

CSC 667 Final Exam (Sample Questions)

1. Explain the terms below

- (a) Cookie (explain what it is and how to use, with HTTP syntax)
- (b) Session (explain what it is and how it is implemented)
- (c) If cookie is disabled from the client's browser, what are the possible options to do the session tracking?

2. Servlet and JSP

- (a) What are the advantages of using Servlet/JSP over conventional CGI programming? (list at least 3)
- (b) What are the differences between Servlet and JSP? (When is servlet preferred and when is JSP preferred)
- (c) Explain the life cycle of a JSP page in terms of translation, compilation, loading and execution in case of the first time access and the second access.
- (d) Explain procedures to create your own MyServlet (a simple servlet that receives your name and generate a response that says a greeting to you) using the HttpServlet class.

3. Session tracking using Servlet or JSP

- (a) How to create a Session in Servlet? (Show an example using actual codes.)
- (b) How to store information (shopping cart – ordered items) into the session and retrieve back? When explicit casting is used and why?
- (c) What happens if session expires or a client kills the browser? What can you do to prevent possible loss of information?

4. Write comments where (a) – (f) is marked about the bold-faced code

```
<%@ page language="java" import="com.wrox.projsp.ch05.*, java.util.*"  
    errorPage="error.jsp" %>
```

```
// (a)  
//  
//  
//  
//
```

```
<jsp:useBean id="loginBean" scope="page" class="com.wrox.projsp.ch05.Login">  
    <jsp:setProperty name="loginBean" property="*/>
```

```

</jsp:useBean>
// (b)
//
//
//
//
//
//
<jsp:useBean id="monitor" scope="application" class="java.util.HashMap"/>

```

```

<%
String display = "showLogin.html";
User user = loginBean.authenticate();

if (user != null) {
    user.setIpAddr(request.getRemoteHost());

```

```

    session.setAttribute("user", user);
// (c)
//
//
//
//
//

```

```

    monitor.put(user, session);
    System.out.println("Assigned new session for: " + user);

    session.setMaxInactiveInterval(900);

    display = "browse.jsp";
}
%>

```

```

<jsp:forward page="<%= display %>" />
// (d)
//
//
//
//
//
//

```

5. Write comments like in question No.4

```

<% @ page import="com.wrox.projsp.ch05.*" errorPage="error.jsp" %>
<html><title>Process the Order</title>
<body>
<%
if(session.getValue("user") == null) {
    response.sendRedirect("showLogin.html");
}
// (a)
//

```

```

//
//
//

    User user = (User)session.getValue("user");
// (b)
//
//
//
//
String display = "showDetails.jsp";
int mode = (new Integer(request.getParameter("action"))).intValue();
System.out.println("Action" + mode);
Order order = null;

switch(mode) {

    /* 0 = add / modify
       1 = complete
       2 = clear
       3 = display
    */

    case(0):
    case(2):
        String itemIds[] = request.getParameterValues("itemId");
// (c)
//
//

        If (itemIds != null && itemIds.length != 0) {
            order = new Order(user);
            order.setItemIds(itemIds);
            session.setAttribute("anOrder", order);
// (d)
//
//
//
        } else
            session.removeAttribute("anOrder");

        break;
    case(1):
        // Complete the order here
        order = (Order)session.getAttribute("anOrder");
        System.out.println("Order: " + order);
        order.complete((Catalog)pageContext.getAttribute("catalog",
            pageContext.APPLICATION_SCOPE));
        display = "receipt.html";
        break;
    }
response.sendRedirect(display);
// (e)

```

```
//  
//  
/  
%>
```

- (f) Explain about the scope (page, request, session, application) of java beans in JSP
- (g) List and explain about the implicit objects (provided without explicit declaration) in JSP.
- (h) Explain directory structure for tomcat web applications – Where is the application home directory placed, where html/jsp, java bean or servlet classes are stored?
- (i) What is war file and used for?

6. XML

- (a) Explain what is validity and well-formness rules in XML.
- (b) What are the advantages of using XML (list 3)
- (c) Explain the difference of DOM and SAX parser
- (d) Generate one well-formed and valid XML file from the given DTD. It should contain at least **10 elements and 1 attribute** to make sure you understand DTD.

```
<!ELEMENT SONG (TITLE, COMPOSER+, PRODUCER*, PUBLISHER*, LENGTH?, YEAR?,  
ARTIST+)>  
<!ELEMENT TITLE (#PCDATA)>  
<!ELEMENT COMPOSER (#PCDATA)>  
<!ELEMENT PRODUCER (#PCDATA)>  
<!ELEMENT PUBLISHER (#PCDATA)>  
<!ELEMENT YEAR (#PCDATA)>  
<!ELEMENT ARTIST (#PCDATA)>  
<!ATTLIST SONG LENGTH CDATA #IMPLIED>
```

- (e) Explain how xml file is displayed on the browser ([i]by itself, [ii]with stylesheet, [iii]with applet or plug in)
- (f) List two major advantages of XML over HTML and explain about reason for each advantage.
- (f) What is XSLT? How XSLT is used with XML?

(h) What would be results of executing XSLT below with hyper link connection to a given xml file?

```
<xsl:template match="/">
  <html><body>
  <table border="2" bgcolor="yellow">
    <tr><th>Title</th> <th>Artist</th>
    </tr>
    <xsl:for-each select="catalog/cd">
<tr><td>
  <xsl:value-of select="title" />
  </td>
  <td>
  <xsl:value-of select="artist" />
  </td> </tr>
</xsl:for-each>
</table></body></html>
</xsl:template></xsl:stylesheet>
```

```
<?xml version="1.0" ?>
- <catalog>
  - <cd>
    <title>Empire Burlesque</title>
    <artist>Bob Dylan</artist>
    <country>USA</country>
    <company>Columbia</company>
    <price>10.90</price>
    <year>1985</year>
  </cd>
  - <cd>
    <title>Hide your heart</title>
    <artist>Bonnie Tyler</artist>
    <country>UK</country>
    <company>CBS Records</company>
    <price>9.90</price>
    <year>1988</year>
  </cd>
  - <cd>
    <title>Greatest Hits</title>
    <artist>Dolly Parton</artist>
    <country>USA</country>
    <company>RCA</company>
    <price>9.90</price>
    <year>1982</year>
  </cd>
```

7. With a given DTD, make an example of VALID XML file. (You may start with the root element excluding processing instructions)

```
<!ELEMENT planner ( year* )>
<!ELEMENT year ( date+ )>
<!ATTLIST year value CDATA #REQUIRED>
<!ELEMENT date ( note+ )>
```

```
<!ATTLIST date month CDATA #REQUIRED>
<!ATTLIST date day CDATA #REQUIRED>
<!ELEMENT note ( subject & contents )>
<!ELEMENT subject ( #PCDATA )>
<!ELEMENT contents ( #PCDATA )>
<!ATTLIST note time CDATA #IMPLIED>
```

8. Explain the difference of DOM parser and SAX parser. Show one Java sentence that invokes builder.parse method when requesting actual parsing in both parser cases in terms of return value and its parameters. And explain shortly how they are handled in different way. (which one is event driven?)

9. Which parser is more efficient when making a Web Browser? Why? In what kind of applications is the other parser more efficient?

10. With a given XML file, show a DOM structure returned by DOM parser.

```
<mail><head><to>ABC</to><fr>CDE</fr><sj>About tomorrow</sj></head>
<body type = "text/html"><p>Hello<p>Test</p></body></mail>
```

11. For what the "synchronized" keyword is used and show how they are used in java code? When/why do you have to care about the synchronization in the e-commerce applications?

12. Explain why Java Applets have more security issues than Java Applications and what are the examples of those security related restrictions for Applets? In addition to those security issues, what are the limitations that applet has? (list one)

13. Explain about JDBC – how is it used in e-commerce and what is the advantage of using JDBC?

14. What is connection pool? How/why does it improve overall performance?

15. How does prepared statement improve the performance of e-commerce applications? (Show using an example code)

16. Explain what does “class.forName” do in general? (A code is given below to help you refresh your memory. Explanation could be related to it, but doesn't have to because the example below doesn't make good use of the original intention of class.forName of java)

```
Class.forName("org.gjt.mm.mysql.Driver");
String dbURL = "jdbc:mysql://localhost:3306/murach";
```

```
String username = "root";  
String password = "";
```

17. What is Java Bean – what is requirement to be classified as JavaBean?
18. What is Tag Library? What are the major advantages of using Tag Libraries (list three)
19. Please explain how tag library is deployed. Explain step by step – how it is used in jsp page, what needs to be defined, how actual java codes are created by extending which class, etc. How and where the relation/association between the java class (tag handler class) and the tag names needs to be defined.
20. What is MVC model? What does each letter mean? Discuss how it is used in your term project.
21. What is “web services”? How are UDDI or WSDL used to support web services?
22. Explain about “Host Security”, “Web Service Security”, “Web Application Security”
23. What is “AJAX”? What are advantages of using AJAX and What are possible risks?

