

BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

SOFTWARE ENGINEERING

Wednesday 22nd April 2026 – 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.

- a) Discuss **five** principal stages you would use to create a preliminary architectural design for the first prototype for a mobile application (app) that lets you create and save a shopping list on your device.

Your design should focus on the following areas:

- i. A user-friendly interface.
- ii. Efficient local storage.
- iii. An offline-first experience.

(13 marks)

- b) Explain the steps you would take to test the viability of the paper prototype you created for the design of a shopping list app, as defined in part a).

(12 marks)

A2.

- a) Explain what is meant by RAD and describe in detail **four** of its key features.

(13 marks)

- b) Discuss **three** development scenarios where RAD is appropriate. In **each** case, justify clearly why RAD is suitable.

(6 marks)

- c) Discuss **three** development scenarios where RAD would **not** be appropriate. In **each** case, justify clearly why RAD is **not** suitable.

(6 marks)

A3.

Assess the most appropriate generic software process model that might be used as a basis for managing the development of the following systems.

For **each** system, give reasons for your answer based on the type of system being developed and explain why the method chosen is more appropriate than possible alternatives.

- a) Recording reward points for an online retailer and automatically posting vouchers for the rewards earned to customers at regular intervals.

(8 marks)

- b) The guidance system for a driverless car.

(8 marks)

- c) A mobile application that regularly tests a patient's blood pressure and raises an alarm if it is either too high or too low over a set period.

(9 marks)

[Turn Over]

Section B
Answer Section B questions in Answer Book B

B4.

- a) Describe **five** ways that a software engineer can demonstrate that a design is mapped successfully onto an implementation.
(15 marks)
- b) Discuss **five** ways that derivation paths can be used to aid traceability in version control systems such as GitHub.
(10 marks)

B5.

- a) Discuss **four** reasons why testing can only detect the presence of errors, not their absence.
(12 marks)
- b) You have been asked to test a method called **catWhiteSpace** in a paragraph object that, within the paragraph, replaces sequences of blank characters with a single blank character.

Identify testing partitions (a suitable set of tests that cover all the possible outputs) for this scenario and use these to derive a set of tests for the **catWhiteSpace** method.
(13 marks)

B6.

- a) Discuss in detail **five** structured stages you would use to update software deployed in a customer's environment.
(15 marks)
- b) Discuss the overall strategy you would deploy to mitigate the risks involved in updating customers' systems and describe **four** methods you would use to achieve this.
(10 marks)

END OF EXAMINATION