

BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

PRINCIPLES OF INTERNET TECHNOLOGIES

Friday 19th 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 any Section A questions you attempt in Answer Book A

A1.

a) Given the following HTML code:

```
<form name="theForm" onsubmit="return  
checkLeapYear()">  
Year: <input type="text" name="year">  
<input type="submit" value="Submit">  
</form>
```

Write a JavaScript function `checkLeapYear()` that will check to see if the year entered is a valid leap year. A leap year occurs every four years and has an extra day. The user must be informed if the year is, or it is not, a leap year.

The following criteria must be used to check if the year entered is a leap year:

- If a year is divisible by 100 and is also divisible by 400 then it is a leap year.
- If a year is not divisible by 100, then it is a leap year if it is divisible by 4.

The JavaScript function must also check to see if the user has entered in a value and that the value is a number. An appropriate error message must be displayed if this not the case.

(15 marks)

b) The JavaScript code written for part a) will contain client-side validation.

- i. State **TWO** reasons why the data entered in the HTML form must be validated on the server-side if it's going to be stored in a remote database.

(4 marks)

- ii. State **THREE** reasons how a jQuery validation function would benefit you as a web designer.

(6 marks)

A2.

- a) In the context of the Document Object Model (DOM), define the following:
- i. Tree
 - ii. Parent
 - iii. Objects
 - iv. API
 - v. Platform-independent.
- (10 marks)**
- b) State **TWO** issues that an end-user could have with the DOM when accessing a web page.
- (4 marks)**
- c) How does JavaScript find a HTML element in the DOM? Provide **ONE** example in your answer.
- (5 marks)**
- d) What is the current version of the DOM known as?
- (2 marks)**
- e) What is the purpose of the XML DOM?
- (4 marks)**

A3.

- a) State **THREE** ways that a website developer could make their web pages more accessible.
- (6 marks)**
- b) Outline the **FOUR** principles of website accessibility that make up the POUR acronym.
- (8 marks)**
- c) State **TWO** advantages of using web authoring tools.
- (4 marks)**
- d) Why is privacy on the Internet a major issue? State **TWO** approaches an end-user could adopt to make their digital life more private.
- (7 marks)**

[Turn Over]

Section B

Answer any Section B questions you attempt in Answer Book B

B4.

- a) Define the following terms – ‘intranet’ and ‘extranet’, and with the aid of a diagram show how the two would work in the context of a company. **(8 marks)**
- b) Identify **THREE** security risks that could detrimentally affect a company’s intranet, and state how these three risks should be mitigated. **(9 marks)**
- c) What is downtime, and what are the **TWO** different types of downtime. Provide an example of how **each** type of downtime could affect users of a company’s intranet. **(8 marks)**

B5.

- a) State **FOUR** major components of an Internet of Things (IoT) system. **(8 marks)**
- b) Provide **THREE** examples of IoT devices commonly found in homes. **(6 marks)**
- c) State **ONE** major potential disadvantage of an IoT device. Provide an example in your answer. **(5 marks)**
- d) What are ‘smart objects’ in IoT and what do they do? **(6 marks)**

B6.

- a) The following URL is a complex URL and is made up of nine parts.

`https://www.examplesite.com:876/articles/bestarticle?id=111&fe=en#mid`

Identify and label what the **NINE** parts are.

(9 marks)

b)

- i. State what SSL and TLS are. **(4 marks)**
- ii. Why are SSL/TLS certificates so important for e-commerce sites? Provide **TWO** reasons in your answer. **(4 marks)**

- c) FTP stands for File Transfer Protocol.

- i. At which layer does FTP appear in the OSI model? **(2 marks)**
- ii. What are the **TWO** most common ways of using FTP now that browsers such as Chrome or Firefox no longer support it? **(4 marks)**
- iii. State **TWO** FTP alternatives that will allow for a more secure way of transferring files. **(2 marks)**

END OF EXAMINATION