**9. ReactJS-HOL**

**Q1. List the features of ES6.**

* let and const are for variable declarations
* Arrow functions (=>)
* Classes and inheritance
* Template literals (Hello ${name})
* Destructuring (arrays and objects)
* Map, Set as data structures

**Q2. Explain JavaScript let.**

* + let allows us to declare block-scoped variables.
  + Unlike var, which is function-scoped, let doesn't leak out of {} blocks.

**A screen shot of a computer program

AI-generated content may be incorrect.**

**Q3. Identify the differences between var and let.**

1. **var –**

* It is function scoped.
* Re-declaration is allowed.
* Global Object adds to window object.

1. **let –**

* It is block scoped.
* Re-declaration is not allowed in same scope.
* Global Object doesn’t add.

**Q4. Explain JavaScript const.**

* const is used to declare constants, variables whose value cannot be reassigned.
* It is Block scoped, like let.
* We can mutate objects/arrays, but cannot reassign them.

**A black screen with white text

AI-generated content may be incorrect.**

**Q5. Explain ES6 class fundamentals.**

ES6 (ECMAScript 2015) introduced the class keyword in JavaScript to provide a cleaner and more familiar syntax for creating objects and handling inheritance.

A computer screen with colorful text

AI-generated content may be incorrect.

**Q6. Explain ES6 class inheritance.**

We can create child classes using extends, and use super() to call the parent constructor.

A screen shot of a computer code

AI-generated content may be incorrect.

**Q7. Define ES6 arrow functions.**

* Shorthand syntax for function expressions.
* No own this, arguments, super, or new.target.

**A black background with white letters

AI-generated content may be incorrect.**

* Single parameter: x => x \* 2
* No parameter: () => console.log("Hello")

**Q8. Identify set(), map().**

* **Set:** Collection of unique values.



* **Map**: Key value pairs, allows any type as key.

A black background with text and symbols

AI-generated content may be incorrect.

Create a React Application named “**cricketapp**” with the following components:

1. ListofPlayers
2. IndianPlayers

* **Creating React Application named “cricketapp”**

A screen shot of a computer

AI-generated content may be incorrect.

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **VS Code – src/ListofPlayers.js**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **src/IndianPlayers**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **src/App.js**

**A screen shot of a computer

AI-generated content may be incorrect.**

* **Executing the React Application**

**A black screen with white text

AI-generated content may be incorrect.**

* **Output – localhost:3000 (when flag=true)**

**A black background with white text and blue text

AI-generated content may be incorrect.**

**A screenshot of a cricket app

AI-generated content may be incorrect.**

* **Output – localhost:3000 (when flag=false)**

**A black background with white text and blue text

AI-generated content may be incorrect.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**10. ReactJS-HOL**

**Q1. Define JSX.**

* JSX (JavaScript XML) is a syntax extension for JavaScript used in React.
* It lets us write HTML like code inside JavaScript, which gets compiled to React.createElement() calls.
* JSX makes UI code declarative and readable, but it must follow strict syntax rules (e.g., one parent element, className instead of class).
* Ex: const element = <h1>Hello, JSX!</h1>;

**Q2. Explain about ECMA Script.**

ECMAScript (ES) is the standard that defines JavaScript. Each version (e.g., ES6, ES2016...) introduces new features.

* ES6 (2015) added let, const, arrow functions, classes, template literals, destructuring, and more.
* React uses modern ECMAScript features like arrow functions, spread/rest operators, map(), const, and more.

**Q3. Explain React.createElement().**

React.createElement() is the underlying function that JSX compiles to. It creates virtual DOM elements.

A black screen with white text

AI-generated content may be incorrect.

**Q4. Explain how to create React nodes with JSX.**

We create React nodes by writing HTML like tags in JSX.

A black background with white text

AI-generated content may be incorrect.

**Q5. Define how to render JSX to DOM.**

To render JSX, use ReactDOM.render() (for legacy React) or the root.render() API (React 18+).

A screen shot of a computer

AI-generated content may be incorrect.

**Q6. Explain how to use JavaScript expressions in JSX.**

We can embed any JavaScript expression inside JSX using curly braces {}.

A computer screen shot of a black screen

AI-generated content may be incorrect.

**Q7. Explain how to use inline CSS in JSX.**

In JSX, inline styles are written as JavaScript objects, with CSS property names in camelCase.

A screen shot of a computer code

AI-generated content may be incorrect.

Create a React Application named “**officespacerentalapp**” which uses React JSX to create elements, attributes and renders DOM to display the page.

* **Creating the React Application “officespacerentalapp”**

**A screen shot of a computer screen

AI-generated content may be incorrect.**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **VS Code – App.js**

**A screen shot of a computer

AI-generated content may be incorrect.**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **Executing the React Application**

**A computer screen with white text

AI-generated content may be incorrect.**

* **Output – localhost:3000**

**A screenshot of a computer

AI-generated content may be incorrect.**

**A white rectangular object with black lines

AI-generated content may be incorrect.**

**11. ReactJS-HOL**

**Q1. Explain React events.**

* React events are the way we handle user interactions like clicks, form submissions, key presses, etc., in React applications.
* They are very similar to HTML DOM events but have a synthetic wrapper for better cross-browser compatibility.
* Example :

<button onClick={handleClick}>Click Me</button>

<input onChange={handleChange} />

<form onSubmit={handleSubmit}></form>

**Q2. Explain about event handlers.**

Event handlers are functions that get triggered in response to events like clicking a button, typing in a form, or submitting a form.

A screen shot of a computer code

AI-generated content may be incorrect.

**Q3. Define Synthetic event.**

* A SyntheticEvent is a React wrapper around the native browser event. It is consistent across all browsers and combines the behaviour of different event systems into one.
* It includes all the same interface methods as the native DOM event (e.g., preventDefault(), stopPropagation()).

**A screen shot of a computer code

AI-generated content may be incorrect.**

**Q4. Identify React event naming convention.**

* React uses camelCase for event names (e.g., onClick, onChange, onSubmit).
* Do not use lowercase event names like in HTML (e.g., onclick, onchange).
* Event handlers should be passed as function references, not as strings.
* Correct: onClick={handleClick}
* Incorrect: onClick="handleClick()"
* This convention aligns with standard JavaScript naming and improves code clarity.

Create a React Application “**eventexamplesapp**” to handle various events of the form elements in HTML.

* **Creating React Application named “eventexamplesapp”**

**A screen shot of a computer screen

AI-generated content may be incorrect.**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **VS Code - src/App.js**

**A screenshot of a computer program

AI-generated content may be incorrect.**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **Executing the React Application**

**A black screen with white text

AI-generated content may be incorrect.**

* **Output – localhost:3000 (Currency Convertor)**

**A screenshot of a computer

AI-generated content may be incorrect.**

* **Output – Increment and Decrement**

**A screenshot of a computer

AI-generated content may be incorrect. A screenshot of a computer

AI-generated content may be incorrect.**

* **Output (Welcome alert message)**

**A screenshot of a computer

AI-generated content may be incorrect.**

* **Output (Synthetic Event Button)**

**A screenshot of a computer

AI-generated content may be incorrect.**

**12. ReactJS-HOL**

**Q1. Explain about conditional rendering in React.**

* Conditional rendering in React means showing or hiding parts of the UI based on a condition (like user login status, form validation, etc.)
* React lets us write logic directly in JSX using JavaScript expressions, if statements, ternary operators, or logical &&.
* Example using ternary:

{isLoggedIn ? <UserPage /> : <GuestPage />}

* Example using logical AND:

{showWarning && <Warning />}

**Q2. Define element variables.**

In React, we can store JSX elements inside variables to decide what to render later. This helps manage complex rendering logic before returning the final UI.

A screen shot of a computer code

AI-generated content may be incorrect.

**Q3. Explain how to prevent components from rendering.**

* To prevent a component from rendering, use conditional logic so the component doesn't appear in the output at all.
* React will skip rendering that part of the UI.
* Example:

A black background with white and green text

AI-generated content may be incorrect.

* If showComponent is false, MyComponent won’t render at all.
* We can also use return null; inside a component to completely prevent it from rendering:

A screen shot of a computer

AI-generated content may be incorrect.

Create a React Application named “**ticketbookingapp**” where the guest user can browse the page where the flight details are displayed whereas the logged in user only can book tickets.

The **Login** and **Logout** buttons should accordingly display different pages. Once the user is logged in the User page should be displayed. When the user clicks on Logout, the Guest page should be displayed.

* **Creating React Application named “ticketbookingapp”**

A screen shot of a computer screen

AI-generated content may be incorrect.

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **src/GuestPage.js**

**A screen shot of a computer program

AI-generated content may be incorrect.**

* **src/UserPage.js**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **src/App.js**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **Executing the React Application**

**A black screen with white text

AI-generated content may be incorrect.**

* **Output – localhost:3000 (User Page)**

**A screen shot of a ticket

AI-generated content may be incorrect.**

* **Output – localhost:3000 (Guest Page)**

**A screen shot of a computer

AI-generated content may be incorrect.**

**13. ReactJS-HOL**

**Q1. Explain various ways of conditional rendering.**

React allows different methods for conditionally rendering content:

* if statement: Assign elements to a variable and return them based on condition.
* Ternary operator (condition ? A : B): Inline conditional rendering.
* Logical AND (&&): Render content only if the condition is true.
* Switch statements (less common): For multiple conditional options.

**A black background with white text

AI-generated content may be incorrect.**

**Q2. Explain how to render multiple components.**

We can render multiple components in React simply by placing them within a parent container (<div>, <>...</>, or React fragments).

A screenshot of a computer program

AI-generated content may be incorrect.

**Q3. Define list component.**

A list component is a component that renders a list of items using the map() function.

A computer screen with text on it

AI-generated content may be incorrect.

**Q4. Explain about keys in React applications.**

Keys are special props used by React to identify which items have changed, are added, or are removed in a list.

* They help improve rendering performance.
* Keys must be unique among siblings.

****

**Q5. Explain how to extract components with keys.**

We can extract a reusable component from a list and assign a key to that component.

A computer screen shot of code

AI-generated content may be incorrect.

**Q6. Explain React Map, map() function.**

React uses JavaScript’s built-in map() function to iterate over arrays and return elements for rendering.

**A black background with white and blue text

AI-generated content may be incorrect.**

Create a React App named “**bloggerapp**” in with 3 components.

1. **Book Details**
2. **Blog Details**
3. **Course Details**

* **Creating React Application named “bloggerapp”**

**A screen shot of a computer

AI-generated content may be incorrect.**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **src/BookDetails.js**

**A screenshot of a computer program

AI-generated content may be incorrect.**

* **src/BlogDetails.js**

**A screen shot of a computer program

AI-generated content may be incorrect.**

* **src/CourseDetails.js**

**A computer screen shot of a program

AI-generated content may be incorrect.**

* **Executing React Application**

**A computer screen with white text

AI-generated content may be incorrect.**

* **Output – localhost:3000 (Blogger App)**
  + **Book Details**

**A screenshot of a computer

AI-generated content may be incorrect.**

* + **Blog Details**

**A screenshot of a computer

AI-generated content may be incorrect.**

* + **Course Details**

**A screenshot of a computer

AI-generated content may be incorrect.**