

BCS THE CHARTERED INSTITUTE FOR IT
BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

PRINCIPLES OF INTERNET TECHNOLOGIES

Friday 24th March 2017 – 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)** In relation to JavaScript, briefly state what each of the following terms refer to:
- (i) Comparison Operators
 - (ii) Modulus
 - (iii) Classes
 - (iv) Strings
 - (v) IndexOf

(5 marks)

- b)** Consider the following JavaScript code and identify 5 errors:

```
<script type="text/javascript" language="javascript">  
var info = "Counting... <br/>";  
document.write(info);
```

```
for(i = 1, i <= 10; i++){  
    info = "Counter i = " + x + "<br/>";  
    document.print(info);
```

```
    document.write("<br/> End of count");  
</script>
```

(5 marks)

- c)** Once corrected the purpose of the code in part (b) is to output numbers from 1 to 10 in **ascending** order using a *for* loop. Accordingly, rewrite the code

- to output the numbers from 10 to 1 in **descending** order using a *while* loop instead of a *for* loop
- and ensure that each number is stored in an *array* inside the *while* loop and that the total of the numbers stored in the *array* is outputted as well.

(15 marks)

- A2.**
- a)** State TWO benefits of using CSS. **(4 marks)**
- b)** How and where should an external stylesheet be referenced in a web page?
Provide appropriate HTML code in your answer. **(6 marks)**
- c)** What is the “box model” in CSS and what does it consist of? **(5 marks)**
- d)** Write CSS rules that will do the following:
- (i) Change the background colour of a web page to black
 - (ii) Change the text font of all hyperlinks to Calibri
 - (iii) Change more than one element to having a width of 100%
- (6 marks)**
- e)** Write a declaration for the rule in d)iii) to show how it can be applied to a particular element. **(4 marks)**
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- A3.**
- a)** What does XML stand for and what is it designed to do? **(4 marks)**
- b)** State TWO benefits of using XML. **(4 marks)**
- c)** What does the term DOM mean? Outline the role it plays in regards to XML. **(4 marks)**
- d)** In relation to XML data modelling:
- model a data source intended for a sheep *farm*: and
 - model the *ID* , *breed*, and *age* for the details of each *sheep* that is to be held in the *farm* system and
 - provide XML mark-up for a *sheep*
- (8 marks)**
- e)** Provide a XML DOM Node Tree view for the XML you wrote in part d) **(5 marks)**

Section B
Answer Section B questions in Answer Book B

- B4. a)** Expand each of the following acronyms:
- (i) TLS
 - (ii) TCP
 - (iii) SSH
 - (iv) IP
 - (v) ARP
 - (vi) FTP
- (6 marks)**
- b)** Show how the six protocols listed in part a) map onto the TCP/IP model.
(6 marks)
- c)** UDP is described as a connectionless protocol.
- (i) Expand the acronym 'UDP' **(1 mark)**
 - (ii) What is meant by the term 'connectionless' in reference to UDP? **(2 marks)**
 - (iii) Provide TWO applications that utilise UDP and briefly explain why they benefit from using UDP. **(4 marks)**
- d)** Briefly explain the difference between HTTP and HTTPS. **(2 marks)**
- e)** Draw a labelled diagram illustrating the role of FTP. **(4 marks)**
- B5. a)** What is SMTP and what role does it play when using e-mail? **(2 marks)**
- b)** IMAP and POP3 are two protocols that operate in conjunction with SMTP.
- (i) What do IMAP and POP3 stand for? **(2 marks)**
 - (ii) Explain why SMTP needs to be used with IMAP or POP3 **(2 marks)**
 - (iii) Compare and contrast IMAP and POP3. **(5 marks)**
- c)** What is meant by the term 'Web accessibility' and why is Web accessibility important? **(4 marks)**
- d)** Describe what is meant by the term Wiki, and highlight an advantage and disadvantage of the Wiki model. **(3 marks)**
- e)** (i) Expand the acronym 'URL'. **(1 mark)**
- (ii) Given the example URL below, identify its component parts:
`http://www.example.com:80/search?q=search+term#part3`
(6 marks)

B6. a) Discuss how the following FIVE network utility tools can be used to assist a network administrator in determining performance issues within a computer network. In your answer, provide a brief explanation on how each utility can assist an administrator.

- (i) ping
- (ii) tracert
- (iii) nslookup
- (iv) netstat
- (v) ipconfig

(15 marks)

b) A manager from a small business has asked you to implement a 'disaster-recovery plan' for their computer network. The manager has requested you to write a short report that provides THREE potential disasters a computer network can face, and what you can do to prevent or mitigate significant data loss and/or network downtime.

(6 marks)

c) Compare and contrast static and dynamic IP addresses and briefly explain when each is appropriate.

(4 marks)