

Name: _ _ _ _ _

Set: _

COMP 4711
Midterm Exam
Solution

Feb. 26, 2008

Instructions:

You have 50 minutes to complete the midterm exam.
This exam is out of 34 marks.

There are 14 multiple choice questions, worth one (1) mark each.
There is a single correct (or most correct) answer to each of these.

There are ten fill-in-the-blank questions, worth 2 marks each.

Use a visible writing instrument of your choice,
but make sure your writing is legible and your selections clear.

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

Multiple Choice Section – 1 mark each

1. A “*well-formed*” XML document is one which

- (a) Follows XML syntax rules
- (b) Has elements strictly nested inside each other
- (c) Is indented according to the nesting level of elements
- (d) Looks good to a human reader
- (e) Only has elements one level deep

2. The Java code below is using which *model of processing*?

```
DocumentBuilder builder = factory.newDocumentBuilder();  
Document doc = builder.parse(new File(ls_xml));
```

- (a) Builder
- (b) Document
- (c) DOM
- (d) Model-View-Controller
- (e) SAX

3. To simply *import* the `java.util` package into a JSP, you would use:

- (a) `<% import java.util.* %>`
- (b) `<%! import java.util.* %>`
- (c) `<%@ import java.util.* %>`
- (d) `<%@ page import="java.util.*" %>`
- (e) `<%= import java.util.* %>`

4. The result of which of the following expression’s evaluation is *passed directly* to the browser and does not require any output statement?

- (a) `<% ... %>`
- (b) `<%! ... %>`
- (c) `<%@ ... %>`
- (d) `<%= ... %>`
- (e) `<jsp:... />`

5. Which *governing body* is responsible for the XML specifications?

- (a) IETF
- (b) Microsoft
- (c) OMG
- (d) Sun Microsystems
- (e) **W3C**

6. The *main method* of a servlet, to handle HTTP requests, is which of the following?

- (a) doXXX(...)
- (b) handle(...)
- (c) main(...)
- (d) process(...)
- (e) **service(...)**

7. Which of the following is not a way of *constraining a simple type* in a schema?

- (a) **A list of possible attributes**
- (b) A list of possible values
- (c) Occurrences range
- (d) Primitive data type
- (e) Value range

8. Which of the following constructs is known as a *JSP scriptlet*?

- (a) **<% ... %>**
- (b) <%! ... %>
- (c) <%@ ... %>
- (d) <%= ... %>
- (e) <jsp:... />

9. Which of the following is the schema element or construct used to *constrain the order of nested elements inside a complex type*?

- (a) Comma-separated list
- (b) Order
- (c) Selection
- (d) **Sequence**
- (e) With-all

10. Which of the following is provided as a starting point for implementing your own *event processing* for SAX?

- (a) ContentHandler
- (b) DefaultHandler**
- (c) DocumentBuilder
- (d) DocumentHandler
- (e) EventHandler

11. Which of the following techniques/tools will result in the *most efficient handling* of a large XML document?

- (a) DOM
- (b) DTD
- (c) SAX**
- (d) XSL
- (e) XSLT

12. Which of the following is not a *valid XML* document?

- (a) DTD**
- (b) Schema
- (c) Stylesheet
- (d) XML document bound to a stylesheet
-
- (e) All of these are valid XML documents

13. Actual text content of an XML document goes inside which kind of *named node*, according to the DOM?

- (a) #text**
- (b) cdata
- (c) element
- (d) text
- (e) value

14. Which of the following is not an XSL *stylesheet element*?

- (a) for-each
- (b) if
- (a) select**
- (a) template
- (b) value-of

Fill-In-The-Blanks Section [2 marks each]

15. The first element in an XML document is called the root element.

16. Style sheets are used to tell a program how to format an XML document

17. Two SAX events are _____ and _____.
start/endDocument, start/endElement, characters

18. A Java Server Page is turned into a servlet by the JSP container.

19. Below is an example of XML schema being used to restrict the value of an attribute based on a pattern:

```
<xs:simpleType name="SKU">
  <xs:restriction base="xs:string">
    <xs:pattern value="\d{3}-[A-Z]{2}" />
  </xs:restriction>
</xs:simpleType>
```

Give an example of data that would match this pattern restriction.

123-FX

20. Two of the design goals of XML are _____ and _____.

Simplicity, easy to process, minimal options, human legible, internet-friendly, formal, concise, easy to create, platform-neutral

21. In the XML fragment below, an attribute would be _____ **cust_id** _____ and a nested element would be _____ **name, first_name, last_name, title or company** _____.

```
<customer cust_id="12345">
  <name>
    <first_name>Bob</first_name>
    <last_name>Smith</last_name>
  </name>
  <title>Manager</title>
  <company>My Company Inc.</company>
</customer>
```

22. Two benefits of using a schema instead of a DTD are _____ and _____.

Extensible, richer, XML, data typing, namespaces

23. The data structure that a DOM most closely resembles is a _____ **tree** _____.

24. The most commonly used class if using JDOM is _____ **org.jdom.Element** _____.