

# THE BRITISH COMPUTER SOCIETY

## THE BCS PROFESSIONAL EXAMINATION Professional Graduate Diploma

### THE WORLD WIDE WEB – BEYOND THE BASICS

25<sup>th</sup> April 2003, 10.00 a.m.-1.00 p.m.

Answer THREE questions out of FIVE. All questions carry equal marks.

Time: THREE hours.

*The marks given in brackets are **indicative** of the weight given to each part of the question.*

1. a) Web sites serve different purposes. Identify FIVE distinct purposes. (5 marks)
- b) Describe the main stages of a Web development life cycle. How do these differ from the stages used in Software Engineering? (12 marks)
- c) Describe a strategy for testing and evaluating a Web site. (8 marks)
2. a) Briefly explain the purpose of each of the following:  
• Database Server  
• Proxy Server  
• Security Server (6 marks)
- b) Scripts can be executed at the server end or at the client end for a Web application. When would it be appropriate to execute:  
i) at the server end? and  
ii) at the client end? (6 marks)
- c) What is CGI? (3 marks)
- d) Compare and contrast different methods for getting user input from Web forms. (10 marks)
3. a) What is meant by the terms:  
• Security?  
• Privacy?  
• Authentication?  
• Encryption?  
• STRIDE? (8 marks)
- b) You are asked to give advice on the authentication approach to be used by people accessing a web-site which holds a number of discussion documents. Individuals should be able to identify themselves and then be able to upload documents (texts and short articles) for others to browse through. What authentication approaches would you suggest? What are the security and privacy issues involved? What security policies might the web-site hosts establish? (10 marks)
- c) "A detailed knowledge of cryptography is essential for all serious web developers." Discuss. (7 marks)

**Turn over]**

4. a) Explain the concepts of business-to-business, business-to-consumer and consumer-to-consumer e-business. What are the hardware and software requirements to do business on the web? What are the current protocols and standards? **(8 marks)**
- b) “E-commerce allows companies of any size to operate effectively in a world economy.” Discuss. **(17 marks)**
5. a) Briefly describe each of the following terms:
- Dynamic HTML
  - Cascading Style Sheet
  - Document Object Model (DOM)
- (9 marks)**
- b) The code in **Figure 1** (on the next page) shows an example of how to manipulate the DOM using JavaScript.
- i) Explain in detail the output and the code with reference to the object, methods and events of the DOM. **(10 marks)**
- ii) Modify the code to enable another menu group to be generated and displayed. **(3 marks)**
- iii) Modify the code from part ii) to ensure that both menu groups cannot be active at the same time. **(3 marks)**

**Figure 1 (for use with Question 5)**

```
1. <HEAD>
2.   <META HTTP-EQUIV="Content-Type" CONTENT="text/html; charset=iso-8859-1">
3.
4.   <TITLE>BCS-Beyond the WWW</TITLE>
5.
6. <SCRIPT TYPE="text/javascript" LANGUAGE="javascript">
7.
8.
9. function toggleMenu(currElem)
10. {
11.   if(document.all)
12.   {
13.
14.     menuObj=eval("document.all." +currElem + ".style"); // IE syntax
15.     menuObj.top=toggleVal(menuObj.top);
16.   }
17.
18.   else
19.   {
20.
21.     menuObj = eval("document." + currElem); // Netscape syntax
22.     menuObj.top=toggleVal(menuObj.top)
23.   }
24. }
25.
26. function toggleVal(inVal)
27. {
28.   if(inVal == -5)
29.   {
30.     return -90;
31.   }
32.   return -5;
33. }
34.
35.
36. </SCRIPT>
37. <STYLE TYPE="TEXT/CSS">
38. .menu {position:absolute; font: 12px helvetica; width: 75px; background-color: #999999;
39. layer-background-color:#999999; color:#FFFFFF}
40.
41.
42. </STYLE>
43. </HEAD>
44. <BODY BGCOLOR=WHITE>
45. <SPAN ID="fileMenu" CLASS=menu
46. STYLE="left:20px; top:-90px"><BR>
47. <A HREF="javascript:window.open()">Open</A><br>
48. <A HREF="javascript:window.print()">Print</A><br>
49. <A HREF="javascript:history.back()">Back</A><br>
50. <A HREF="javascript:history.foward()">Forward</A><br>
51. <A HREF="javascript:window.close()">Close</A>
52. <HR>
53. <A HREF="#" onMouseOver = "javascript:toggleMenu('fileMenu')">File</A><br>
54. </SPAN>
55. </BODY>
56. </HTML>
```