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Faculty of Science & Information Technology
Department of Computer Science & Engineering
Final Semester Examination, Fall 2024
Course Code: CSE 414 , Course Title: Web Engineering
Level: 4 Term: 1 Batch: 59th

Time: 2:00 Hrs **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	a)	A company plans to launch a streaming platform that delivers high-quality video content to millions of users globally. The platform must support features like real-time streaming, user authentication, and adaptive video quality based on network conditions. i. **Analyze** potential challenges associated with implementing a Distributed System architecture for the scenario platform, such as latency, data consistency and stream quality issues. Propose solutions to overcome these challenges and ensure a high-quality user experience. ii. **Explain** the principles of distributed systems (e.g., load balancing, fault tolerance, and scalability) be applied to ensure smooth functioning of the website during high traffic events?	[10]	CO2
2.	a)	You are leading a team to develop a 'Multi-user collaborative project management web platform'. The platform must include the following advanced features: • Real-time updates for collaborative editing of project tasks and timelines. • Role-based access control (e.g., Admin, Manager, Contributor). • Integration with external services (e.g., Google Calendar, Slack) for notifications and task management. i. **Design** a system structure based on the MVC pattern to implement these features. ii. **Analyze** how you would handle the web platform's real-time updates and external service integrations in the MVC framework.	[10]	CO4
3.	a)	You are designing a web page with a dynamic to-do list. The to-do list allows users to: Add tasks by typing into an input field and clicking an "Add Task" button. Delete tasks by clicking a "Delete" button next to each task. Now, Write a **JavaScript code** that: Dynamically adds event listeners to handle the functionality for Adding Tasks(with 'Add Task' button), and	[10]	CO3

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		Deleting Tasks(with 'Delete' button) and updates the DOM(Document Object Model) in real-time to reflect these changes. [N.B: No necessity to write any HTML or CSS code]	
	h)	You are developing a simple Blog Post Management System using the Model-View-Controller (MVC) pattern in **PHP**. The system allows users to view a list of blog posts stored in an array. **Implement** the following components using Object-Oriented Programming (OOP) in PHP: • **Model**: A "PostModel" class to store and manage blog post data (Title and Content). • **Controller**: A "PostController" class with a method to fetch all blog posts from the model. [N.B: No necessity to write any HTML or CSS code]	**[10]**