

BCS Higher Education Qualification

Certificate

April 2019

EXAMINERS' REPORT

Software Development

General comments¹

The standard for this exam was reasonable with many candidates obtaining high marks. There were some excellent submissions but not all questions were answered equally well. For example, in Section A the first two questions were unpopular and attracted lower marks than Question A4 which was by far the most popular question and attracted the highest marks. Candidates need to be aware of the need to present their answers clearly – particularly when these involve writing code. A number of candidates may have lost marks through poor presentation that made it difficult for the examiners to understand the structure and precise function of the code they had written. This also applies when tracing the execution of code (as was required in A3) where clear presentation is essential to demonstrate understanding of how the values of variables are changing as the code is executed.

It was apparent in this offering of the paper that candidates avoid questions which require them to write code. The topic of the paper is software development and therefore candidates who have practical experience of programming will be better prepared for it.

¹ *Insert moderator comments on the examination*

Question number: A1

Total marks allocated: 30

Examiners' Guidance Notes

An extremely unpopular question. Only 6% of candidates chose this question and the average mark was only 19% for this question. It seems that many candidates were uncomfortable with writing code to process numeric data stored in arrays. It looks as though candidates preferred the type of question that requires recall of information over this type of problem-solving exercise.

Question number: A2

Total marks allocated: 30

Examiners' Guidance Notes

<i>Another very unpopular question attempted by only 18% of candidates who obtained an average mark of only 12% for this question. As with A1 many candidates seemed to struggle with array processing and presented solutions which would not produce the required results.</i>
--

Question number: A3

Total marks allocated: 30

Examiners' Guidance Notes

<i>A much more popular question than A1 or A2. This question was attempted by 64% of candidates and yielded an average mark of 30%. The average mark obscures the fact that a number of candidates obtained a high mark for this question. Part c) was not generally well-answered with few candidates creating a function that could be used to fully sort the array. The answers were much better for Parts a) and b) – with a number of candidates obtaining very high marks for these two parts.</i>
--

Question number: A4

Total marks allocated: 30

Examiners' Guidance Notes:

<i>This was by far the most popular question being attempted by 82% of candidates many of whom obtained a high mark. The average mark for this question was 62% with a number of candidates obtaining very high marks.</i>
--

Question number: B5

Total marks allocated: 12

Examiners' Guidance Notes

Similar to previous years only 18% of candidates attempted this type of question which involves writing code from a given algorithm or expression. The examiner is surprised that this type of question continues to prove unpopular given the nature of the subject being studied. In line with previous years only a third managed a pass on this question though there was a good range of marks with a below par average mark of 33%.

a)

Many candidates failed to re-express the formula in pseudocode as a suitable coded statement. Good practice of breaking the statement down with a power element incorporated into the Final amount was implied to encourage a progressive formulation of the calculation. Also, explicit declaration of variables was expected to show the data type of the result of computation.

b)

Marks were lost in many cases by candidates failing to include an iteration statement (either a FOR/WHILE) to generate a list of results over different years. Input and output statements were important and, in some cases, these were missing. It seems that some candidates could not appreciate the two distinct parts of this question.

Question number: B6**Total marks allocated: 12****Examiners' Guidance Notes**

This question was the second most unpopular in Section B. It was attempted by 24% of candidates with around 64% gaining a pass mark. The average mark was the second highest on Section B of 58%.

In part a) the examiner was pleased with the overall standard of coding in what was probably an easier question than it first appeared. Marks were lost in many candidates answers because they omitted the input data stream – how does the code work without any input? Also presenting suitably informative output stating what the search had produced.

Part b) Good knowledge of differences between and limitations of linear and binary searches was evident.

Question number: B7**Total marks allocated: 12**

Examiners' Guidance Notes

A fairly popular question with 60% attempts with the highest average mark of 66%. As a result, 80% of candidates who answered this question gained a pass mark. Marks were lost in a couple of areas though these were not that significant.

Although most candidates selected a range of 3 or more elements, some candidates lost marks by covering elements that provided functionality that was already covered in their answers, such as text box and text areas and date pickers using a drop-down menu. The most fundamental range of GUI elements was expected.

There were a number of candidates that thought an enter button was used for inputting data and therefore lost 3 marks. Another omission was drawing a GUI element, for example a check box, without any description and example data items explaining the context in which it operates. Some candidates depicted a web page with GUI elements (although this was not required) to give some context but often without any description of the function of individual elements. The examiner has mixed views on this but combining many parts of this question into one answer should be carefully considered because in this question a few marks were lost as a result.

Question number: B8**Total marks allocated: 12****Examiners' Guidance Notes**

A very popular question with 86% attempts with an average mark of 46%. 59% of candidates who answered this question gained a pass mark. Marks were lost mainly in part c) with very few acceptable answers and in some cases duplicating answers made in part b). A lot of answers were too vague and missing important points.

Question number: B9**Total marks allocated: 12****Examiners' Guidance Notes**

A popular question with 75% attempts with a disappointing average mark of 35%; with only 39% of candidates who answered this question gaining a pass mark. Marks were lost by many candidates failing to identify key debugging techniques related to standard debugging using standard output of a basic manual method of debugging. Maybe some candidates misunderstood the term "standard output" in the question. Part c) produced in general few acceptable answers and in some cases duplicating answers made in part b). A lack of practical knowledge in debugging techniques found in many modern IDEs was apparent in many candidates' answers.

Question number: B10

Total marks allocated: 12

Examiners' Guidance Notes

<i>A highly popular question with 64% successful attempts; with an average mark of 48% from 79% of candidates who attempted this question. Marks were lost in part a) where a lack of knowledge was apparent. Parts b) and c) produced well revised stock answers on these popular topics.</i>
--

Question number: B11

Total marks allocated: 12

Examiners' Guidance Notes

<i>A popular question with 62% successful attempts; with an average mark of 50% from 67% of candidates who attempted this question. Generally, quite well answered but many marks were lost particularly in part a) because many candidates produced poor diagrams of the SDLC often omitting the key cyclic approach to rapid application development. Candidates should consider the benefits of producing accurate diagrams as they can often secure better returns (of marks) than pure descriptive write ups.</i>
--

Question number: B12

Total marks allocated: 12

Examiners' Guidance Notes

<i>A highly popular question with 73% successful attempts; with 68% of candidates gaining a pass in this question. Many candidates got full/nearly full marks; this was reflected in an average mark of 55%.</i>
--

<i>This was a fairly straightforward question but there were some conflicting answers to the intended answer to part c). Many candidates could see that without white spaces and line feeds would have no effect and compile without errors. But the examiner also considered the issue that some candidates picked up, was the undeclared array v. In some (e.g. interpreted languages like Python) this could be allowable, but given that the code was stated to be C, then it may not compile and so those candidates' answers were also accepted if a suitable explanation was given.</i>
--