Level 3 Certificate
MATHEMATICAL STUDIES

Paper 2B Critical path and risk analysis
Report on the Examination

1350
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General

It was pleasing to see nearly all questions attempted by the vast majority of students, indicating that they had been well prepared for most of the topics in the specification. The only exception to this was the large number of students who attempted to answer question 7(a) without calculating any expected values; this meant that they could not gain many marks here.

Most students made serious attempts at questions which required an explanation, as well as those which were primarily numerical. Written communication was generally very good, and most students showed their working clearly when carrying out calculations.

There was a wide range of marks, with a top mark of 56, and 22% of students gaining 40 or more marks. Only 13% of students scored under 20 marks.

Question 1

Students were very successful on parts (a), (c), and (d) but were less so on part (b), where the improvements suggested for Graph 1 gained many more marks than those suggested for Graph 2.

In part (c), nearly all students performed correct calculations, but a few then drew the opposite conclusion from that suggested by their results. Some students lost a mark by using a number other than 52 for the weeks in a year.

In part (d), 50% of students gained 5 or more marks out of 7. Those who lost marks mainly did so by not adding 2 million to the total number of voters when considering Larissa's statement.

Question 2

This was done well, with nearly three-quarters gaining 4 or more marks. Students organised the material well and communicated their solutions clearly.

The part of the question which caused some difficulty was the decrease of 10% in the exchange rate; however, students who did not use this information could still gain most of the marks.

Question 3

Most students gained at least one mark in part (a), although only 60% got both marks, perhaps indicating that they had had insufficient practice in solving basic probability questions requiring them to use information from a table.

In part (b), to gain both marks it was not sufficient to state, for example, that "more people walk and cycle" to Office B. Students had to either state that a greater proportion walk and cycle to Office B or that more people walk and fewer go by car (for example).

Question 4

Those who realised that 4(a) specifically referred to probability generally answered it well, and there were a wide range of acceptable answers. Other students misunderstood and stated that the use of the TV and dishwasher were not connected, or that the users were independent people.

Part 4(b)(i) was answered well, with over three-quarters gaining both marks, and a creditable 58% were able to correctly describe an assumption made, thus gaining the mark in part (b)(ii).

Question 5

Regrettably, there was an error in the Gannt chart, which meant that various answers could legitimately be obtained for part (a)(i). All such answers were awarded the marks. Notwithstanding this issue, part (a)(i) was answered well, with over 40% of students scoring full marks. This was an encouraging response to a question which was unlike previous questions on this topic.

Over two-thirds of students correctly found the critical path in part (a)(ii).

Regrettably, the error in the Gantt chart made part (a)(iii) unanswerable. All students were awarded the mark for this part of the question.

Part (a)(iv) was challenging, and only 12% of students were able to use the given information successfully.

Students scored a wide range of marks in 5(b)(i). Most were able to gain 2 or 3 marks but only a few were able to correctly insert the floats, as the critical activities were not the same as they had been in part (a).

Over half answered (b)(ii) correctly, with many of these being awarded a follow-through mark, based on their incorrect answers for the previous part. Some students mistakenly gave the full length of the activity plus float.

Question 6

Students found this question quite difficult. Only those with a good understanding of combined probabilities were able to score highly. Over two-thirds gained the first mark in part (a), for multiplying the first two probabilities, but only half of these went on to answer the whole question correctly.

Those who gave their answer to part (a) as a percentage seemed to be more likely to answer part (b) correctly; there were many answers of 35 dollars.

Part (c) was clearly found difficult, but 18% of students gained full marks here. There were a few students who added probabilities to give an answer of a probability greater than 1.

Question 7

As in previous years, quite a large number of students responded to the question on cost benefit analysis with a sometimes quite detailed qualitative discussion of the pros and cons of each option, but with very little or no calculation of expected costs. These students generally gained only one or two marks.

Some did a bit better by calculating some combined probabilities. However, in order to gain more than 3 marks in part (a), they needed to use probabilities to calculate at least one expected cost.

Around a third of students reached this stage and gained 4 marks or more, with around 20% finding correct expected values for options B and C; 6% gained full marks.

In part (b) most scored the first mark by carrying out the calculation, but to get the second mark they needed to compare explicitly the total cost with their cheapest option from part (a).

Mark Ranges and Award of Grades

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