

BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

WEB APPLICATION DEVELOPMENT

Thursday 18th 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) Describe **THREE** generations of the evolution of web technologies and the advantage of moving from each generation to the next. **(9 marks)**
 - b) Describe the new features introduced in ECMA scripts compared to JavaScript. **(5 marks)**
 - c) List the new Array method that was introduced in ECMA Scripts. **(5 marks)**
 - d) Draw a diagram of client-server model in web development. **(4 marks)**
 - e) Describe **TWO** processes that can be used to interact between client and server. **(2 marks)**
- A2.**
- a) What is the backend in web development? **(10 marks)**
 - b) What is the role of QA for testing specialist work? List **FIVE** testing methods commonly used. **(10 marks)**
 - c) What are the advantages of hypothesis driven development? **(5 marks)**
- A3.**
- a) Give **FIVE** common problems unique to web application design for server-side code. **(15 marks)**
 - b) Define web analytics. **(6 marks)**
 - c) List **FOUR** common web analytics tools. **(4 marks)**

Section B
Answer Section B questions in Answer Book B

- B4.**
- a) Discuss the difference between:
 - i. Key access stores
 - ii. Document stores
 - iii. Relational (SQL) databases.Giving examples of how data is stored and retrieved in **each**. **(15 marks)**
 - b) Assess the types of application where it is appropriate to use each of the above, with examples. **(10 marks)**
- B5.**
- a) What is a microservice and how does it differ from Service Oriented Architectures? **(10 marks)**
 - b) Discuss the **FIVE** key design principles for developing microservices. **(15 marks)**
- B6.**
- There have been considerable discussions about the promotion of inappropriate content on social media platforms such as Facebook, WhatsApp, etc.
- a) Explain how certain types of users can be encouraged to post offensive material by the automatic policies implemented within the site. **(7 marks)**
 - b) What measures can social media site owners take to counter this issue? **(6 marks)**
 - c) Assess the extent to which these measures are effective in protecting vulnerable users and why certain sites might be reluctant to take them.
Give examples where such measures are effective and where they are not. **(12 marks)**

END OF EXAMINATION