

**BCS THE CHARTERED INSTITUTE FOR IT**

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

**SYSTEMS DESIGN METHODS**

Wednesday 23rd April 2025 - Afternoon

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 <b>NOT</b> allowed in this examination.
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**Section A**  
**Answer Section A questions in Answer Book A**

**A1.**

- a) Discuss how use case and activity diagrams relate to each other.  
(10 marks)
- b) Discuss how class and use case diagrams relate to each other.  
(10 marks)
- c) Discuss what deployment diagrams provide in terms of systems design.  
(5 marks)

**A2.**

A neighbourhood watch committee wishes to develop a dashboard to report crime statistics, detection rates, staff deployment, and budgets.

- a) Discuss which systems design techniques could be used to design the data structures required for the dashboard system.  
(5 marks)
- b) Discuss which systems design techniques could be used to design the dashboard interface.  
(10 marks)
- c) How could the systems design techniques support prototyping of the dashboard system?  
(10 marks)

**A3.**

- a) Discuss the differences and similarities between structured systems design methods, such as SSADM, and object-oriented systems design methods, such as UML.  
(13 marks)
- b) Discuss the appropriateness of an agile systems development approach in terms of:
  - i. project timescales.
  - ii. stability of requirements.
  - iii. clarity of requirements.  
(12 marks)

**Section B**  
**Answer Section B questions in Answer Book B**

**B4.**

- a) Discuss why both developers and users should be trained in the use of a new systems design method.  
**(10 marks)**
- b) An IT organisation has decided to introduce a new system development method for use in various projects.

Identify possible problems and risks which may affect the introduction of the new method and the measures that could be adopted to avoid these problems and risks.

**(15 marks)**

**B5.**

- a) Give **two** (or more) reasons for comparing and evaluating systems design methods.  
**(5 marks)**
- b) Outline how an organisation could attempt to assess the benefits obtained through introducing a new systems design method.  
**(10 marks)**
- c) Consider the following criteria that might be used in assessing systems development methods:
- life cycle coverage.
  - improved quality of products.
  - reverse engineering tools.
  - design for change.
  - code generation facility.

Discuss, giving appropriate arguments, which criteria are suitable and which are **not** suitable for the above purpose.

**(10 marks)**

**END OF EXAMINATION**