Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Full Stack Development

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the difference between var, let and const with suitable examples.	5	L2	CO1
	b.	Describe the various data types in JavaScript. Give examples for each.	5	L2	CO1
	c.	Write a program that creates an array of 5 cities and performs the following: i) Adds a city at the end ii) Removes the first city iii) Logs the total numbers of cities iv) Finds the index of a special city v) Search for a specific city vi) Replace specific city with another	10	L3	CO1
		OR			
Q.2	a.	Create a JavaScript object named student with properties: name, grade and subjects. Add a method displayInfo( ) to log student details.	5	L3	CO1
	b.	Explain the structure of a JavaScript function. How are parameters and return values used?	5	L2	CO1
	c.	Explain the usage of at least five different string methods in JavaScript with the help of suitable code snippets.	10	L2	CO1
		Module – 2			
Q.3	a.	What is the Document Object Model (DOM)? Explain its significance in web development.	5	L2	CO2
	b.	Explain event delegation and how it helps improve performance in DOM manipulation.	5	L2	CO2
	c.	Explain any six different DOM method used to access or manipulate HTML elements in JavaScript, including their syntax, use cases and when each in preferred.	10	L2	CO2
		OR			
Q.4	a.	How can you select HTML elements using JavaScript? List and explain at least three methods.	5	L2	CO2
	b.	What are event listeners in JavaScript? How do they differ from traditional event attributes (like onclick) for binding events?	5	L2	CO2

	c.	Create a button in your HTML with the text "Click Mc". Add an event listener to log "Button clicked!", to the console when the button is clicked. Select on image and add a mouseover event listener to change its border color. Add on event listener to the document that log) the key pressed by the user.	10	L3	CO2
		Module – 3			
Q.5	a.	Explain the components of the MERN stack and discuss how they interact in a full stack application. Highlight the role of each component with examples.	10	L2	CO3
	b.	Describe how to implement a simple REST API using express to return a list of issues. Include an explanation of routing, request handling and how JSON data is sent as a response.	10	L3	CO3
		OR			
Q.6	a.	Discuss how react uses JSX for rendering UI components. What are the benefits of using JSX over plain JavaScript in react applications?	10	L3	CO3
	b.	Describe the steps involved in creating a react components using ES6 class syntax. What are the essential life cycle methods used in such a component?	10	L3	CO3
		Module – 4			
Q.7	a.	Explain how state is initialized and update in a react class component. Illustrate with an example from the issue tracker application.	10	L2	CO4
	b.	Discuss how event handling is implemented in react. How does it differ from traditional DOM event handling in vanilla JavaScript?	10	L3	CO4
		OR			
Q.8	a.	Differentiate between stateless and stateful components in react. When should each be used in a component – based architecture?	10	L2	CO4
	b.	Write a react class component that displays a button and a counter. Each time the button is clicked, increase the count and display it. Use constructor to initialize state and setstate( ) to update it.	10	L3	CO4
		Module – 5			
Q.9	a.	Discuss the key differences between insert, update and find operations in MongoDB. How does MongoDB handle flexible schema and embedded documents?	10	L2	CO5
	b.	Create a simple webpack. config.js file that: i) Bundles on entry point file App.jsx ii) Uses babel – loader to transpile JSX iii) Outputs app. bundle.js in a static directory. iv) Uses ES6 presets for react.	10	L3	CO5

		OR			
Q.10	**a.**	Write Mongo shell commands to perform the following operations: • Insert three employee documents with different fields. • Update one document to add a middle name. • Delete one document by-id • Create an index on the age field • Query employees whose age is greater than 30.	**10**	**L3**	**CO5**
	b.	Explain the purpose of using webpack in a full stack project. Describe how webpack helps in modularization and bundling.	**10**	**L2**	**CO5**

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