BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 6 Professional Graduate Diploma in IT

SOFTWARE ENGINEERING 2

Friday 20th September 2019 - Morning
Answer **any** THREE questions out of FIVE. All questions carry equal marks.
Time: THREE hours

Answer any Section A questions you attempt in Answer Book A
Answer any Section B questions you attempt in Answer Book B

The marks given in brackets are **indicative** of the weight given to each part of the question.

Calculators are **NOT** allowed in this examination.

[Turn Over]

Section A
Answer Section A questions in Answer Book A

A1. A company is in need of an online ordering service for various goods in its existing online catalogue.

a) Discuss the way in which the prototyping life cycle model could be used to deliver such a system.

(15 marks)

b) Briefly explain how evolutionary development generally, and Agile methods specifically, might handle system requirements that evolve over time.

(10 marks)

A2.

a) Consider a company developing web-based systems for a very competitive retail market.

As a project manager discuss your approach to team selection and structures, and the mechanisms you would choose to control and deliver project success for this organisation.

(16 marks)

b) Discuss the view that managing software projects does not differ from managing projects for products in other business sectors.

(9 marks)

[Turn Over]

A3.

a) (i) Consider the following software product metrics:

- Function Points;
- Lines of Code Count (LOC);
- Cyclomatic Complexity;
- Degree of Coupling and Cohesion.

Provide a brief explanation of each.

(8 marks)

(ii) At which stage of a software development project would you use each of the above software metrics? Explain why.

(8 marks)

b) Discuss whether there exists an optimal size for projects (measured using function or object points), after which the likelihood of budget overrun, delay, and cancellation are very high.

(9 marks)

[Turn Over]

Section B
Answer Section B questions in Answer Book B

B4.

a) Define the term software architecture and explain its importance to the software development process.

(10 marks)

b) Identify THREE architectural styles and, with the aid of suitable problem types, discuss and justify the kind of connectors and components you would recommend for solving such problems.

(15 marks)

B5.

a) Discuss how the methods and tools in Open Source Software Engineering (OSSE) can be used to address the challenges of complex software systems. Your answer should highlight the strengths and weaknesses of using such tools.

(15 marks)

b) Compare and contrast the progress made by open source software (OSS) and OSSE amongst software practitioners, and business and end user communities.

(10 marks)

End of Exam