

BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

SMART SYSTEMS

Tuesday 16th April 2024 – 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 Blockchain technology and its role in Smart Systems. Include examples to illustrate your answer.

(13 marks)

 - b) Define and explain what is meant by Cyber Physical Systems (CPS) and its application. Illustrate your answer with **TWO** examples.

(12 marks)
- A2.**
- a) Define what is meant by Smart Appliances and support your answer with **FOUR** smart appliance types.

(12 marks)

 - b) Describe **FOUR** advantages and **FOUR** disadvantages of Smart Appliance.

(13 Marks)
- A3.**
- a) Define what is meant by Artificial Intelligence (AI) and discuss its role in Smart Systems.

(13 marks)

 - b) Describe **FIVE** of the main characteristics of Artificial Intelligence (AI).

(12 marks)

Section B
Answer Section B questions in Answer Book B

- B4.**
- a) Discuss the Smart Systems ethical considerations and illustrate your answer with **THREE** examples.

(9 marks)

 - b) Discuss the Smart Home security and describe **FIVE** key techniques that can be used to maintain Smart Home security.

(16 marks)
- B5.**
- a) Define and discuss Big Data (BD), Data Analytics (DA) and Data Mining (DM).

(15 marks)

 - b) Give **THREE** examples of the use of Big Data (BD), Data Analytics (DA) and Data Mining (DM).

(10 marks)
- B6.**
- a) Define Distributed Systems and support your answer with an example.

(6 marks)

 - b) Define Mobile Computing and evaluate **THREE** of its features.

(6 marks)

 - c) Define the roles of Sensors and Actuators and describe the differences between them. Illustrate your answer with examples.

(13 marks)

END OF EXAMINATION