BCS Higher Education Qualification

Profession Graduate Diploma

March 2019

EXAMINERS' REPORT

Software Engineering 2

General comments[1]

The pass rate of 48% is a marked improvement on the previous year. The following issues continue to be significant in some centres:

1. Coverage of the syllabus. This issue is borne out in candidate responses to questions around topics such as process models (including Model Driven Development, Component-Based Software Engineering (CBSE) and Open Source Software Engineering (OSSE)), and software process improvement frameworks. Many of these topics have good coverage in the recommended textbooks and this needs to be reflected in the delivery at some centres.

2. Examination techniques. There continues to be instances of candidates answering parts of questions without regard for their indicative weightings, resulting in too detailed an answer for one component part that cannot compensate for the marks lost by incomplete or "shallow" coverage of the second and subsequent components of questions. Further, candidates need to read and understand the whole question, not just simply identify the first one or two keywords and formulate answers that disregard the context of their use. It is good to see that there are fewer incidence of candidates answering more than the required number of questions.

3. The relationship between the Software Engineering paper at Diploma level and Software Engineering 2 at Professional Graduate Diploma level. For some candidates, only basic knowledge evidenced and a lack of advancement beyond the Waterfall model and flowcharts. Therefore, Centres should encourage candidates to adopt a staged approached to their learning, by completing the Software Engineering paper, before attempting Software Engineering 2 paper. This can reduce the occurrence of using common usage interpretation of phrases as a substitute for depth in basic principles and concepts of software engineering.

4. Presentation. It is important that candidate responses to questions are legible, well-structured and formatted.

Question number: A1
Syllabus area: Software reuse. Component based software engineering
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by 76% of candidates. The pass rate was close to 58%. The main issues covered by the question were COTS, CBSE, OSSE, and reuse. Most candidates demonstrated some knowledge of at least two of these areas, but not all. The process models of CBSE, OSSE were not well understood, neither the abbreviation COTS in many instances. In general, there was a lack of appreciation of reuse as a concept, and its practice within the process models identified.

Question number: A2
Syllabus area: Software evolution
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by nearly 63% of candidates. The pass rate was 54%.   Most candidates performed well in part a) with many showing good knowledge of change resulting from the software maintenance activity. However, many candidates demonstrated very little knowledge or understanding of impact analysis as a concept and a change management activity. Many answers were speculative and based on general language semantics rather than the technical and contextual usage of the term.

Question number: A3
Syllabus area: Software Process Improvement
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by nearly 46% of candidates. The pass rate was 22%.   Many of the responses to this question, demonstrated very little knowledge and awareness of the concept of the process improvement lifecycle and the available frameworks. In the case of the former, some responses were a combination of common sense and speculation and, in the latter case, there were a few candidates that understood the difference between capability and maturity and the model framework for these.

Question number: B4
Syllabus area: Software Maintenance and the related types of maintenance, Impact Analysis, Reverse and Re-engineering of software
Total marks allocated: 25
Examiners' Guidance Notes
This question was attempted by almost 95% of candidates and exhibited the highest pass rate (64%) of all the questions set. It is evident, given candidates overall responses, that good knowledge and awareness exists. In part b) some candidates appear to lack the ability to unpack the scenario and apply the knowledge of maintenance in their recommendation (with justification) of an appropriate solution.

Question number: B5
Syllabus area: Software Architecture and software re-factoring, Architectural styles, examples, and applications, Architectural models, Model-driven development
Total marks allocated: 25
Examiners' Guidance Notes
This was the least popular question with only 15% of candidates attempting it. The pass rate was also the lowest at 11%. It is very evident from candidate responses, that little or no instruction was given on the syllabus topic of model-driven development, with candidates preferring to attempt the more generic topics in part b). In part b) many of the responses demonstrated a lack of knowledge and awareness of concepts, tools, and techniques in model driven software development. Some candidate responses were a combination of common sense and speculation concerning the meaning of such terms as application generators, architectural styles, and domain-specific language tools.