

- 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 A Explain the working of DNS with the suitable diagrams. Clearly explain all the steps involved in DNS resolution. 05  
B Write a JavaScript code for displaying a digital clock on a web page. 05  
C What is Express JS? Explain the advantages of using it. 05  
D Explain the event handling in React. Write a React code to create a button "Greet the User" and display an alert box saying "Hello!" on clicking that button. 05
- Q2 A Compare ES 5 and ES 6. Write a code in JavaScript to validate the email address entered by the user (check the presence of "@" character. If this character is missing, the script should display an alert box reporting the error and ask the user to reenter it again). 10  
B Explain the concept of Hooks in React. What are the rules for using the Hooks? Write a code making use of React Hooks that displays four buttons namely, "Red", "Blue", "Green", "Yellow". On clicking any of these buttons, the code displays the message that you have selected that particular color. 10
- Q3 A Explain the Document Object Model using a diagram. Write a code in JavaScript for **any one** of the following: 10  
1) To change the background color of the web page automatically after every 5 seconds.  
2) To display three radio buttons on the web page, namely, "Red", "Blue" and "Green". Selecting any button changes the background color as per the name of the button.  
B Explain the class components in React. What are the advantages of using them? Demonstrate its use by creating a class for the cars of different models. The component should access the state to display the model of the car on the web page. 10
- Q4 A What is NodeJs? What are the advantages of using it? Demonstrate the working of NodeJs by creating a simple server to display a "Welcome" message. 10  
B Explain the architecture of NodeJs with a neat diagram. Demonstrate its use by writing the code which creates a simple text file with the data provided by the user. 10

- Q5 A Demonstrate the routing of web pages using React Router.  
B Write a JavaScript code to set a cookie on the user's computer.  
C When are the React components re-rendered? Explain giving examples.  
D What are the criteria for an API to be a RESTful API?
- Q6 A Explain the MVC architecture with a diagram. What are the advantages of using it?  
B What is Express used for? Explain the advantages of using Express. What are the different parts of the Express server file?
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