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:

```html
<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)
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.example/site.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