Version 1.0: 0708

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate in Education

Computing 6511

CPT4 Processing and Programming Techniques

Report on the Examination

2008 examination - June series

Further copies of this Report are available to download from the AQA Website: www.aqa.org.uk

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales (company number 3644723) and a registered charity (registered charity number 1073334). Registered address: AQA, Devas Street, Manchester M15 6EX
Dr Michael Cresswell Director General.

General

All of the questions were attempted by the majority of the candidates showing that they had prepared themselves for this paper. There were some very good responses to all questions. There were, however, some questions that tested a large number of candidates.

There seem to be a number of candidates who do not read the questions carefully enough and, as a result, fail to give a satisfactory response. Far too many candidates write the answer to some other question that was set previously in the same area and there were a number of examples of answers to a different question being given. It was also notable that some questions that tested a part of the specification in a different way to previous examinations caught these candidates out.

It should be emphasised that candidates should use the correct technical terms in answering questions. A substantial number of candidates were also unable to express themselves clearly and this prevented them from obtaining some of the marks available.

Question 1

A large number of candidates were clearly not well-prepared for what is intended to be a straight forward starter question. In part (c) many candidates were unable to complement the negative mantissa. The role of the exponent was generally understood but converting the resulting bit pattern into a decimal value was not. Parts (c)(ii) and (c)(iii) should have been standard bookwork, but they presented a real challenge with few candidates obtaining full marks. Part (c)(ii) presented a particular challenge. In part (c)(iv) there were far too many answers of 255 or 256 showing a lack of understanding.

Question 2

This question produced many disappointing responses. The question was specifically about a queue but many candidates failed to grasp this. There were a large number of responses that showed that the candidate was concerned about the difficulties of inserting or removing items from the middle of the queue. There was a mixed response to part (a). Many candidates were well prepared and were able to give satisfactory responses. However, a large number of candidates were unable to express themselves clearly and there were a sizeable minority who seemed to be unprepared for this question.

In part (b) it was pleasing to see the large number of candidates who understood that a circular implementation was required. There were a number of misconceptions, in particular a number of candidates suggested looking for empty spaces in the middle of the array where items had been removed.

Part (c) was badly answered with many wild guesses showing a lack of comprehension. Few candidates showed that they understood that the array was being used to implement a queue and that a queue operation was required. Even fewer recognised that the array is finite and that this will affect the implementation of the queue.

Question 3

Answers to this question showed that few candidates understood the concept of virtual memory. The diagram should have reminded the candidates of the format of a virtual address, but few answers showed that they had studied this topic sufficiently. Very few candidates obtained 2 marks for part (a). Some candidates were able to obtain a mark for 'memory addresses' but only

a small minority obtained the second mark. The impression that was gained from the responses was that most candidates did not have any real knowledge of a page table and how it is used.

Part (b) highlighted the lack of understanding shown in part (a) with few candidates able to describe how a memory address is calculated, despite being given the format of the address in the stem. It was surprising how many candidates thought that the offset was in the page table despite being told that it was in the address. There was also much confusion as to the meaning of virtual memory address and physical memory address. A substantial minority were under the impression that they were calculating a disc address. Some candidates seemed to have some idea of the answer but were unable to express themselves clearly.

Part (c) produced a number of good answers but the majority were poor. Many candidates suggested that the page table should be stored on the hard disc and a number thought that it should be placed in ROM so that it could not be altered.

Question 4

In part (b) many candidates described relative addressing rather than indexed addressing. Most candidates were able to suggest that an offset was added to a base address but placed the base address in the index register. There were also a number of responses that suggested that indexed addressing would be used to allow relocation of code.

Question 5

It was pleasing to see the number of candidates that scored highly on this question. Most candidates were able to obtain the mark for part (a) and a large number did very well on part (b). It must be emphasised that candidates were asked to dry run the algorithm and complete the trace table. A small number of candidates were able to produce the correct output but did not produce a satisfactory trace. Marks were given for the trace and so it is essential that candidates fill this in correctly. Although most candidates obtained one mark for part (b)(ii), few obtained two. Candidates must realise that correct technical terminology should be used.

Question 6

The inheritance diagram was done quite well with many candidates obtaining both marks. It was pleasing to see the number of candidates who obtained both marks for part (b). Candidates showed an understanding of the operation of object oriented programming and the need to keep variables private. Most candidates obtained marks for part (c), but very few obtained all 6. Marks were often lost by failing to indicate that this class has an inheritance relationship with Boat. Further marks were lost by using inappropriate types and/or including the variable and methods that had been inherited from Boat.

Question 7

It would seem that many candidates did not have sufficient knowledge or understanding of assembly language. Part (a) was badly answered with many candidates' responses suggesting that they had not been exposed to assembly language. It was pleasing to see that most candidates attempted part (b) and a sizeable number obtained full marks. The instruction set provided in the question was sometimes ignored and, as result, those candidates failed to obtain many marks. Candidates sometimes ignored it completely while others added their own codes to the list provided.

Question 8

Candidates are still failing to realise the importance of the correct case in their answers to logic program questions. Many marks were lost by this fundamental error. There was also a large number of responses that were written very badly. It should be emphasised that the candidates must make it clear which case the letters are in. Part (c) presented a challenge to candidates. Although the question stated that towns had to be in the same country, many responses placed them in the same region.

Mark Ranges and Award of Grades

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