**Q-1) What are components in React? Explain the difference between functional components and class components.**

Components in React:

* Components are reusable building blocks of a React application.
* They return JSX (HTML-like syntax) to render UI elements.
* Components can manage their own state and receive props (data) from parent components.

Types of Components:

1. Functional Components:
   * Written as JavaScript functions.
   * Simple and easy to read.
   * Can use React Hooks (like useState, useEffect) for state and lifecycle methods.
   * Example:

function Greeting(props) {

return <h1>Hello, {props.name} </h1>;

}

1. Class Components:
   * Written as ES6 classes.
   * Must extend React.Component.
   * Can have state and lifecycle methods without hooks.
   * Requires a render () method to return JSX.
   * Example:

class Greeting extends React.Component {

render () {

return <h1>Hello, {this.props.name} </h1>;

}

}

Key Differences:

| **Feature** | **Functional Component** | **Class Component** |
| --- | --- | --- |
| **Syntax** | Function | Class |
| **State management** | useState hook | this.state |
| **Lifecycle methods** | useEffect hook | componentDidMount, etc. |
| **Simplicity** | Easier to write & read | More verbose |

**Q-2) How do you pass data to a component using props?**

* Props (properties) are used to pass data from parent to child components.
* Props are read-only; child components cannot modify them.
* Example:

function Child(props) {

return <p>My name is {props.name} </p>;

}

function Parent () {

return <Child name="Kaushal" />;

}

* Here, the Parent component passes name="Kaushal" to the Child using props.

**Q-3) What is the role of render() in class components?**

* In class components, render () is a mandatory method.
* It returns the JSX that should be displayed on the screen.
* React calls render () whenever the component’s state or props change.
* Example:

class Welcome extends React.Component {

render () {

return <h1>Hello, {this.props.name} </h1>;

}

}

* Without render (), a class component cannot output JSX.