ReactJS Objectives – Answers

# 1. Define SPA and its benefits

SPA stands for Single Page Application. It is a web application that interacts with the user by dynamically rewriting the current page, rather than loading entire new pages from the server. This leads to a smoother user experience.  
  
Benefits:  
- Faster navigation  
- Reduces server load  
- Improved user experience  
- Can cache data for offline use

# 2. Define React and identify its working

React is a JavaScript library developed by Facebook for building user interfaces, particularly single-page applications where data changes over time.  
  
It works by creating reusable UI components and using a virtual DOM to efficiently update the UI in response to data changes.

# 3. Identify the differences between SPA and MPA

SPA (Single Page Application):  
- Loads a single HTML page and dynamically updates content.  
- Navigation is faster.  
- Requires JavaScript.  
  
MPA (Multi Page Application):  
- Loads a new page from the server for each user interaction.  
- Better for SEO.  
- Easier to develop using traditional web technologies.

# 4. Explain Pros & Cons of Single-Page Application

Pros:  
- Improved user experience with smooth transitions  
- Efficient client-side routing  
- Reduced server load after initial load  
  
Cons:  
- Poor SEO out of the box  
- Initial loading time can be longer  
- Heavier client-side JavaScript usage

# 5. Explain about React

React is a front-end JavaScript library used for building user interfaces or UI components. It is declarative, efficient, and flexible. React allows developers to create large web applications that can update and render efficiently in response to data changes.

# 6. Define virtual DOM

The virtual DOM (Document Object Model) is a lightweight JavaScript representation of the actual DOM. React uses it to detect changes in the UI and update only the parts of the actual DOM that need to change, improving performance.

# 7. Explain Features of React

- Virtual DOM for faster performance  
- Component-based architecture  
- JSX syntax  
- One-way data binding  
- Unidirectional data flow  
- High reusability of components  
- Rich ecosystem and strong community support