BCS Higher Education Qualification

Professional Graduate Diploma

March 2020

EXAMINERS' REPORT

Software Engineering 2

General comments
The numbers taking this offering of the paper were very much reduced due to the Covid-19 pandemic. For this reason, the pass rate may not be significant. It was, however, similar to that obtained at previous sittings. None of the candidates attempting the paper achieved particularly high marks but there was, however, a clear delineation between the marks of those candidates who passed and those who failed.

Question number: 1
Syllabus area: Advanced use of UML including OCL and use of Assertions. Pre- and Post-conditions
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by only 27% of candidates. The pass rate was close to 50%. Part a). In general adequate explanation of OCL was provided, but the explanation of main features of OCL was insufficient. Part b). Only one candidate provided a 'full' formal specification (in OCL) i.e. the invariant and pre- and post- conditions for **all three** operations.

Question number: 2
Syllabus area: Software maintenance and software evolution
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by appr.93% of candidates but only appr.30%% of them achieved a pass mark so the results are disappointing. Part (a). Many candidates were unable to properly explain and contrast reverse engineering, re-structuring and reengineering. This is disappointing, as it is a typical 'textbook' question. Part (b). The majority of answers were inadequate. Only a small number of candidates were able to identify and outline the main steps in reverse engineering process. Part c). Many candidates managed to sufficiently identify and discuss the principal factors affecting the cost of software re-engineering. However a number of candidates discussed e.g. factors affecting the cost of maintenance instead.

Question number: 3
Syllabus area: Software Process Improvement
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by nearly 50% of candidates. Most of them achieved a pass mark. Part a). A number of candidates provided adequate answers i.e. process improvements frameworks and levels of maturity were mentioned and/or briefly discussed. Part b). This part caused some problems. Only a small number of candidates provided sufficient interpretation/explanation of maturity scores.

Question number: 4
Syllabus area: Software Requirements Engineering
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by appr.40% of candidates but only 33% of them achieved a pass mark so the results are disappointing. Only a few candidates considered an example application domain and referred to it in their answers. Part a). Sufficient discussion of techniques of the requirements engineering process was provided by most of the candidates, but tools were not sufficiently discussed. Part b). Unfortunately this part caused many problems. Many answers were irrelevant. Also, only a few candidates attempted the discussion concerning an ideal process for the application domain selected.

Question number: 5
Syllabus area: Software reuse, Component based software engineering, Software product lines, Design patterns.
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by appr.93% of candidates. The pass rate was just above 40%. Part a). In general most candidates provided adequate answers (in particular for the Prototyping approach). Design patterns however were not sufficiently explained and discussed. Part b). This part caused many problems. Only a small number of candidates were able to identify the key characteristics that a safety-critical hospital system should possess (such as e.g. clearly identified requirements, reliability, performance targets, etc.) and to discuss how these characteristics can be 'met' by the above approaches.