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Student Name:

COMP 4711

Final Exam

Dec 9, 2008

Instructions:

You have 120 minutes to complete the exam.
This exam is out of 86 marks.

There are 10 multiple choice questions, worth one mark each.
There is a single correct (or most correct) answer to each of these.

There are 10 fill-in-the-blank questions, worth two marks each. Each of these has a single word or phrase expected as an answer.

There are 12 short answer questions, worth three marks each.
Finally, there are 2 longer questions, worth 10 marks each.

No books, calculators, laptops, cellphones, or cheat sheets are permitted.

You may not leave until the half-way point, unless all registered students are present.

1. In DOM, an XML document is normally saved as a *.XML file* using:
 - (a) An XMLOutputFactory object
 - (b) An XMLOutputter object
 - (c) An XMLStreamWriter object
 - (d) The toString() method of an org.jdom.Document object
 - (e) The toString() method of an org.w3c.dom.Document object

2. In XML, an *element* is:
 - (a) A complex data type
 - (f) A field with accompanying get & set methods
 - (g) A field with key / value pairs
 - (h) An allowed value of an ancestor node

 - (i) None of the above

3. *Preceding and following* in Xpath will give you:
 - (a) All ancestors or descendants of the current node
 - (b) All nodes before or after the current one, at the same level
 - (c) The ancestor path or descendant tree for the current node
 - (d) The immediate ancestor or descendant of the current node
 - (e) The immediate sibling, before or after, of the current node

4. Which of the following will return the *nested content* directly inside an org.jdom.Element stuff?
 - (a) stuff.getContent()
 - (a) stuff.getQualifiedText()
 - (b) stuff.getTextTrim()
 - (c) stuff.getValue()
 - (d) stuff.toString()

5. Which of the following packages provides the *main SAX interfaces*?
 - (a) javax.sax
 - (b) javax.xml.bind.sax
 - (c) javax.xml.sax
 - (d) org.w3c.sax
 - (e) org.xml.sax

6. Which of the following Javascript expressions is most reasonable for *replacing the content* of a specific HTML page element (zone) with a new text value retrieved using Ajax?
- (a) `document.getElementById("zone").html = responseText;`
 - (b) `document.getElementById("zone").innerHTML = xhr.responseText;`
 - (c) `document.getElementById("zone").setText(xhr.responseXml);`
 - (d) `document.innerHTML = xhr.responseText;`
 - (e) `document.zone.html = xhr.responseText;`
7. **JSP directives** are used to:
- (a) Specify an allowed set of JSP expressions
 - (a) Specify how servlet translation will be handled
 - (b) Specify the servlet container expected
 - (c) Specify username & password authentication
 - (d) Specify XPATH expressions
8. When building a JSP, which tag notation is used for a *JSP declaration*?
- (a) `<% ... %>`
 - (b) `<%! ... %>`
 - (c) `<%@ ... %>`
 - (d) `<%= ... %>`
 - (e) `<%jsp: ... %>`
9. Which of the following is not an *XML node type*?
- (a) element
 - (b) entity
 - (c) notation
 - (d) parameter
 - (e) text
10. An XML document is *bound to a CSS stylesheet* using which of the following?
- (a) A processing instruction embedded in the document
 - (b) An attribute in the root element of the document
 - (c) An attribute of the `?xml` directive
 - (d) An attribute of the `?xml-stylesheet` directive
 - (e) XML is not bound to a CSS stylesheet

Completion Questions (2 marks each)

11. The syntax for referencing an *XSL parameter* “company” inside a stylesheet is

12. The method to *create child elements* using JDOM is

13. The *stylesheet directive* to specify the order of elements in a nodeset is:

14. An XML-RPC response can hold one of which two *payload elements*?

15. Which *SAX event* is used to give you an opportunity to process white space??

16. A sample *JSP action* would be:

17. The *reference implementation* for the servlet and JSP specifications is:

18. The *design pattern* that applies to a webapp with JSPs and servlets is called:

19. Which *browser* needs to be treated differently than the rest, using AJAX?

20. A *SOAP message* is sent inside of or using a ... :

Short Answer Questions (single sentence, 3 marks each)

Yes, that means marks automatically deducted if you use more than a single sentence in an answer.

21. What is meant by the acronym *UDDI*?

22. What is the significance of *AJAX*?

23. Explain the difference between *DOM* and *JDOM* processing of an XML document.

24. Provide a good argument for performing an *XSL transform server-side* using a JSP instead of client-side using the browser.

25. Explain what the *XPath location* `"/order/item[@status=backordered]"` means.

26. How do you determine the *element type* of a node using JDOM?

27. Describe two strengths of using the *DOM approach* to XML processing.

28. Describe the purpose of a *ContentHandler* in SAX processing.

29. Describe two *AJAX issues*.

30. Explain how XML-RPC is *different* from AJAX.

31. Explain the purpose of a *node test* in XPath.

32. Describe two advantages of using *SOAP* to connect layers in a web application.

Hard Questions (10 points each)

Note: not looking for “picture-perfect” code – minor syntax errors will be over-looked :)

33. An XML document is shown below. Construct a *stylesheet template* element that will produce an HTML table for the details element.

```
<?xml version="1.0"?>
<order id="234234">
  <customer id="123">Jim</customer>
  <how>take-out</how>
  <details>
    <item><code>Big Mac</code><qty>1</qty></item>
    <item><code>Fries</code><size>small</size><qty>1</qty></item>
    <item><code>Coffee</code><qty>2</qty></item>
  </details>
</order>
```

34. An Order class is shown below. Construct a reasonable *JSP fragment* which will get such an object from the user session, using the key “order”, and display the order total legibly.

```
public class Order {  
    public String id, customer, customerName, how;  
    java.util.ArrayList<Item> details;  
    class Item {  
        public String code; int qty; int price;  
    }  
}
```