

201

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)

Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION

SUMMER SEMESTER, 2018-2019

DURATION: 1 Hour 30 Minutes

FULL MARKS: 75

CSE 4635: Web Architecture

Programmable calculators are not allowed. Do not write anything on the question paper.

There are **4 (four)** questions. Answer any **3 (three)** of them.

Figures in the right margin indicate marks.

- 1 a) Consider an application in which the results of football games are to be represented in XML. 6×3

For each game:

- We want to be able to represent the two teams involved.
- The final score of the game.
- Which team was playing at home and which team was playing away.
- Which players scored goals (some of which may have been penalties) and the time when each goal was scored.
- Which players were shown yellow or red cards.
- All the referees of the match (minimum of 3 and a maximum of 6)

You might use some attributes.

- i. Write the DTD suitable for defining a document in the above format.
- ii. Suppose the details of two games are as follows:

Home Team	Away Team	Score	Scorers	Time
Barcelona	Real Madrid	2-1	Messi	31:20
			Messi	62:17
			Marcelo	75:41
Arsenal	PSG	0-0		

Produce the XML for the games above. It should be in conformity with the DTD defined earlier. (Note: You can assume other information that are not provided but you deem necessary).

- iii. Use XSLT elements to convert the XML to XHTML and the output should show only the matches of Barcelona.
- b) What is Servlet Filter? Give examples. Draw the directory structure of a java web application containing servlets, Static pages, JSPs, images and configuration files 7

- 2 a) With the help of a diagram, explain the life cycle of a JSP. 10

- b) What is JSTL? What are the main JSTL tag Libraries?

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```
<html>
  <body>
    <h1>Count Using Scriptlets</h1>

    <%
      int n = Integer.parseInt(request.getParameter("number"));
      for(int i=1;i<=n;i++)
      { %>
        <%=i%><br/>
      <% } %>
    </body>
  </html>
```

Figure 1

Given the count.jsp in Figure 1 above, write a JSP file that will perform the same function using only JSTL and no Scriptlets.

- c) When an HTTP request is sent to a servlet container, how does the container choose which servlet to invoke

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- 3 a) Given the Login.jsp in Figure 2 below,

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```
<body>
  <h1>Login: </h1>
  <form action="LoginServlet" method="post">
    Name: <input type="text" name="name"/><br/>
    Password: <input type="password" name="password"/><br/>
    <input type="submit" value="Login"/>
  </form>
</body>
```

Figure 2

Write a servlet having URL, 'LoginServlet', which will check for user authentication, then will set the name and password in the session scope and write another servlet 'WelcomeServlet', which will get the value from session scope and display the name.

- b) Explain the mechanisms of sendRedirect and forward methods. Give examples
- c) What are the differences between HTML and SGML

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4. a) What are Listeners in java web application? Give examples.

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- b) Assume that you are asked to develop a web application that would count the number of active sessions. And one of the requirements is that the total number of active sessions should be kept to a maximum of 30. When the number of sessions is 30, no new session can be created. If a new user attempts to create a new session, an error message should be sent to him that no more than 30 users can access the server at the same time. (Hint: Use listeners).

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- c) With the help of diagrams, explain the Model-2 web architecture with real world scenario implementation and advantages.

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