**Web Development and Design – Question Bank**

**Unit 1:**

**MCQs**

1. **What is the correct syntax to display "Hello World" in JavaScript?**
   * A) document.write("Hello World")
   * B) response.write("Hello World")
   * C) echo "Hello World"
   * D) console.log("Hello World")

**Answer:** A) document.write("Hello World")

1. **Which of the following is not a valid JavaScript variable name?**
   * A) \_name
   * B) $age
   * C) 1name
   * D) firstName

**Answer:** C) 1name

1. **Which of the following is true about semicolons in JavaScript?**
   * A) Semicolons are mandatory.
   * B) Semicolons are optional but recommended.
   * C) Semicolons are not allowed.
   * D) Semicolons are only used in loops.

**Answer:** B) Semicolons are optional but recommended.

1. **Which method is used to round a number down to the nearest integer in JavaScript?**
   * A) Math.round()
   * B) Math.ceil()
   * C) Math.floor()
   * D) Math.trunc()

**Answer:** C) Math.floor()

1. **Which JavaScript method is used to write HTML to the output stream?**
   * A) document.write()
   * B) document.output()
   * C) document.print()
   * D) document.log()

**Answer:** A) document.write()

1. **Which of the following is not a JavaScript data type?**
   * A) String
   * B) Number
   * C) Boolean
   * D) Character

**Answer:** D) Character

1. **How do you create a function in JavaScript?**
   * A) function myFunction()
   * B) def myFunction()
   * C) create myFunction()
   * D) function:myFunction()

**Answer:** A) function myFunction()

1. **Which of the following methods is used to add an event handler to an element in JavaScript?**
   * A) addListener()
   * B) attachEvent()
   * C) addEventListener()
   * D) onEvent()

**Answer:** C) addEventListener()

1. **Which method is used to create a new HTML element in JavaScript?**
   * A) document.newElement()
   * B) document.createElement()
   * C) document.buildElement()
   * D) document.makeElement()

**Answer:** B) document.createElement()

1. **Which object represents the browser window in JavaScript?**
   * A) screen
   * B) document
   * C) window
   * D) navigator

**Answer:** C) window

1. **Which method would you use to move a window to a specified position?**
   * A) moveBy()
   * B) moveTo()
   * C) moveWindow()
   * D) relocate()

**Answer:** B) moveTo()

1. **How do you write a comment in JavaScript?**
   * A) /\* comment \*/
   * B) // comment
   * C) <!-- comment -->
   * D) All of the above

**Answer:** D) All of the above

1. **What is the correct way to declare an array in JavaScript?**
   * A) var colors = "red", "green", "blue"
   * B) var colors = (1:"red", 2:"green", 3:"blue")
   * C) var colors = ["red", "green", "blue"]
   * D) var colors = {"red", "green", "blue"}

**Answer:** C) var colors = ["red", "green", "blue"]

1. **Which method is used to access an HTML element by its ID?**
   * A) document.getElementById()
   * B) document.querySelector()
   * C) document.getElementsByClassName()
   * D) document.getElementsByTagName()

**Answer:** A) document.getElementById()

1. **Which method is used to convert a string into a number in JavaScript?**
   * A) parseFloat()
   * B) parseInt()
   * C) Number()
   * D) All of the above

**Answer:** D) All of the above

**15 Short Questions**

1. What is the purpose of using the <script> tag in HTML?
2. Explain the difference between var, let, and const in JavaScript.
3. What is the Document Object Model (DOM)?
4. How do you add an event handler to a button click in JavaScript?
5. What is the purpose of Math.floor() method in JavaScript?
6. How do you declare a JavaScript object?
7. What is the use of document.write() in JavaScript?
8. Explain the concept of a JavaScript function.
9. What are the different ways to create a new date object in JavaScript?
10. How do you write a multi-line comment in JavaScript?
11. What is the difference between == and === in JavaScript?
12. What is the purpose of getElementById() method in JavaScript?
13. Explain how the switch statement works in JavaScript.
14. What is the purpose of the window.prompt() method?
15. How do you loop through the properties of an object in JavaScript?

**10 Long Questions**

1. Explain the advantages and limitations of using JavaScript for client-side scripting.
2. Discuss the various methods and properties available in the Math object in JavaScript.
3. How does the DOM tree represent an HTML document, and how can JavaScript manipulate it?
4. Describe the difference between for, while, and do-while loops in JavaScript, with examples.
5. How do JavaScript functions work, and what is the difference between function declarations and function expressions?
6. Explain the process of creating, accessing, and modifying objects in JavaScript.
7. Describe the different ways to handle events in JavaScript. Provide examples.
8. How can you create and manipulate date objects in JavaScript? Explain with examples.
9. Discuss the different dialog boxes available in JavaScript and their use cases.
10. Explain the purpose and use of conditional statements in JavaScript. Provide examples of if, else, else if, and switch statements.

**Unit-2:**

**MCQ**

1. What is JSX in React?
   * a) A templating language
   * b) A syntax extension for JavaScript
   * c) A programming language
   * d) A styling framework

Answer: b) A syntax extension for JavaScript

1. Which method is used to fetch data in React?
   * a) fetchAPI()
   * b) fetch()
   * c) getData()
   * d) axios()

Answer: b) fetch()

1. Which of the following is used to pass data from a parent component to a child component in React?
   * a) State
   * b) Props
   * c) Event
   * d) Context

Answer: b) Props

1. In JSX, how do you embed a JavaScript expression within HTML-like syntax?
   * a) { }
   * b) [ ]
   * c) ( )
   * d) <>

Answer: a) { }

1. Which hook is commonly used for state management in functional components?
   * a) useEffect
   * b) useReducer
   * c) useState
   * d) useContext

Answer: c) useState

1. What is the purpose of the key attribute in list rendering?
   * a) To provide a unique identifier for each list item
   * b) To style the list items
   * c) To bind event listeners to the list items
   * d) To define the data type of list items

Answer: a) To provide a unique identifier for each list item

1. Which React method is used to create portals?
   * a) React.createPortal()
   * b) ReactDOM.createPortal()
   * c) React.createElement()
   * d) ReactDOM.createElement()

Answer: b) ReactDOM.createPortal()

1. How do you prevent the default behavior of an event in React?
   * a) stopPropagation()
   * b) preventDefault()
   * c) cancelEvent()
   * d) stopDefault()

Answer: b) preventDefault()

1. What does the useEffect hook do?
   * a) Manages state
   * b) Handles side effects
   * c) Binds events
   * d) Updates props

Answer: b) Handles side effects

1. What does fetch() return?
   * a) A Promise
   * b) A Function
   * c) An Object
   * d) A Response

Answer: a) A Promise

1. Which of the following is true about props?
   * a) Props are mutable
   * b) Props are read-only
   * c) Props are not reusable
   * d) Props cannot be passed to child components

Answer: b) Props are read-only

1. In React, state is primarily used to:
   * a) Pass data between components
   * b) Manage dynamic data within a component
   * c) Style components
   * d) Handle HTTP requests

Answer: b) Manage dynamic data within a component

1. Which of the following is used to update the state in class-based components?
   * a) setState
   * b) useState
   * c) updateState
   * d) modifyState

Answer: a) setState

1. What happens if you don't provide a key when rendering lists in React?
   * a) Nothing happens
   * b) React throws an error
   * c) React will give a warning in the console
   * d) The list items will not be rendered

Answer: c) React will give a warning in the console

1. Which method is used to handle HTTP POST requests with fetch()?
   * a) method: 'GET'
   * b) method: 'POST'
   * c) type: 'POST'
   * d) fetchPost()

Answer: b) method: 'POST'

Short Questions

1. What is JSX?
2. How do you pass data from a parent to a child component in React?
3. Explain the use of the useState hook in React.
4. What is the purpose of the key attribute in list rendering?
5. How do you embed JavaScript expressions in JSX?
6. What does fetch() return in JavaScript?
7. How can you handle events in React?
8. What is the difference between props and state in React?
9. Describe the useEffect hook in React.
10. What is a portal in React?
11. How do you prevent the default action of an event in React?
12. Explain how to render a list of items in React using the .map() function.
13. What does the createPortal function do in React?
14. How do you send a POST request using fetch() in React?
15. Why are props in React read-only?

Long Questions

1. Explain in detail how JSX works in React. Include an example of creating a functional component with JSX.
2. Discuss the useState and useEffect hooks in React. How do they help in managing state and side effects in functional components? Provide examples.
3. How does the fetch() API work in React? Describe how to make GET and POST requests and handle responses, including error handling.
4. What are portals in React? Explain their use cases with an example of implementing a modal using portals.
5. Describe how event handling is managed in React. How does React's synthetic event system work? Provide examples of common event handling techniques.
6. Discuss the differences between props and state in React. How do they interact within a component, and what are the best practices for using them?
7. How can you render lists dynamically in React? Explain the significance of the key attribute and provide an example of rendering a list from an array of objects.
8. What are the benefits and potential pitfalls of using portals in React applications? Provide scenarios where using portals is necessary.
9. Describe the lifecycle of a React component. How do hooks like useState and useEffect play a role in managing the component's lifecycle?
10. Explain how to manage state in both functional and class-based components in React. Compare and contrast the use of useState in functional components with setState in class-based components.

**Unit:3:**

**MCQ:**

1. What is the primary purpose of React Router?
   * A) Server-side routing
   * B) Client-side routing
   * C) Data fetching
   * D) State management  
     Answer: B) Client-side routing
2. Which of the following routers uses the HTML5 history API?
   * A) <HashRouter>
   * B) <MemoryRouter>
   * C) <BrowserRouter>
   * D) <StaticRouter>  
     Answer: C) <BrowserRouter>
3. In React Router, which component is used to define the navigation links within an app?
   * A) <Route>
   * B) <Link>
   * C) <Nav>
   * D) <Switch>  
     Answer: B) <Link>
4. What is the main purpose of the <Switch> component in React Router?
   * A) To load multiple routes simultaneously
   * B) To display a loading spinner
   * C) To render only the first matching route
   * D) To toggle between different themes  
     Answer: C) To render only the first matching route
5. Which syntax is used to define a dynamic route in React Router?
   * A) <Route path="/products" />
   * B) <Route path="/products/:id" />
   * C) <Route path="/products\*id" />
   * D) <Route path="/products&:id" />  
     Answer: B) <Route path="/products/:id" />
6. Which method is used in Redux to send an action to the store?
   * A) dispatch
   * B) subscribe
   * C) useEffect
   * D) connect  
     Answer: A) dispatch
7. What does Redux use to manage the state of an application?
   * A) Props
   * B) Reducers
   * C) Context API
   * D) Hooks  
     Answer: B) Reducers
8. What is an action in Redux?
   * A) A JavaScript object that describes an event in the app
   * B) A function that directly modifies the state
   * C) A component that renders UI
   * D) A hook for handling side effects  
     Answer: A) A JavaScript object that describes an event in the app
9. Which of the following is a core principle of Redux?
   * A) Two-way data flow
   * B) Unidirectional data flow
   * C) Bidirectional data flow
   * D) Multidirectional data flow  
     Answer: B) Unidirectional data flow
10. Which method is used to update the state in Redux?
    * A) useState
    * B) dispatch
    * C) setState
    * D) replaceState  
      Answer: B) dispatch
11. What does the useSelector hook in Redux do?
    * A) Dispatches actions to the store
    * B) Accesses the Redux state in a component
    * C) Subscribes to Redux store updates
    * D) Manages side effects  
      Answer: B) Accesses the Redux state in a component
12. What is the role of a reducer in Redux?
    * A) To dispatch actions
    * B) To update the Redux state based on actions
    * C) To handle side effects like network requests
    * D) To manage routing  
      Answer: B) To update the Redux state based on actions
13. Which of the following ensures immutability in Redux?
    * A) Modifying the state object directly
    * B) Creating a new state object with changes
    * C) Using local state management
    * D) Bypassing the reducers  
      Answer: B) Creating a new state object with changes
14. How are multiple reducers combined in Redux?
    * A) combineReducers
    * B) mergeReducers
    * C) useReducers
    * D) composeReducers  
      Answer: A) combineReducers
15. What does the default case in a reducer function do?
    * A) It dispatches a default action
    * B) It returns the current state if no action matches
    * C) It modifies the state directly
    * D) It creates a new state  
      Answer: B) It returns the current state if no action matches

15 Short Answer Questions

1. What is the purpose of React Router in a React application?
2. Name two types of routers provided by React Router.
3. How does the <Link> component help in navigation in a React app?
4. What is the use of the <Switch> component in React Router?
5. How do you define dynamic routes in React Router?
6. What is the role of dispatch in Redux?
7. Explain what an action is in Redux.
8. What is the main responsibility of a reducer in Redux?
9. Why is the state in Redux considered immutable?
10. What is the Redux data flow pattern?
11. How does the useSelector hook work in a React component?
12. What does the term "unidirectional data flow" mean in Redux?
13. Explain the role of the default case in a Redux reducer.
14. What is the purpose of error boundaries in React?
15. How can you handle errors using try...catch in React components?

10 Long Answer Questions

1. Explain the difference between <BrowserRouter> and <HashRouter> in React Router. Provide examples of when you would use each.
2. Discuss the purpose of <Route> in React Router and explain how route parameters work with an example.
3. Describe the use of <Switch> in React Router and how it helps in rendering the first matching route. Provide an example.
4. Explain the concept of nested routes in React Router with an example of how they can be used to create complex page layouts.
5. Discuss the Redux architecture and explain the flow of data from action creation to state update in Redux.
6. What is the role of reducers in Redux, and why must they be pure functions? Provide an example of a simple reducer.
7. Explain how Redux helps in state management in large applications and describe the main benefits of using Redux.
8. Discuss the differences between synchronous and asynchronous error handling in React components, providing examples of each.
9. Explain how combining reducers works in Redux and provide an example of using combineReducers to manage multiple slices of state.
10. Describe how the useSelector and useDispatch hooks work in Redux to interact with the store in a functional React component. Provide examples.