BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

SOFTWARE ENGINEERING 1

Friday 23rd March 2018 - Afternoon
Answer **any** FOUR questions out of SIX. All questions carry equal marks
Time: TWO 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.

Section A
Answer Section A questions in Answer Book A

A1

Testing is an important aspect of software development and maintenance.

a) Explain the purpose of each of the following different types of testing:

i) Unit testing;
ii) Link testing;
iii) System testing;
iv) Volume testing.

(12 marks)

b) Explain how the types of testing in part a) are used together.

(6 marks)

c) Explain what is meant by regression testing and why this is important in maintenance activities.

(7 marks)

A2

a) Discuss what is meant by Corrective, Adaptive and Perfective maintenance.

(9 marks)

b) Discuss the reasons why software systems require maintenance.

(9 marks)

c) Discuss why software systems typically become more difficult to maintain over time.

(7 marks)

A3

a) Discuss which UML techniques would be best suited to modelling the user interaction and data storage aspects of website design.

(10 marks)

b) Discuss which UML technique could be used to model the transactions conducted through a website.

(5 marks)

c) Discuss whether a prototyping approach or a waterfall approach would be best suited to website development.

(6 marks)

d) Discuss why testing a website using different versions of different web browsers is important.

(4 marks)

Section B
Answer Section B questions in Answer Book B

B4

a) The software development process can be represented by a waterfall model. Describe the FIVE principal stages of this model.

(15 marks)

b) Explain any TWO benefits that an incremental software development process model might have compared to the waterfall model.

(10 marks)

B5

a) Computer-Aided Software Engineering (CASE) tools are used to automate aspects of the software development life cycle.

i) Give TWO examples of an upper CASE tool that might be used in a software project.

(8 marks)

ii) Describe any THREE lower CASE tools that might be used in a software development project.

(9 marks)

b) Explain any TWO functions that a software engineer would expect to find in an integrated CASE tool repository.

(8 marks)

B6

a) Describe any FOUR types of risk that might be identified in a software project checklist.

(12 marks)

b) Outline the difference between an avoidance strategy and a minimization strategy in project risk management.

(8 marks)

c) Describe any TWO business risks that might be identified in a software development project.

(5 marks)

END OF EXAM