

- 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.**

- A Draw and illustrate web 3-tier architecture. 05
B Write a Javascript to accept a number from the user and check if it is even or odd. 05
C Explain React JSX with suitable react examples such as rendering the greeting message "Hello! Welcome to React" 05
D What is callback in node.js? Give an example. 05

- Q2 A 1) Explain React Component Life cycle with suitable diagram. 12
2) Write a JavaScript code to set a cookie in the user's computer.
What is a single page application? What are components in React? Create one class component "Car" in React and invoke it using index.js. 08

- Write the code to process online Alumni information for your college. Create a form to get a name, date of birth and email id. Use check boxes for taking hobbies and radio buttons for selecting branch. Write JavaScript code to validate the following.
Q3 A -User has to fill all the fields prior to the form submission. 10
-Valid email id (@ and .)
-Age validation using DOB (>=22 years)
B Explain the concept of React Hooks. What are the rules of using Hooks? Write the code making use of Hooks useState function that displays the number of times a button named "CLICK" is clicked. 10

- Q4 A Write a short note on Document Object Model(DOM) 05
B Explain different types of node.js modules? What are different modules that provide core functionality? 05
C What are the features of React.js 05
D Write a Javascript Program that changes the background color of page by refreshing the page every 2 seconds 05

- Q5 A Explain the architecture of node.js with a neat diagram. Write an asynchronous file reading node.js program and explain how it is executed. 10
B What is NodeJs and Express.js? Discuss the features and advantages of Express.js. Explain cookies concept in Express.js with example. 10

- Q6 A Differentiate between MVC, FLUX and Redux. 10
B Differentiate between ES5 and ES6. Describe the concepts of Arrow Functions, classes and inheritance in JavaScript. 10
