INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal-500043, Hyderabad

B.Tech IV SEMESTER END EXAMINATIONS (REGULAR / SUPPLEMENTARY) - AUGUST 2023
Regulation: UG-20
WEB APPLICATION DEVELOPMENT

Time: 3 Hours   **CSE (DS) | CSE(AI&ML)**   Max Marks: **70**

Answer ALL questions in Module I and II
Answer ONE out of two questions in Modules III, IV and V
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) Explain hypertext modeling and its significance in the development of information systems. Provide examples to support your answer.   [BL: Analyze| CO: 1|Marks: 7]

   (b) A company is developing a website for an e-commerce platform that sells various products. They want to display product information in a tabular format for easy comparison and navigation. Propose a solution to design and create tables in HTML that effectively showcase the product data, provide a seamless user experience and optimize the presentation for different devices and screen sizes.   [BL: Apply| CO: 1|Marks: 7]

MODULE – II

2. (a) Describe the basic UI grid structure and its significance in user interface design. How do grid systems contribute to responsive and flexible layouts?   [BL: Understand| CO: 2|Marks: 7]

   (b) A web development team is tasked with user-friendly registration form for an online platform. They have decided to utilize flexbox for layout flexibility and Bootstrap form components to enhance the form's visual appeal and functionality. Design the registration form with requirements of above.   [BL: Apply| CO: 2|Marks: 7]

MODULE – III

3. (a) Discuss the importance of pattern matching with regular expressions in JavaScript for text processing tasks in detail.   [BL: Understand| CO: 3|Marks: 7]

   (b) Designing and implementing a multi-step form for an e-commerce website was undertaken by web development team. The form includes various input fields, validation requirements, and conditional sections. They decided to use JavaScript to enhance the form's functionality and interactivity. Create a webpage with the requirements of the above case study.

      [BL: Apply| CO: 3|Marks: 7]

4. (a) Illustrate the integration of JSX with JavaScript and highlight the benefits of using JSX in building web applications in detail.

      [BL: Understand| CO: 4|Marks: 7]

(b) You are tasked with developing a web page that displays a list of items. Each item should have an interactive checkbox that allows the user to mark it as "completed" or "incomplete." Propose a problem-solving approach to utilize props and state in the web page design to manage the item's completion status and enable seamless interactivity. Explain how you would structure your components, use props to pass data, and leverage state to handle the item's status updates in real-time. [BL: Apply| CO: 4|Marks: 7]

MODULE – IV

5. (a) Elucidate the concept of global state management in web development and its significance in managing complex application states. [BL: Understand| CO: 5|Marks: 7]

   (b) You are developing a single-page web application using React and want to implement client-side routing to create a seamless and dynamic user experience. Propose a problem-solving approach to utilize React Router for client-side routing. [BL: Apply| CO: 5|Marks: 7]

6. (a) Illustrate how Jest's matchers and assertions can be used to ensure code correctness and prevent regressions. [BL: Understand| CO: 5|Marks: 7]

   (b) Outline how you would set up Enzyme in your project. Write tests using Enzyme's API, and simulate user interactions to validate the behavior of movie ticket booking page in online booking web application. [BL: Apply| CO: 5|Marks: 7]

MODULE – V

7. (a) Demonstrate how you would show placeholders or loading indications to give the user feedback during the API request. [BL: Understand| CO: 6|Marks: 7]

   (b) Illustrate how you would update the UI to display a loading indicator while the API request is being made and handle the success or error response once the request is completed in purchasing an item in e-commerce web application. [BL: Apply| CO: 6|Marks: 7]

8. (a) Summarize how you would set up the middleware using technologies such as Redux, and explain the benefits of using middleware to handle API requests and responses.
   [BL: Understand| CO: 6|Marks: 7]

   (b) You are developing a web application and need to incorporate an API service as middleware to handle API requests and responses efficiently. Propose a problem-solving approach to add the API service as middleware in your application. Discuss how you would configure the middleware using a technology like Redux, and explain the advantages of using middleware to handle API communication. [BL: Apply| CO: 6|Marks: 7]

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