

BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

PRINCIPLES OF INTERNET TECHNOLOGIES

Wednesday 23rd 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) The evolution of the web can be broken down into 3 broad phases – Web 1.0, Web 2.0. and Web 3.0. Outline what you know of each phase and provide **one** example of the web technologies used in each phase.
(15 marks)
- b) What was the initial purpose of the internet in the late 1960s?
(5 marks)
- c) How does a search engine work?
(5 marks)

A2.

- a) Explain why **each** of the below are usability issues and how each one can be fixed or prevented from occurring.
- i. Poor navigation.
 - ii. Slow loading speed.
 - iii. Inconsistent design.
- (15 marks)
- b) State **three** advantages and **two** disadvantages of keeping online identities private.
(10 marks)

A3.

- a) How does the DOM model enable programmers to manipulate XML documents regardless of the programming language they use?
(4 marks)
- b)
- i. State the main difference between the box model and the flexbox model in CSS.
(3 marks)
 - ii. How do the box model and the flexbox model affect the layout of elements on a web page?
(4 marks)
- c)
- i. What is the purpose of a Document Type Definition (DTD) in XML?
(4 marks)
 - ii. How can you externally link a DTD to an XML document? Include an example of a DTD declaration and a corresponding XML document in your answer.
(10 marks)

Section B
Answer Section B questions in Answer Book B

B4.

a) Expand each of the following acronyms for protocols:

- i. SNMP
- ii. VoIP
- iii. DHCP
- iv. XMPP
- v. PPP
- vi. HTTP

(6 marks)

b)

i. Define the following **two** terms in the context of internet access:

- dial-up
- broadband

(6 marks)

ii. State **two** advantages that broadband has over dial-up in the context of internet access.

(4 marks)

c) What is 'Wi-Fi calling'? State **one** benefit it offers users.

(4 marks)

d) What is 'mobile data'. How does it differ from Wi-Fi?

(5 marks)

B5.

a) The following are the four primary layers of the TCP/IP model:

- Application
- Transport
- Internet
- Link/Network

Explain what each layer provides and include a relevant protocol for each explanation.

(12 marks)

b) State **two** advantages of using a fixed IP address and **two** advantages of using a dynamic IP address.

(8 marks)

c) What are the **two** parts of an IP address? Provide an example of an IP address to identify the two parts in your answer.

(5 marks)

[Turn Over]

B6.

- a)
 - i. State what a QR code is. (2 marks)
 - ii. Identify **two** security risks associated with QR codes. (6 marks)
- b) What is a firewall and what is its main purpose? (6 marks)
- c) State **three** possible vulnerabilities that a risk assessment of a network may identify. (6 marks)
- d) What is bandwidth in the context of a network? State **two** ways a low bandwidth can affect the performance of a network. (5 marks)

END OF EXAMINATION