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Mathematics MD01

(Specification 6360)

Decision 1

Report on the Examination

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General

The majority of students were reasonably prepared for the exam. The general standard of presentation was quite good. Some scripts were very well presented and the great majority were adequate in this respect with very few scripts unacceptably untidily written and presented.

There was little evidence of a time problem in completing this paper.

Question 1

In part (a), apart from the rare slip or completely wrong format, this was almost always correct.

In part (b) the majority of candidates scored 4 or 5 marks, with a common mistake of not listing the final match.

Most candidates now list their paths clearly although there is still a determined minority of candidates who persist in presenting one indecipherable diagram.

Question 2

The sort was well known. Parts (a) and (b) were usually answered well - failures were usually because of difficulty in correctly identifying which pass was which, rather than the pivots or comparisons.

Part (c) was poorly answered. Many of those candidates who knew the algorithm was incomplete were unable to explain, fully and clearly, why the algorithm was not complete.

Question 3

Generally this was a very high scoring question with many full marks gained. Even candidates who earned very few marks elsewhere on the paper usually managed a high mark.

In part (a) it was pleasing that the answer to part (a)(i) was more clearly presented, from almost all candidates, than a similar answer on last summer's paper. Very few forgot to label their spanning tree in part (a)(iii).

Part (b) presented no problem at all. Most subtracted two lengths and added an acceptable replacement - really the only error in this part was to add the wrong length.
A considerable minority reworked the question from scratch with B removed.

Question 4

In part (a) most candidates understood the method and how to record it properly. Fully correct solutions were common; the most frequent errors being to have more than one number at G and/or H.

In part (b) many candidates had no idea how to proceed; another large group thought that one inequality would suffice and of those who did understand what was needed, very few chose the correct forms of inequality.

Question 5

Parts (a) and (b) were answered well. The only significant error was to calculate the value of BG incorrectly - the least length being 210, not 225.

Part (c) did cause problems, usually part (c)(i) where 2 was the common wrong answer.

Question 6

Very few candidates failed to score marks but very few scored full marks. The first mark was often dropped in part (a). Few candidates got both marks in part (b) - many joined two vertices with more than one edge; a majority of those who surmounted this hurdle then presented vertices of odd order.

Question 7

This question proved to be very accessible to most candidates. The vast majority scored full marks on parts (a) and (b). The most common errors that did occur were simple slips - of notation or arithmetic. Presentation of the answer to part (b) was generally good.

The majority of candidates knew what was required for part (c). Presentation of this work has improved but there is still a minority of candidates that appear to think that the answer is the only thing of importance and demonstration of use of the algorithm unimportant .

Those successful with part (c), usually earned full marks for part (d).

Question 8

Presentation of the trace was much improved. Most were very clear to the examiners - the only commonly occurring error in this respect was to merely list the succeeding values of each variable in columns, paying no attention to the precise sequence involved when values changed. It was surprising how many candidates there were who, after successfully managing the first two passes, went off the rails subsequently.

Part (b) proved to be quite difficult. The number of candidates correctly identifying that the product of A and B was found were more than equalled by those convinced that it was the lowest common multiple. There were a significant number of candidates who thought that factors were involved.

In part (c), many candidates knew that the algorithm would not be capable of finish. They could usually convince the examiners of this, but why this was the case proved not so easy to explain.

Question 9

The ability to use algebra that was required in parts (a) and (b)(i) was much improved on past performance. The commonest errors were to forget to simplify in part (a) or to fail in that part to realise that one inequality was 'the other way round'. Presentation for the first required inequality in part (b)(i) was much improved, but a minority failed to identify clearly the source of the remaining two.

Graph plotting in part (b)(ii) was much improved, with the exception of misreading the x-axis scale when plotting the intercept for the line $3x + 5y = 200$. However, to counterbalance this there was quite a lot of simply shoddy and inaccurate drawing. Not only did this lose marks here but it made mark-gathering in later parts more difficult.

Most candidates found the last two parts very difficult. Few realised that, in one way or another, the expression $x + 2y$ must be maximised. Far more thought that $x + y$ must be maximised. Many of those who were more or less on the right path went astray by halving their value of y for part (b)(iv).

Mark Ranges and Award of Grades

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