Level 3 Technical Level

IT: PROGRAMMING

Unit 5 Mathematics for programmers
Y/507/6469
Report on the Examination

TVQ01013
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General

This paper continues to be challenging for some students. There seem to be some areas which students have not covered at all, such as binary searches, in spite of being clearly listed in the specification. Some questions were surprisingly not attempted by students who appeared to have sufficient ability to do so. There are still indications that some students are not using calculators.

Questions 1 to 5

The multiple-choice questions were mostly well-answered. Students found question 5 (about postfix notation) the most difficult. This is itemised in the unit content.

Question 6

This question was about signed and unsigned binary numbers.

Students found 6.2 most accessible. The other two parts of the question proved equally challenging. For 6.1, some students converted the binary to decimal to perform the subtraction, which was an acceptable alternative. 17% did not attempt 6.3. The impression gained from some of the working out during question 6 was that students knew the answer to 6.3 but were reluctant to write it down for fear of being wrong.

Question 7

This question was about probability.

30% of the students who answered 7.1 correctly were unable to answer 7.2 on cumulative probability.

Question 8

This question was about binary searches.

Very few students were able to answer this question, with a quarter not attempting it, despite the topic being specifically named in the specification.

Question 9

This question was about Venn diagrams.

Many students drew one diagram for the first part of the equation, but did not attempt the second — had they done so, the relationship between the two may have been apparent.

Question 10

This question was about octal numbers.

75% of the students were able to answer 10.1 but many did not realise that 10.2 only required a simple conversion of their answers for A, B and C.

Question 11

This question was about matrices.

The response to this question was mixed, with students picking up marks on 11.2 but struggling with 11.1 and 11.3.

Question 12

This question was about function notation.

Students again struggled with the topic, although where the wrong function was given in 12.1, and the student then used this function to answer 12.2 correctly, they were still able to gain marks.

Question 13

This question was about logic circuits and equations.

Most students made a reasonable attempt at the question overall but found each part progressively more difficult. Few students seemed to understand what De Morgan's law was, or its effect in this context.

Question 14

This question was about sequence, series and recursive functions.

This question was poorly answered, in spite of a similar question appearing in the January paper. The highest marks were gained on 14.2. For 14.3, some students forgot that the sequence in 14.2 began with n=0 (not n=1), even though the question specifically referred back to 14.2.

The rules of recursion were not well understood.

Question 15

This question was about equations used to measure performance.

Students found each part up to 15.3 easier than the last. 71% of the marks for 15.3 were achieved, and where marks were lost it was often because students made correct calculations and then drew the wrong conclusion — assuming that the higher number meant the CPU was 'faster' when T (for time) meant the opposite. Students were often unable to calculate a percentage in 15.4, with some trying to work it out on paper rather than use simple features on their calculator.

Question 16

This Section B question was about bits and representation of instructions.

Most students made a reasonable attempt at the question overall, with a sound response to 16.1. An unfortunate number of students were unable to convert from bits to bytes, or from bytes to kilobytes. It should be emphasized that, for 16.2 and 16.5, if a student gives the wrong answer in bits (16.2) and bytes (16.5) but correctly converts that to bytes (16.2) and kilobytes (16.5), they will get the mark for conversion.

Question 17

This Section B question was about matrices and was not well answered.

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