

THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATIONS BCS Level 6 Professional Graduate Diploma in IT

WORLD WIDE WEB – BEYOND THE BASICS

2nd May 2007, 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.*

Calculators are NOT allowed in this examination.
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1. There are a number of categories of files that make up a website. One example would be image files (JPEG, GIF, PNG etc.).
 - a) List, with an example for each, FIVE other distinct categories of files that can be used within a website. **(7 marks)**
 - b) *Define and explain* FIVE different aspects by which a single web *page* can be evaluated and tested. **(8 marks)**
 - c) Given a B2C website (e.g. <http://www.amazon.com>), explain how the entire website can be evaluated from a user's perspective. **(10 marks)**

 2.
 - a) In relation to *internal* website navigation structures:
 - i) List and explain FOUR characteristics of a good navigational architecture. **(4 marks)**
 - ii) Define and explain the term *breadcrumb navigation*. **(2 marks)**
 - iii) Compare and contrast breadcrumb navigation with global links. Where would it be appropriate for a website comprising many distinct pages to use each? **(4 marks)**
 - b) "Cameras 4 U" is a retailer specialising in mid-range digital cameras. Their website advertises digital cameras and allows visitors to view a page listing all relevant cameras available by:
 - Manufacturer (Sony, Canon, Fuji)
 - Number of megapixels (0-3.0, 3.1-6.0, 6.1+)
 - i) Provide an appropriately labelled diagram and short rationale (maximum of one paragraph) for an efficient website navigation scheme based solely on:
 - Hierarchical navigation **(5 marks)**
 - Matrix navigation **(5 marks)**
- You may add any additional link pages as required.
- ii) With appropriate justifications, explain which of these schemes (hierarchical or matrix) is the more appropriate for this brief. **(5 marks)**

Turn over]

3. a) Explain, with a suitable realistic example in each case, what is meant by:
- i) denial of service (DOS) attack (2 marks)
 - ii) cross site scripting (XSS) attack (3 marks)
 - iii) buffer overrun vulnerability (3 marks)
- b) For each of the three elements (client, network, server) involved in a web transaction over a conventional wired network, detail TWO security risks to sensitive data and, for each risk identified, list the consequences of a breach of security. (9 marks)
- c) What additional risks do wireless network connections (such as 802.11b) to the WWW bring, over and above those existing on conventional network connections? Outline possible solutions. (8 marks)
4. a) i) With a specific example, explain what is meant by the term RSS. (2 marks)
- ii) What is meant by the term *podcasting*? (2 marks)
- iii) With reference to real life examples, explain what benefits podcasting and RSS-supported sites offer over traditional broadcasting media. (3 marks)
- b) i) Define and explain the terms *VoIP* and *IM*. (3 marks)
- ii) With specific reference to real-life and contemporary VoIP and IM applications, explain how Internet-based real time communications have changed the way people communicate, both at work and socially. (5 marks)
- c) Explain, with specific examples, how the WWW has transformed the way that people shop for:
- i) Music
 - ii) Air travel
 - iii) Financial services (10 marks)

Figure 1: Source Code Listing

```
1: <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
2:   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
3: <html>
4:   <head>
5:     <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
6:     <title>BCS Bookshop</title>
7:     <script type="text/javascript" language="javascript">
8:     <!--
9:     function togglegroup(currgroup){
10:       if(document.all){
11:         thisgroup = eval("document.all."+currgroup+".style");
12:
13:         if(thisgroup.display == "block"){
14:           thisgroup.display = "none";
15:         }
16:         else {
17:           thisgroup.display = "block";
18:         }
19:
20:         return false;
21:       }
22:       else {
23:         return true;
24:       }
25:     }
26:     -->
27:   </script>
28:   <style type="text/css">
29:     .group { display:none; margin-left:20px;}
30:   </style>
31: </head>
32: <body bgcolor="white">
33:   <h1>Books & Periodicals</h1>
34:   <h3><a href="page1.html" onclick="return togglegroup('group1')">
35:     Books</a></h3>
36:   <p id="group1" class="group">
37:     &quot;Intro to Javascript&quot;<br />
38:     &quot;Golfing, a guide&quot;<br />
39:     &quot;The Complete DOM reference&quot;
40:   </p>
41:   <h3><a href="page2.html" onclick="return togglegroup('group2')">
42:     Magazines</a></h3>
43:   <p id="group2" class="group">
44:     &quot;Hi!&quot;<br />
45:     &quot;People's Monthly&quot;<br />
46:     &quot;Donkey & Dog&quot;
47:   </p>
48:   <p>
49:     <a href="http://validator.w3.org/check?uri=referer"></a>
52:   </p>
53: </body>
54: </html>
```

5. a) List the characteristics of *static* and *dynamic* web pages. (3 marks)
- i) Describe the technologies and tools used in the creation of a static web page that includes images. (3 marks)
- ii) Without repeating those elements mentioned in ii) above, describe the additional technologies and tools used in the creation of a dynamic web page. (4 marks)
- b) HTMLDocument, as defined in the Document Object Model (HTML) Level 1, defines a number of attributes.
- i) List FOUR key attributes of HTMLDocument (2 marks)
- ii) With reference to HTMLDocument, explain how you can change an image in a web page using Javascript. (3 marks)
- c) **Figure 1** (on the previous page) details the source code of a web site for a bookshop.
- i) Draw a diagram to complete the missing sections A, B and C indicated in **Figure 2** below to illustrate the output of this file when it is first loaded in a browser window. (State the browser you are assuming use of.) (3 marks)
- ii) The links have JavaScript actions attached to them. Describe what will happen on screen in relation to user interaction with the links. (4 marks)
- iii) The bookshop wishes to add extra details to the web page, with the same format and functionality as the current content. Write code to enable the menu group displayed in **Figure 3** (on the next page) to be generated and displayed. (3 marks)

(Note: Your answer should list only the changes and additional lines required)

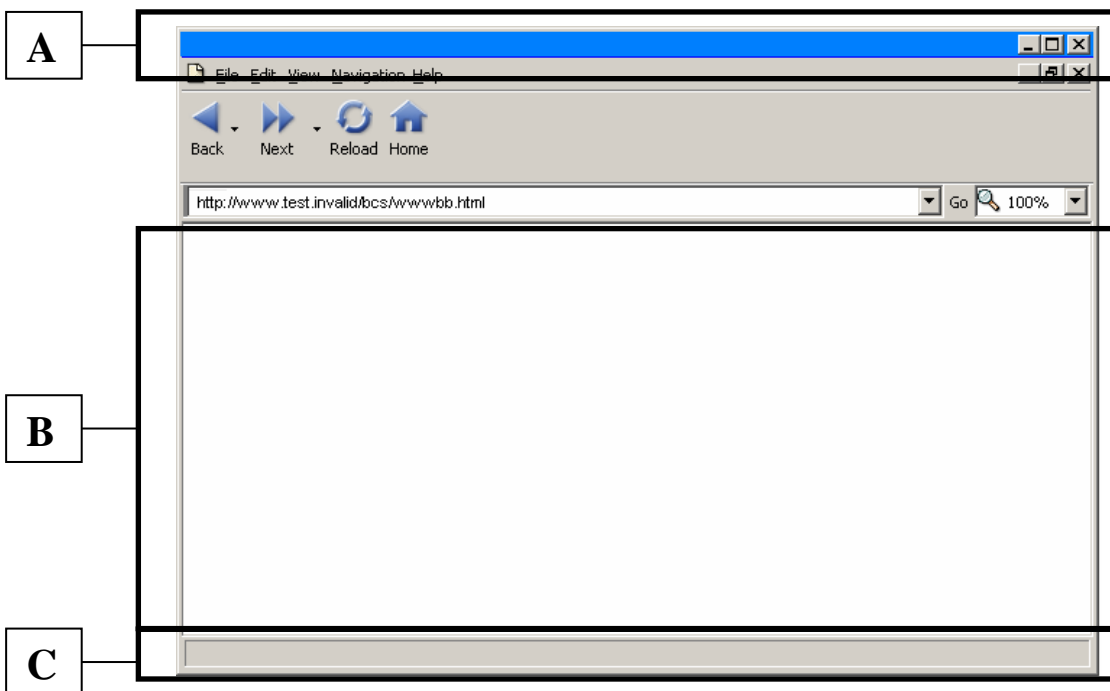


Figure 2: Template browser page

Journals

"IE Proceedings"

"MCQ"

"Clinical Review"

Figure 3: Menu group to add