ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION
DURATION: 1 Hour 30 Minutes

SUMMER SEMESTER, 2016-2017
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.

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1. a) What do mean by web architecture? Write the advantages of applying different web architectural solutions to implement web applications. — 10

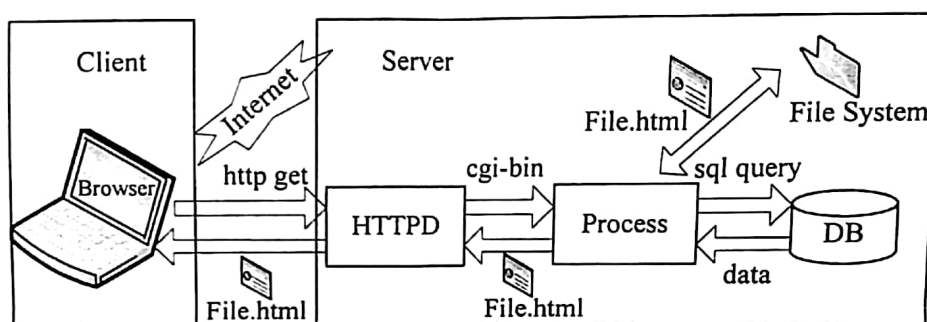   b) Consider the model of a web architecture shown in Figure 1. — 10

Figure 1: An web architectural model

Answer the followings:
   i. Identify and explain two bottlenecks which you think are most critical to this architecture.
   ii. Redraw the architecture with your proposed solutions indicating required web technologies.

    c) What are HTTP session and HTTP session state? — 5

2. a) What is XSLT? What are the advantages of using XSLT? — 2+5

    b) Briefly explain how SAX parser works to parse an XML document. Write the differences between SAX parser and DOM parser. — 5+5

    c) Draw and briefly explain a web architecture to generate dynamic HTML file (XHTML). Your architecture should contain a document server, stylesheet server, XSLT processor, Servlet technology, and HTTP server to generate XHTML. — 8

3. a) What is servlet? What are the uses of servlets in implementing scalable web applications? — 2+3

    b) Define servlet filter. Suppose you have a 'WelcomeServlet' web resource in a web container. However, you want to give an authorized access to that resource. Moreover, you want to store the log information containing IP address of the remote host. Using servlet and servlet filter technologies, draw an architecture providing the solution. — 8

    c) What is servlet context? Consider the architecture given in Figure 2. Answer the followings: — 3×4
       i. What is the difference between ServletContext and ServletConfig?
       ii. Is it possible to dispatch the HTTP request from a servlet (e.g. Servlet-1) in one web application (e.g. WebApplication-1) to another servlet (e.g. Servet-2) of another web application (e.g. WebApplication-2)? Explain your answer.
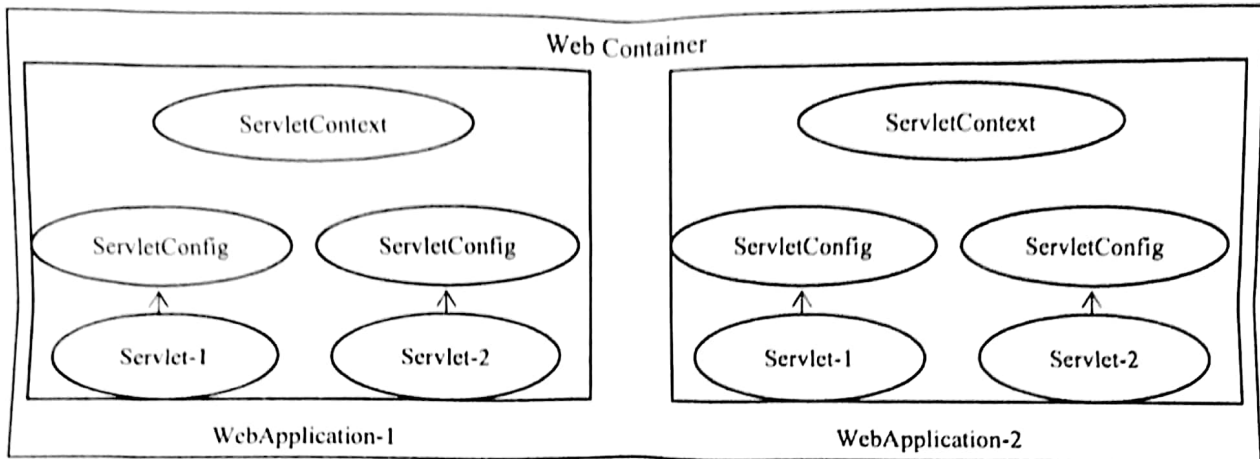   iii. Write the functionalities of a web container.

Figure 2: Web applications in a web container

4. a) What is JSP? How is JSP used in MVC model? Explain with example.   2+6

    b) Explain the configuration written in *web.xml* (Figure 3).   5

```
<servlet>
<servlet-name>Test</servlet-name>
<jsp-file>/WEB-INF/test.jsp</jsp-file>
<init-param>
<param-name>test</param-name>
<param-value>Test Value</param-value>
</init-param>
</servlet>

<servlet-mapping>
<servlet-name>Test</servlet-name>
<url-pattern>/Test.do</url-pattern>
</servlet-mapping>
```

Figure 3: Deployment descriptor

    c) Write short notes on the followings: 3×4
        i.   JSTL tags
        ii.   JSP expression language
        iii.   Use of JavaBean from JSP page