BCS Higher Education Qualification

Diploma

March 2019

EXAMINERS' REPORT

Software Engineering

Question number: A1
Total marks allocated: 25
Examiners' Guidance Notes
This question covered fundamental models of the software engineering development process. Almost all candidates attempted this question and it was the most popular in section A. The answers to the question showed a high degree of understanding of the basic development model and almost all attempts produced high marks. Answers to b) and c) tended to show some confusion with many candidates not fully distinguishing the different approaches of the incremental and prototype process. However, most candidates gave a good account of the incremental approach advantages and were able to provide an account of the benefits and issues related to the use of prototypes. In all, this question showed that candidates were fully conversant with the most fundamental and well-known models in software engineering and were subsequently able to achieve good marks.

Question number: A2
Total marks allocated: 25
Examiners' Guidance Notes
This question was the second most popular in section A. However, less than half of candidates achieved a pass mark. The benefits of integration testing in the context of a time-critical project were appreciated by few candidates. Only half of the answers to this question showed an appreciation of the testing being over the entire functionality – many answers simply described unit testing and end user testing strategies. Part b) showed a relatively poor appreciation of end user testing for a product intended for a large variety of customers. The answers tended to indicate that the need to appreciate the nuance of end user product testing rather than a developer-oriented software project testing approach was appropriate. Very few correctly noted alpha/beta testing as a standard approach. Part c) showed only a few candidates identified stress testing as a possibility, however many candidates did give a reasonable account of how a test might overload or 'break' the system.

Question number: A3
Total marks allocated: 25
Examiners' Guidance Notes
This was the least popular question section A. Once again, the pass rate was similar to question A2. For part a) Surprisingly many found it difficult to appreciate Lines of Code or Function points as a measure although many provided reasonable alternatives. Part b) proved difficult for almost all candidates. The distinction was obviously not well understood and many found it difficult to give more than one type of risk and simply re stated the same risk three times. Part c) More than half of candidates did give a reasonable response to this question although a good many were rather trivial and relied on personality descriptions of the project manager. The context of different background experiences and platform experience was correctly identified by many only a few actually mentioned well understood methodologies like the Delphi technique.

Question number: B4
Total marks allocated: 25
Examiners' Guidance Notes
Surprisingly, this was by far the least popular question in Section B, with fewer than a quarter of the candidates attempting it. Only half those of who did attempt the question achieved a pass mark. It was clear that while a significant proportion of the candidates might have had a vague appreciation of what a class diagram looks like, they did not appreciate the information and structure they should contain. There were many invented notations, conveying a scenario almost like a flow chart, but presented in multi-part boxes that looked a bit like classes. Where candidates did understand the basic notation, detail (such as navigation, multiplicity) was frequently missing. Many sequence diagrams were similarly confused. One commonly misunderstood aspect of the relationship between class and sequence diagrams is that when a message is passed to an object, this corresponds to a method being called. This necessitates a navigable relationship between the classes involved. Several candidates showed the method belonging to the class at the wrong end of this relationship on the class diagram.

Question number: B5
Total marks allocated: 25
Examiners' Guidance Notes
This was the second-most popular question in Section B, with around two thirds of the candidates reaching a pass mark. Of the two parts to this question, most candidates answered part b) much more fully, although b) had far fewer marks available. Among the answers to part a) i) the majority of candidates had a basic grasp of the difference between Upper and Lower CASE tools, however there was little by way of explanation, and few concrete examples of given. Some of the examples were inappropriate ones. Word (a popular answer) and Excel are not usually thought of as CASE tools, for example. Answers to part a) ii) were disappointing as most candidates seemed to focus their discussion at a technical level and ignored the more significant team and process risks that were expected in the answer. Throughout, a lot of space was wasted re-stating the question.

Question number: B6
Total marks allocated: 25
Examiners' Guidance Notes
This was the most popular question in Section B, and also the one with the best answers. Part a) was generally answered quite well, with many candidates making suitable choices for good reasons – although the reasons were not always explained as clearly as they could have been, and in many cases merely stated. Some candidates waffled quite a lot in part b), restating the question several ways in order to avoid answering it. Many candidates did not understand that waterfall *does* allow back-tracking to earlier stages, although the project must be worked forward again from the affected stage. There was subsequently a lot reference to "stages" concerning Agile projects, which was not wholly appropriate. In fact, several widespread misconceptions about Agile were revealed. Many answers were based around the naïve (and wrong) simplification that Agile approaches are for small projects and anything large must follow a Waterfall-based life-cycle.