One and a half hours

UNIVERSITY OF MANCHESTER
SCHOOL OF COMPUTER SCIENCE

Web Technology and Practice 1

Date: Friday 30\textsuperscript{th} May 2008
Time: 14:00 – 15:30

QUESTION PAPER MUST NOT BE REMOVED FROM THE EXAM ROOM

Please answer ALL Questions in Section A
and ONE Question in Section B

Please use a separate Answerbook for EACH Section

The use of electronic calculators is permitted provided
they are not programmable and do not store text.
**Section A**

**Answer ALL questions – worth 1 mark each**

1. What do the acronym TCP/IP and XHTML stand for, respectively?

2. Briefly explain web surfing from both logical and physical views.

3. In XHTML, what *form elements* are used to create a menu and its items?

4. What is the purpose of a three-tier model in the server/client architecture?

5. Find the error(s) in the following XML document and correct them.

   ```xml
   <Book_Shop>
   <title>Introduction to WWW</title>
   <reservation_number = "102">
   </book_shop>
   ```

6. Give the names of TWO functions used for *output* in JavaScript.

7. Why is it necessary to nest *single* and *double quotes* in JavaScript?

8. What is the purpose of an *associative array* in JavaScript?

9. An image object named panda can be referred to in JavaScript as `document.panda` or `document['panda']`. Which one is preferable? Explain your answer.

10. State which of the following are valid XML element names?

    a) `nameClass`
    b) `_name_Class`
    c) `l_name_Class`
    d) `name*Class`

11. What is the attribute type **CDATA** used to specify in a DTD?

12. What is the keyword **#IMPLIED** used to specify in a DTD?

13. What does the **standalone** attribute do in the XML declaration?

14. How would you reference a CSS stored in a file `styles.css` in your XML code?
15. Write a processing instruction that includes the stylesheet `styles.xsl` inside an XML document.

16. Describe TWO ways to correct a naming collision in an XML document.

17. Name the TWO types of URIs used to identify namespaces.

18. What is the namespace for XSL-FO?

19. What is the difference between simple and complex XML schema types?

20. Describe a programme that would benefit from DOM over SAX.
Section B

Answer ONE question in this Section

B1.  a) Write an XML document that marks up the information stored in the following table:

<table>
<thead>
<tr>
<th>Module</th>
<th>Lecturer</th>
<th>Group</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Learning</td>
<td>J. Smith</td>
<td>AI</td>
<td>1.23</td>
</tr>
<tr>
<td>Formal Logic</td>
<td>A. Lee</td>
<td>Formal Method</td>
<td>2.16</td>
</tr>
<tr>
<td>VLSI Design</td>
<td>M. Chang</td>
<td>Hardware</td>
<td>0.15</td>
</tr>
<tr>
<td>Database</td>
<td>T. Blair</td>
<td>Software</td>
<td>3.11</td>
</tr>
</tbody>
</table>

(5 marks)

b) Write a DTD for the XML document specified in part (a). (4 marks)

c) Describe TWO ways in which the DTD declarations used in part (b) can be referenced. (3 marks)

d) Write an XML Schema for the XML document specified in (a). (5 marks)

e) State all the possible disadvantages of using a DTD when compared to a Schema for validating XML documents. (3 marks)
B2. a) The JavaScript programming language is based on an object-oriented paradigm. Describe some specific features of JavaScript that provide support for object-oriented programming. (4 marks)

b) Use XHTML and JavaScript to implement a Visitor Education Survey form (some typical snapshots after clicking the “Send Survey” button shown in the figure below) to meet the following requirements:

- If no degree is received, feedback “Need an Education.”
- If the highest degree is High School Diploma, feedback “Competent.”
- If the highest degree is Bachelor, feedback “Educated.”
- If the highest degree is Master, feedback “Highly Educated.”
- If the highest degree is Doctorate, feedback “Well Educated.”
- The visitor’s name must be given. Otherwise, the form cannot be sent and instead an error message should be alerted.

Note: XHTML preamble information (or the standard declaration) is not required.

(8 marks)

c) Explain what “on-the-fly web pages” are. Give an example to demonstrate how this techniques works and what the benefit is from the use of this technique. (4 marks)

d) State a typical CGI communication loop with an example and describe main tasks that CGI script can perform in general. (4 marks)

END OF EXAMINATION