Q1. Define SPA and its benefits.

Ans: A Single Page Application loads a single HTML page and does dynamic updation. That means, it does not refresh the entire web application, it only refreshes or re renders the required components.

Benefits are: i) More efficient web application

ii) improved user experience

iii) Reuse or easy to understand code as it uses component-based libraries like React.

Q2. Define React and identify its working.

Ans: React is a frontend library developed by Facebook for building single page applications.

When we work with HTML, CSS and JavaScript, we work with Real DOM. But in case of React, we use Virtual DOM. So when we make any changes to any component, instead of re-rendering the whole DOM, react just updates the necessary components. This increases the efficiency much more.

Q3. Identify the differences between SPA and MPA.

Ans:

|  |  |  |
| --- | --- | --- |
| Feature | SPA | MPA |
| Reloading | Loads once. Components updates dynamically | Loads new page for every updation or changes |
| Speed or efficiency | Faster after first load | Comparatively slower as reloads for every interaction |
| Development stack | Mostly front-end frameworks | Can use traditional backend tech. |
| URL handling | Handled by javascript(Client side) | Each page has own URL (server side) |

Q4. Explain Pros & Cons of Single-Page Application.

Pros:

* Faster
* Dynamic updation
* frontend code can be reused
* Easy debugging

Cons:

* Intial load time may be longer
* Can be less secure

Q5. Explain About React.

Ans:

* React is a Javascript library.
* It is component based
* It uses virtual DOM
* Builds Single page application.
* Can manage state Between components, data transfers using props.
* Provides Hooks

Q6. Define Virtual DOM.

Virtual DOM is lightweight in-memory copy of the actual DOM.

When state or props change, react creates a new virtual DOM. Then it compares the new virtual DOM with the previous. Only the changes are applied to the real DOM.

This makes the web application faster and efficient.

Q7. Features of React.

Ans:

* Component Based architecture.
* Supports JSX syntax – we can write HTML in javascript.
* Uses virtual DOM.
* Performance optimizations – through selective rendering.
* Reusable components.