BCS Higher Education Qualification

Professional Graduate Diploma

April 2023

EXAMINERS' REPORT

Software Engineering 2

Questions Report:

A1	
	This question had the highest number of candidates attempting it (100%). This is attributed to the candidate's knowledge of the Waterfall and Prototyping models (part a and b). Part a) - All candidates answered this section well, demonstrating good knowledge of the waterfall and prototyping process models. Part b) - Most candidates were able to select and justify their choices for the application scenario presented, but some demonstrated limited awareness of the appropriateness and application of these process models to embedded systems and specialised website applications. Part c) - A smaller number of candidates attempted this section, describing the agile approach rather than presenting a logical and coherent argument for or against such approaches.
A2	
	This question is based on the syllabus topic area of software metrics. The question was the least popular, attempted by five candidates. Most candidate responses demonstrated poor knowledge of software products and process metrics. Part a) – Poor knowledge and understanding exhibited regarding the concept of metrics, even its use at key stages of the software development process, such as analysis and design. Many seemed to rely on a "common sense" understanding of the question and the terminology used. Part b) - In this section most candidate responses demonstrated little knowledge of UML and many had trouble identifying and applying such complexity metrics.
B3	
	This question is based on section 1.1 of the syllabus and dealt with software process improvement. 51% of students attempted this question. Both part a) and b) required students to discuss aspects relating to software process improvement. For part a) students were asked to consider specific improvement models/ frameworks and how they can contribute to key performance objectives of organisations applying them. Part b) asked the student to consider how an organisation could apply a specific model where no recognised professional model is currently in use. In general students were able to identify the relevant steps within the models but answers were limited when it came to developing these into benefits for the organisations for part a) or lacked detailed understanding of how to apply the steps across the development practices for part b) incrementally, focusing only on initial improvements.

		There is the need to be more aware of the semantics of the steps within models and how they can result in tangible, incremental improvement.
B4		
		This question is based on section 1.3 of the syllabus and focused on requirements engineering. 90% of students attempted this question. The question required the students to shape their answers toward a specific, given context. Part a) required a discussion of the tools and techniques relevant to the topic. Part b) asked the students to consider and discuss what impact, if any, a specific key factor in systems development had, on the application of requirements engineering. It seems that students were unable to define requirements engineering, the majority of answers listed requirements gathering techniques, which, whilst being a part of RE, only earned minimal marks. Students need to be tutored on requirements engineering principles and practices if they are to be able to answer questions related to the topic.
B5		
		This question is based on section 2.2 of the syllabus and deals with software architectures and refactoring. 50% of students attempted this. Part a) asked the students to define and discuss the main topic from the syllabus and then consider and discuss the strengths and weaknesses of 3 specific common architectures. Part b) asked the students to display understanding of the relationship of key design practices. In general the students were confident in describing certain types of architectures but were not confident with all of those presented or discussing the merits or otherwise of them. Part b) responses showed a lack of knowledge on the concepts mentioned, few students displayed a thorough understanding.