13/11/2024   CSE-AIML SEM-V   C SCHEME   WEB COMPUTING   QP CODE: 10067735

(3 hours) Total Marks: 80

N.B. 1. Question **No. 1** is compulsory
2. Attempt any **three** questions from remaining five questions
3. Assume suitable data if **necessary** and justify the assumptions
4. Figures to the **right** indicate full marks

Q1   Answer the following questions.

A Explain the role of DNS and TLS in web communication. 05

B Describe the differences between ES5 and ES6 with examples. 05

C Discuss the lifecycle of a React component and its significance in single-page applications. 05

D Given a scenario where a Node.js application has to handle multiple client requests asynchronously, outline the best practices to manage the callback functions effectively. 05

Q2 A Write a JavaScript program to validate an email input form. Include error handling for invalid formats. 10

B Explain the purpose of Express Router and how it aids in organizing route handling in a Node.js application. 10

Q3 A Illustrate the use of State and Props in React with a practical example demonstrating their interaction. 10

B Develop a simple program in Node.js to read data from a file and send it as a response to an HTTP request. Explain the key steps in the code. 10

Q4 A You are tasked to design a form validation system in JavaScript for a signup form with username, password, and email fields. Explain how you would implement this with error handling and ensure data security. 10

B Create a React component using functional components and Hooks to display a list of items that a user can add to or remove from. Describe how the useState and useEffect hooks are used in your solution. 10

Q5 A Describe how REST APIs function in web development and provide an example of an HTTP GET request. 10

B Write a React component to render a form and handle its submit event. The form should capture user inputs and display a confirmation message upon submission. 10

Q6 A Develop a Node.js application that uses streams to read and write data efficiently. Describe the scenarios where using streams is preferable over other data-handling techniques. 10

B Given a complex web application, propose a strategy using advanced React features like Refs and Hooks to manage component states across multiple layers. Explain the benefits of this approach. 10

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