks in part (a)(ii), where a follow-through mark allowed students interpreting the question as a minimisation problem to still have the possibility of gaining both marks.

Three-quarters of students received both marks in part (b), with a second follow-through mark being available for students who had made a mistake earlier in the question. Common errors included stating the cost of removing the track that was to remain.

Approximately a half of students gained the mark in part (c). Common errors included not referring to the modelling used in part (b), instead commenting on something else related to the context of the question.

Question 8

90% of students were awarded the mark in part (a), drawing a correct graph which satisfied the conditions given in the question. The most common mistake was including too many edges.

Part (b) proved to be the most discriminating question on the paper, with approximately one-quarter of students gaining all 6 marks. Nearly 90% of students were able to form and solve the correct quadratic equation, but fewer were then able to go on and use the discrete mathematics involved to justify the only correct solution to the question. The best solutions were well set out and gave a clear definition of the conditions for a graph to be Eulerian.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.