Code: 20IT3602

III B.Tech - II Semester – Regular / Supplementary Examinations APRIL 2024

MODERN WEB APPLICATIONS
(INFORMATION TECHNOLOGY)

Duration: 3 hours   Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level   CO – Course Outcome

			BL	CO	Max. Marks
		UNIT-I			
1	a)	Explain how do ES6 features like arrow functions to enhance JavaScript coding practices compared to earlier versions.	L2	CO1	7 M
	b)	Discuss the state management in a React component.	L3	CO2	7 M
		OR			
2	a)	Describe how the Document Object Model (DOM) enables web pages to be manipulated dynamically using JavaScript.	L2	CO1	7 M
	b)	Given a set of requirements for a React application, Write and explain a directory structure that organizes components, utilities and styles effectively.	L3	CO2	7 M

UNIT-II

3	a)	Explain the advantages of using a controlled form for handling updates in React applications.	L2	CO1	7 M
	b)	Design a simple React newsfeed application that fetches news articles from an API and displays them, incorporating infinite scroll to load more articles as the user scrolls down.	L3	CO2	7 M

OR

4	a)	Explain how does Redux enhance the management of state in large-scale React applications compared to local component state.	L2	CO1	7 M
	b)	Using React Router, set up a routing system for a Single Page Applications (SPA).	L3	CO2	7 M

UNIT-III

5	a)	How do events and callbacks work together in Node.js to handle asynchronous operations?	L2	CO1	7 M
	b)	Create a Node.js application that watches a directory for changes (like file additions, deletions or modifications) and logs these changes to the console in real-time.	L3	CO3	7 M

OR

6	a)	Explain the difference between synchronous and asynchronous methods in the Node.js File System module.	L2	CO1	7 M

	b)	Implement an event emitter in Node.js that triggers a callback function after a specific event is emitted multiple times using timers to simulate the event triggering.	L3	CO3	7 M

UNIT-IV

7	a)	Describe the concept of middleware in Express.js and how it fits into the request-response cycle.	L2	CO1	7 M
	b)	Demonstrate how to use the request and response objects in Express.js to handle query parameters and send a custom JSON response to the client.	L3	CO3	7 M

OR

8	a)	Explain how Express.js serves static files and the significance of the 'express.static' middleware in a web application.	L2	CO1	7 M
	b)	Create an Express.js application that uses a template engine (e.g., EJS, Handlebars) to render a dynamic webpage based on user input received through a form submission.	L3	CO3	7 M

UNIT-V

9	a)	Examine how to query MongoDB for a specific document based on criteria such as finding a user by username from a Node.js application.	L3	CO4	7 M

	b)	Write a Node.js script that establishes a connection to a MongoDB database, creates a collection and closes the connection including proper error handling.	L3	CO4	7 M
		OR			
10	a)	Describe the basic components of a MongoDB database including collections and documents, and how they compare to tables and rows in relational databases.	L2	CO1	7 M
	b)	Illustrate updating a document in MongoDB from a Node.js app including how to use operators.	L3	CO4	7 M