

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)

ORGANISATION OF ISLAMIC COOPERATION (OIC)

Department of Computer Science and Engineering (CSE)

SEMESTER FINAL EXAMINATION

SUMMER SEMESTER, 2021-2022

DURATION: 3 HOURS

FULL MARKS: 150

CSE 6255: Advanced Internet Computing

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

Answer all 6 (six) questions. Figures in the right margin indicate full marks of questions.

1. Suppose you have to design and implement a web application for community policing service. There are three main features that you have to design. First, the police can send 'alerts' directly to the community, providing important information such as local events, traffic incidents and matters of public safety. Then, users can report selected quality of life and criminal incidents. Finally, the web application provides various forms of municipal information and a link to make emergency calls if necessary.
 - a) What are the Java web technologies suitable to implement the application? Justify your answer. 8
 - b) Draw and explain the web architectural components that you will choose to implement. 10
 - c) Justify that your chosen technology can make the internet communication faster and secure. 7

2.
 - a) What do you mean by business logic? How would you separate presentation (HTML) from business logic while using Servlet? 8
 - b) Consider a set of servlets that sell 'Pizza' and share a chef's special pizza of the day. The administrative servlet sets the special of the day (e.g. Name of special pizza and date). Other servlets on the server can access the special pizza and display the message, 'Our special pizza on '26 August, Monday' is 'Pizza di Kampala'. Write the collaborative two servlets (Administrative servlet named, 'SpecialSetter' and other servlet named 'SpecialGetter') 10
 - c) What is Java Bean technology? Give an example use of Java bean in web application development. 7

3.
 - a) What are the different scripting elements available in JSP? Write a page counter example using JSP scripting elements required. 12
 - b) Suppose you want to implement a distributed web application according to the architecture given in Figure 1. Redraw the architecture using appropriate links and labeling to different components and explain with a real life example. 13

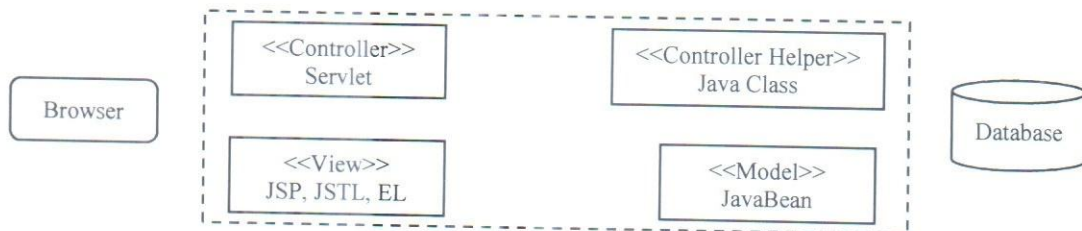


Figure 1: An Internet application architecture

4. a) "JavaScript arrays are sparse, inhomogeneous, and associative" – Explain this assertion with examples.
- b) Different e-commerce websites use countdown timer that starts a certain time before the arrival of any product or offer. Write a JavaScript code to implement countdown timer that starts from a specific date and ends to a target date. The scripting code should display in days, hours, minutes, and seconds.
5. a) What are the differences between JSON and XML technologies? 10
- b) Give an example use of JSP expression language (EL) to demonstrate login application using email and password. Use JavaScript to check the validity of email and a particular password format. 15
6. a) What is socket address? Write the differences between stream sockets and datagram sockets. 10
- b) Write a socket-based java server program that responds to client messages as follows: When it receives a message from a client, it simply converts the message into all uppercase letters and sends back the same to the client. Write both client and server programs demonstrating the scenario. 15