A-LEVEL

MATHEMATICS

MD02

Report on the Examination

Version: 1.0

General

Almost all candidates were able to attempt all the questions. Although the majority produced legible work there were surprisingly many poorly presented scripts.
Candidates should recognise that credit cannot be given for illegible work and this is particularly important on this unit.
Even the best candidates lost some marks on the paper due to poor arithmetic and/or poor interpretation of results.

Question 1.

Parts **(a), (d)** and **(f)** were well answered.

(b) The majority of candidates scored 3 marks, with the common mistake being the latest finish time for activity I.

(c) Although all candidates were able to give a correct path, many failed to score full marks by including extra incorrect paths.

(e) Many candidates failed to draw an appropriate Gantt diagram and merely drew a possible scheduling arrangement.

(g) This part proved to be challenging for all candidates and there were only a few correct answers.

Question 2.

(a) This part was not as well answered as expected. The most common mistake was that candidates failed to identify both of the playsafe strategies for Stan.

(b) The majority of candidates scored this mark by giving a fully correct statement, having identified both the maximin and minimax.

(c) This part discriminated between candidates. The majority of candidates were able to consider the dominance of columns, but were unable to justify the switching of signs and the transposing of the matrix.

Question 3.

All candidates were able to make progress on this question. A minority of candidates failed to add an appropriate extra column and worked with a non-square matrix.

Candidates who started the question correctly generally scored the majority of the marks, but there were many careless arithmetic mistakes. Some candidates spoiled an otherwise correct solution by failing to justify that an optimum solution had been reached.

Question 4.

(a) This part was well answered by the majority of candidates. .
(b)(i) Candidates usually gained the mark for identifying the correct pivot, but a significant number of candidates failed to justify their answer.

 (ii) Candidates are well versed in row reduction, although a significant number of candidates made careless arithmetic mistakes.

(c)(i) Candidates must justify the pivot that they are choosing for full marks to be awarded. Again there were many careless numerical slips.

(c)(ii) This part required candidates to interpret their results. This included the realisation that an optimum solution had been found.

Question 5.

(a) This part was very well answered by the majority of the candidates who identified that the problem was a minimax problem. There were however a significant number of candidates who found the minimum path through the network, leading to very interesting final answers.

(b) The majority of candidates scored one mark as the second mark required candidates to give the correct altitude and the popular answer was 2.6 m.

Question 6.

   (a) Most candidates gave the correct initial flow as 100.

   (b) There were many fully correct solutions to this part. A common mistake was for candidates to be unable to set up the original diagram showing flows and potential flows in the correct directions. Candidates who scored the majority of marks in part (i) normally scored both marks in part (ii).

   (c) The question required the candidates to list the edges of their cut and the majority of the candidates scored both marks. Some candidates simply drew a correct cut on their diagram and they were penalised one mark.

   (d) This part was poorly answered. Many candidates were unable to interpret the implications of the vertex restriction.

Question 7.

   Although there were many very good complete solutions this question did differentiate between the more able and the less able candidates. Some candidates found Jose's mixed strategy but were not able to find any probabilities, nevertheless they were able to continue to correctly find the value of x.

Mark Ranges and Award of Grades

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

Converting Marks into UMS marks

Convert raw marks into Uniform Mark Scale (UMS) marks by using the link below.

UMS conversion calculator