React Fundamentals Quiz *(Test Copy)*

ChatGPT: https://chatgpt.com/c/6823ff65-2ac8-8009-ba0d-93e7d2927690

Section 1: Multiple Choice

1. What is the main benefit of using Vite over traditional build tools like Webpack?
   A. Built-in CSS-in-JS support
   B. Enhanced runtime performance
   C. Faster dev server with HMR
   D. Better database integration

2. Which rendering method best suits highly dynamic, user-interactive dashboards?
   A. Static-Site Generation (SSG)
   B. Server-Side Rendering (SSR)
   C. Client-Side Rendering (CSR)
   D. Pre-rendering

3. What role does the App Router play in a React application?
   A. Handles component rendering logic
   B. Connects to backend services
   C. Manages routing and URL state
   D. Monitors API performance

4. What does npx do that npm doesn't?
   A. Installs global packages
   B. Creates a React app
   C. Runs CLI commands without global install
   D. Updates dependency versions

Section 2: True or False

5. ___ React class components require the use of lifecycle methods to manage state updates.

6. ___ Functional components cannot use state at all.

7. ___ React's Virtual DOM helps improve performance by minimizing direct DOM manipulation.

8. ___ CDN is mainly used for rendering React components faster.

Section 3: Short Answer

9. Briefly describe the difference between static-site generation (SSG) and client-side rendering (CSR).
10. What is the purpose of linting (e.g., eslint) in a React project?
11. Define the term "context API" and explain a situation in which you would use it.

Section 4: Code Analysis

12. Analyze the following code and explain what will be rendered:

```jsx
function Greeting({ name }) {
  return <h1>Hello, {name ? name : "Guest"}!</h1>;
}

// In App.jsx:
<Greeting name="Sam" />
<Greeting />
```

13. What happens when the state is updated in a functional component using useState()?

Section 5: Diagram / Sketch

14. Draw the folder/file structure for a typical Vite-powered React app. Include where index.html, main.jsx, App.jsx, and CSS files would go.
15. Sketch a flow diagram showing how props are passed from a parent component to a child, and how the child renders them.

✅ React Fundamentals Quiz – *Answer Key*

Section 1: Multiple Choice

1. C
2. C
3. C
4. C

Section 2: True or False

5. True
6. False — Functional components can use state via hooks like useState().
7. True
8. False — CDNs serve static assets, not React components directly.

Section 3: Short Answer

9. **SSG** pre-renders HTML at build time (ideal for static content like blogs), while **CSR** renders content in the browser after the JS bundle loads (ideal for dynamic content).
10. **Linting** ensures code quality and consistency by flagging syntax/style issues automatically.
11. The **Context API** provides a way to pass data through the component tree without manually passing props at every level. Use it for themes, auth, or locale.

Section 4: Code Analysis

12. **Rendered Output:**

Hello, Sam!

Hello, Guest!

13. When useState() updates state, React schedules a re-render of the component with the updated state.

Section 5: Diagram / Sketch

14. **Example Folder Structure:**

project-root/

├──── index.html

├──── src/

│ ├──── main.jsx

│ ├──── App.jsx

│ └──── App.css

15. Flow Diagram:

[ParentComponent]

|

|-- passes props -->

|

[ChildComponent] --> renders using props