

# THE BRITISH COMPUTER SOCIETY

## THE BCS PROFESSIONAL EXAMINATION Professional Graduate Diploma

### WORLD WIDE WEB – BEYOND THE BASICS

30<sup>th</sup> April 2004, 10.00 a.m.-1.00 p.m.

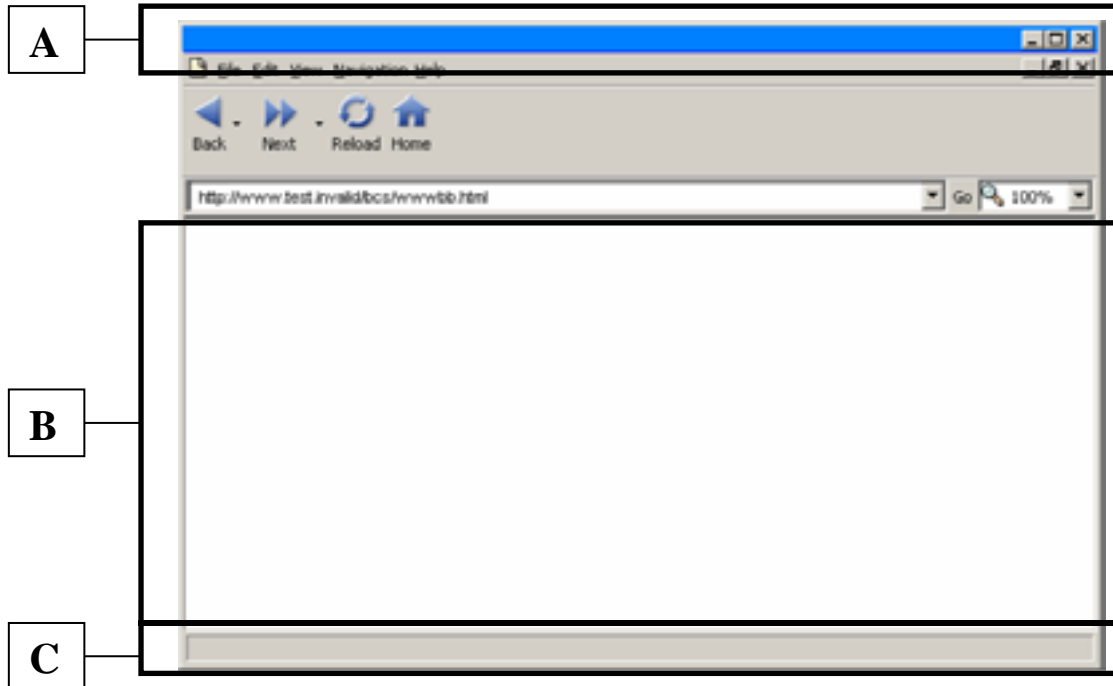
Answer THREE questions out of FIVE. All questions carry equal marks.

Time: THREE hours.

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

1. **Figure 1** at the end of this paper, shows an example of how to manipulate the DOM using JavaScript.
- a)
    - i) Draw a diagram to complete the missing sections A, B and C indicated in **Figure 2** overleaf to illustrate the output of this file when it is first loaded in a browser window. (You should state what browser you are assuming use of.) (3 marks)
    - ii) Represent this document in terms of a hierarchy of DOM elements as either a diagram or list. (5 marks)
  - b)
    - i) Describe what will happen on screen when the user clicks any one of the links. (3 marks)
    - ii) Having clicked one link, the user clicks another **distinct** link. What will happen? (3 marks)
    - iii) Having clicked one link, the user then clicks the **same** link a second time. What will happen? (3 marks)
  - c) Modify the code:
    - i) to enable another menu group to be generated and displayed. (2 marks)
    - ii) to ensure that at most one menu group can be active at any time. (6 marks)
2. a) With the aid of a diagram, briefly explain the architecture for:
  - i) serving static web pages across the WWW; and
  - ii) serving dynamic database-driven web pages across the WWW. (5 marks)
- b) Scripts can be executed at the server end or the client end for a Web application. When would it be appropriate to execute at:
  - i) the server end;
  - ii) the client end?*(Illustrate your answers with suitable real-life examples.)* (5 marks)
- c) What is the purpose of CGI? (3 marks)
- d) When developing a B2C web site, what server technologies should be used to support interaction from say Perl, ASP, PHP, Coldfusion, etc.? You should provide a full justification for your choice of technology. (6 marks)
- e)
  - i) Compare and contrast the POST and GET methods for obtaining data from a web form. (3 marks)
  - ii) List **THREE** actions a form can perform when submitted. (3 marks)

**Turn over]**



**Figure 2: Template browser page**

3. a) i) Give **FOUR** reasons for protecting data. **(4 marks)**  
 ii) What are the implications of keeping data safe? **(3 marks)**
- b) Considering the three elements (client, network, server) involved in a web transaction over a conventional wired network, state **FIVE** security risks to confidential data and, for each risk identified, outline a possible solution. **(10 marks)**
- c) What additional risks do wireless network connections (such as 802.11b) bring to the WWW, over and above those existing on conventional network connections? Outline possible solutions. **(8 marks)**
4. Until recently, typical consumer access to the WWW has been over slow dialup connections using the telephone system.
  - a) Illustrating your answer with real life examples, describe how the advent of broadband and interactive television and the “always-on” ethos have transformed the way people buy, sell and support items. **(10 marks)**
  - b) There are many mechanisms (both on and offline) for paying for online goods and services. List **FOUR** of these methods, along with the advantages and disadvantages of each method. **(8 marks)**
  - c) What has been the impact of growth in electronic transactions (e-banking, e-commerce, e-payment) and online technologies in relation to the concept of a cashless society? **(7 marks)**

5. a) i) Explain what the term **accessibility** means, and why it is important for providers of information (e.g. government departments) to address the issues. **(7 marks)**
- ii) The Web is a source of entertainment almost as much as it is of information. How significant is accessibility as an issue for providers of entertainment or leisure? **(5 marks)**
- b) i) What is meant by the terms:
- HTML validation; and
  - CSS validation? **(5 marks)**
- ii) How can web authors ensure their pages conform to standards? **(4 marks)**
- iii) What are the implications of:
- Web developers breaking or ignoring standards?
  - Web browsers breaking or ignoring standards? **(4 marks)**

## Figure 1: For use with Question 1

```
<!doctype html public "-//W3C//DTD HTML 4.01 Transitional//EN">
1. <html>
2.   <head>
3.     <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
4.     <title>WWWBBCS</title>
5.     <script type="text/javascript" language="javascript">
6.       function toggleMenu(currMenu){
7.         if(document.all){
8.           thisMenu = eval("document.all."+currMenu+".style");
9.
10.            if(thisMenu.display == "block"){
11.              thisMenu.display = "none";
12.            }
13.            else {
14.              thisMenu.display = "block";
15.            }
16.
17.            return false;
18.          }
19.          else {
20.            return true;
21.          }
22.        }
23.      </script>
24.      <style type="text/css">
25.        .menu { display:none; margin-left:20px;}
26.      </style>
27.    </head>
28.    <body bgcolor="white">
29.      <h1>British Computer Society</h1>
30.      <h3><a href="page1.html" onClick="return toggleMenu('menu1')">BCS
31.        Membership</a></h3>
32.      <span id="menu1" class="menu">
33.        Membership Grades<br>
34.        Why Join?<br>
35.        Benefits<br>
36.      </span>
37.      <h3><a href="page2.html" onClick="return toggleMenu('menu2')">
38.        Branches</a></h3>
39.      <span id="menu2" class="menu">
40.        UK Branches
41.        European Branches<br>
42.        African Branches<br>
43.        Asian Branches<br>
44.      </span>
45.      <p>
46.      <a href="http://validator.w3.org/check/referer"></a>
49.    </p>
50.  </body>
51. </html>
```

Figure 1: Source Code Listing