

BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

SMART SYSTEMS

Friday 17th April 2026 – 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 smart systems and discuss **three** key characteristics of smart systems.
(13 marks)
- b) Artificial Intelligence (AI) can be used in many applications, including:
- i. Healthcare.
 - ii. Finance.
 - iii. Transportation.
 - iv. Manufacturing.
 - v. Smart cities.

Select **four** out of the five applications mentioned above and explain how AI can provide benefits.
(12 marks)

A2.

- a) An important aspect in the introduction of smart systems is risk assessment.
- i. Describe risk assessment.
(4 marks)
 - ii. Describe, using examples, how risk assessment can help prevent problems in systems like industrial or smart systems.
(6 marks)
- b) Specify **three** of the processes in risk assessment. Include examples to support your answer.
(15 marks)

A3.

- a) Explain the concepts of big data and data analytics and describe **two** examples of the benefits they offer.
(13 marks)
- b) Describe the **four** main categories of data analytics.
(12 marks)

Section B
Answer Section B questions in Answer Book B

B4.

- a) Describe **four** ethical considerations that should be taken into account in the development and use of smart systems.
(12 marks)
- b) Use examples to illustrate the following:
- i. Explain how the ethical considerations impact the social effects of smart systems.
(7 marks)
 - ii. Explain how the ethical considerations impact the environmental effects of smart systems.
(6 marks)

B5.

- a) Identify **five** areas in which smart health applications are used and provide examples to illustrate your answer.
(10 marks)
- b) Define smart technologies and describe **four** advantages and **four** disadvantages of developing and using smart technologies.
(15 marks)

B6.

- a) Define Operational Technology (OT) and discuss **four** of the key challenges associated with OT security. Show how they can impact overall system integrity and safety.
(16 marks)
- b) Describe **three** types of cloud computing and illustrate your answer with an example of **each** type.
(9 marks)

END OF EXAMINATION