

**BCS THE CHARTERED INSTITUTE FOR IT**

BCS HIGHER EDUCATION QUALIFICATIONS  
BCS Level 4 Certificate in IT

**INFORMATION SYSTEMS**

Tuesday 4<sup>th</sup> October 2022 – Afternoon

Time: TWO hours

Section A and Section B each carry 50% of the marks.  
You are advised to spend about 1 hour on Section A (30 minutes per question)  
and 1 hour on Section B (12 minutes per question).

**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 2 questions (out of 4). Each question carries 30 marks.

### A1.

Great Parts Services (GPS), is a company that provides car parts. A customer makes a call that goes to the registration team to place an order for a specific car part. The customer details are then checked and logged. The order is then processed for validation, if the car part is available, the order is then validated. If the car part is not available, the order is rendered invalid until the part has been received.

- a) Draw a high-level data flow diagram to represent the 'validating order' process for the current GPS system.  
(8 marks)
- b) List and describe **FOUR** things that data flow diagrams are used to show.  
(8 marks)
- c) Identify and define **FOUR** fact finding techniques used in systems development.  
(8 marks)
- d) List and define **THREE** different types of feasibility study.  
(6 marks)

### A2.

There are a number of methodologies that exist for systems development.

- a) Explain why methodologies were introduced into the systems development process.  
(5 marks)
- b) Define and describe the difference between the following approaches to systems development:
  - i) Hard systems
  - ii) Soft systems.(10 marks)
- c) Define and describe **THREE** main features of the agile methodology.  
(9 marks)
- d) What are **THREE** advantages of using the agile methodology in comparison with traditional methods?  
(6 marks)

**A3.**

There are four stages to the implementation of systems:

- a) Identify and describe **ONE** advantage and **ONE** disadvantage for each of the four stages of systems implementation. **(16 marks)**
- b) Explain what is meant by the following:
  - i) Logical design
  - ii) Physical design.**(4 marks)**
- c) (c) Define and explain the purpose of a SWOT analysis. **(10 marks)**

**A4.**

- a) Identify and briefly define **THREE** features of timeboxing. **(9 marks)**
- b) Describe the purpose of an entity relationship diagram and define the meaning of 'cardinality' in a relationship. **(5 marks)**
- c) Data security is essential for information systems. Identify and explain the purpose of the **FOUR** main attributes of security that must be achieved through the design of information systems. **(16 marks)**

[Turn Over]

**Section B**  
**Answer 5 questions (out of 8). Each question carries 12 marks.**

**B5.**

Describe the policies and procedures you would put in place to ensure that, if a database fails, all the data will be fully recovered.

**(12 marks)**

**B6.**

Define what is meant by the following **THREE** types of data and provide an example of each:

- a) Structured **(4 marks)**
- b) Semi-structured **(4 marks)**
- c) Unstructured. **(4 marks)**

**B7.**

Questionnaires can be used to collect data during the requirements analysis stage of a project.

By using a new banking web site as a template, define what is meant by the following question types and provide **THREE** example questions for each type:

- a) Open-ended **(6 marks)**
- b) Closed. **(6 marks)**

**B8.**

When migrating an existing database from an on-site location to a cloud provider, discuss potential issues and therefore steps you may have to take if the cloud provider goes bankrupt. **(12 marks)**

**B9.**

Two UK Government standards for ensuring quality during completion of large-scale computer systems are:

- a) SSADM **(6 marks)**
- b) PRINCE2. **(6 marks)**

Identify and describe the main characteristics of each standard.

**B10.**

Adhering to standard Human Computer Interaction (HCI) guidelines is essential for developing successful computer applications.

Describe and provide examples of what you consider to be best practices for designing a website for a visually impaired user.

Please do NOT discuss any hardware, braille devices, etc.

**(12 marks)**

**B11.**

Rapid Application Development is a methodology for developing software applications.

- a) Define what is meant by:
  - i) JRP **(3 marks)**
  - ii) JAD. **(3 marks)**
- b) List **THREE** advantages and **THREE** disadvantages of RAD. **(6 marks)**

**B12.**

Define and calculate the below terms, using the following sequence of numbers and showing how your answer was derived:

1, 2, 1, 3, 5, 3, 1, 5, 6.

- a) Mean
- b) Median
- c) Mode
- d) Range.

**(12 marks)**

**End of Examination**