THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATIONS
Professional Graduate Diploma

WORLD WIDE WEB – BEYOND THE BASICS
2nd May 2006, 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.*

Appendix attached for use with Questions 3 and 5.

1. *a)* With specific reference to websites:
    i)   What is meant by the term *benchmarking*?   **(2 marks)**
    ii)   Explain what is meant by *acceptance testing*.   **(3 marks)**
    iii) Define the terms *load-testing* and *stress testing* when applied to a website. What, if any, are the differences between them?   **(5 marks)**

    b) A website can be evaluated from three points of view: the *user*, the *owner*, and the *developer* of the site. For each of these stakeholders, list FOUR distinct characteristics that can be used as a measure of the success of a website.   **(8 marks)**

    c) Given a business-to-consumer (B2C) website (e.g. `http://www.amazon.com`), and choosing ONE of the above stakeholders (user, owner, developer), devise a plan for testing the site.   **(7 marks)**

2. *a)* Expand and define the following terms:
    i)   XML   **(1 mark)**
    ii)   SSL   **(1 mark)**
    iii) HTTP   **(1 mark)**
    iv)   CSS   **(1 mark)**
    v)   RSS   **(1 mark)**

    b) *i)*   Define the term *blogging*.   **(2 marks)**
          ii) State THREE possible uses for a blog.   **(3 marks)**
          iii) Describe how a blog differs from a traditional website.   **(5 marks)**

    c) Explain, with the use of appropriate realistic examples, FOUR risks inherent in relying on information acquired from WWW sites, and a way to mitigate each of these risks.   **(10 marks)**

Turn over]

3.   **Refer to the Appendix at the back of the question paper for the Figure quoted in this question.**

    a)   Explain, with the aid of diagrams, what is meant by the following website navigation schemes:

        i)   Linear

        ii)   Hierarchical

        iii)   Matrix   **(6 marks)**

    b)   **Figure 1** describes the navigation structure of a static website selling Digital Cameras.

        i)   List, with a justification, FIVE weaknesses of this website structure.   **(9 marks)**

        ii)   Redesign the navigation of this website using a more efficient scheme, and represent this scheme by redrawing the navigation diagram, explaining BRIEFLY the key changes that have been made.

            (10 marks)

4.   *a)*   Credit card numbers may be viewed as an example of *sensitive data*.

        i)   Give FOUR *other* examples of sensitive data.   **(4 marks)**

        ii)   Why should sensitive data be encrypted before transmission over the Web?   **(3 marks)**

    b)   Considering the three elements (client, network, server) involved in a web transaction over a conventional wired network, detail FIVE security risks to confidential data and, for each risk identified, list potential consequences of a breach of security.   **(10 marks)**

    c)   The widespread use of public terminals (e.g. in airports, libraries, cyber cafés) introduces additional risks to the privacy of a user. With reference to realistic examples, outline FOUR of these risks and describe how a user can mitigate against them.   **(8 marks)**

5.   **Refer to the Appendix at the back of the question paper for the Figures quoted in the following questions. (Please note: figures are 1, 3 and 4 with Figure 2 being the last one).**

    Static web pages can be made dynamic by the use of scripts that manipulate the Document Object Model (DOM).

    a)   Scripts can be executed at the server end or at 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 realistic examples.)   **(5 marks)**

    b)   Explain, with the use of a diagram, the key elements of the DOM.   **(5 marks)**

    c)   **Figure 2 (at the end of this question paper)** details the source code of a web site for a restaurant.

        i)   Draw a diagram to complete the missing sections A, B and C indicated in **Figure 3** 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 restaurant 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 4** (below) to be generated and displayed.   **(4 marks)**

        iv)   Using CSS, list modifications to the code to change the appearance of the listed groups to the following:

            Starters: Italic text, surrounded by a dotted 1 pixel border   **(2 marks)**

            Main course: Bold text, surrounded by a solid 2 pixel border   **(2 marks)**

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

Appendix containing Figures 1,2, 3 & 4. (Please note: figures are in order 1, 3 and 4 with Figure 2 being the last one).
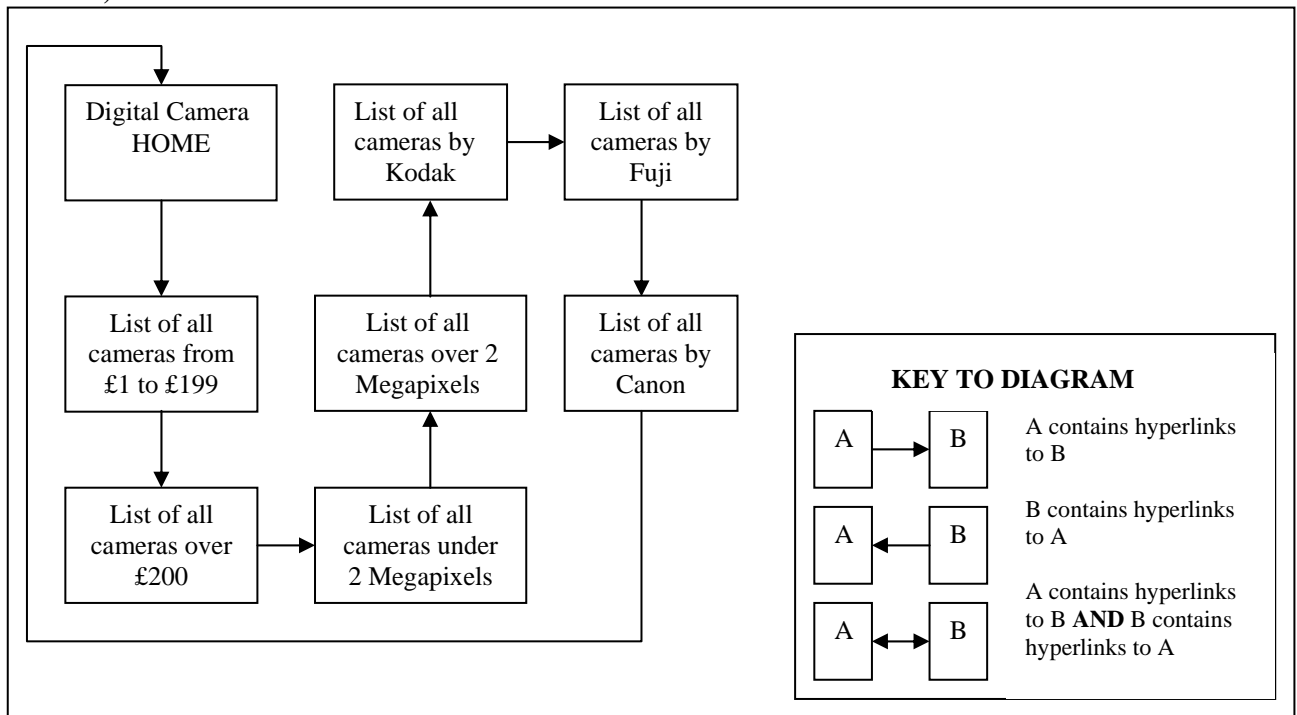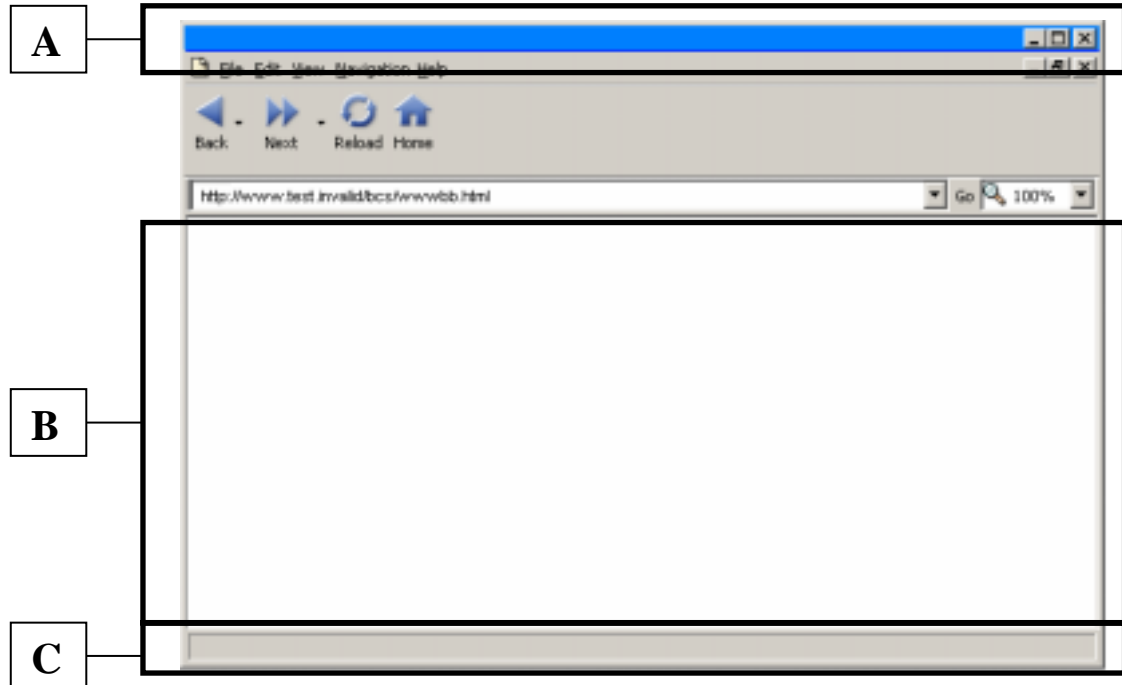

Figure 1: Website Navigation Diagram

Figure 3: Template browser page

<u>Desserts</u>
      Apple Pie
      Kulfi
      Cheesecake

Figure 4: Menu group to add

Figure 2: 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>Le Menu</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>Restaurant group</h1>
34:        <h3><a href="page1.html" onmouseover="return togglegroup('group1')">
35:            Starters</a></h3>
36:        <p id="group1" class="group">
37:            Fruit Salad<br />
38:            Soup de jour<br />
39:            Prawn Cocktail
40:        </p>
41:        <h3><a href="page2.html" onmouseover="return togglegroup('group2')">
42:            Main Courses</a></h3>
43:        <p id="group2" class="group">
44:            Risotto<br />/
45:            Chicken Teriyaki<br />
46:            Steak Pie
47:        </p>
48:        <p>
49:            <a href="http://validator.w3.org/check?uri=referer"><img
50:                src="http://www.w3.org/Icons/valid-xhtml10"
51:                alt="Valid XHTML 1.0 Transitional" height="31" width="88" /></a>
52:        </p>
53:    </body>
54:</html>
```