

BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

SMART SYSTEMS

Wednesday 16th April 2025 - Morning

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) Define Big Data and data analytics and provide an analysis of the advantages they offer.
(13 marks)
- b) Identify and describe the use of **three** types of data analytics.
(12 marks)

A2.

- a) Cyber-Physical Systems (CPS) refers to integrated systems where computational algorithms and physical processes are tightly interconnected. Provide an overview of the **three** layers of Cyber-Physical Systems.
(15 marks)
- b) Describe the differences between Operational Technology (OT) and the security of Information Technology (IT). Illustrate your answer with examples.
(10 marks)

A3.

- a) Define Cloud Computing (CC) technology and discuss the features and applications of the **three** service types. Illustrate your answer with examples of each type.
(15 marks)
- b) Describe **five** pros and cons of Cloud Computing technology.
(10 marks)

Section B
Answer Section B questions in Answer Book B

B4.

Conducting risk assessments is crucial for organisations to effectively manage and mitigate risks, ensuring the security and continuity of their operations.

- a) Define risk assessment and support your answer with examples. **(10 marks)**
- b) Describe the processes that are undertaken in risk assessment. **(15 marks)**

B5.

- a) Explain the concept of blockchain technology and its significance in smart systems. Support your answer with examples. **(12 marks)**
- b) In modern smart homes, advanced appliances with intelligent features have become prevalent. Define and describe the concept of smart appliances, illustrating your explanation with examples. **(13 marks)**

B6.

- a) Discuss the significance and function of the Internet of Things (IoT). Illustrate your answer with **five** examples. **(15 marks)**
- b) Describe **five** ethical considerations associated with the utilisation of smart systems. **(10 Marks)**

END OF EXAMINATION