**Theory Assignment-1**

**Subject-WAD**

***Branch-B.Tech,CSIT Semester-6th***

1. How does React differ from old school web page applications?
2. What are the major issues while building single-page app? How does React overcome that?
3. How is JSX converted into plain old JavaScript that your browser can understand?
4. What is the utility of Babel?
5. What are the features of React?
6. How does the style attribute (CSS) in JSX behave differently from HTML?
7. Differentiate between var, let and const in ES6.
8. How a class can be inherited in ES6.
9. Explain about super and constructor functions in ES6
10. How we can define arrow functions in ES6. When you should not use the above function?

Solution:-

1. React differs from old-school web page applications in a few ways:
   * React uses a virtual DOM instead of manipulating the actual DOM directly.
   * React uses a unidirectional data flow, which helps to manage complex state and prevent bugs.
   * React encourages the use of reusable components, which makes it easier to maintain and scale a codebase.
2. Some major issues while building a single-page app include managing state and ensuring that the app remains performant even as it grows in complexity. React overcomes these issues by providing tools such as state management libraries (like Redux) and the ability to optimize rendering through the use of shouldComponentUpdate().
3. JSX is converted into plain old JavaScript using a transpiler like Babel. Essentially, JSX is just a syntax extension that gets transformed into regular function calls that create React elements.
4. Babel is a JavaScript transpiler that allows developers to use new language features (like ES6 syntax) in environments that don't yet support them natively. Babel can also be used to transform JSX into plain old JavaScript that can be understood by any browser.
5. Some features of React include:
   * A virtual DOM for efficient rendering and updates
   * Unidirectional data flow for managing state
   * Reusable components for modularity and code reuse
   * Support for server-side rendering
   * A large and active community of developers and resources
6. The style attribute in JSX behaves slightly differently from HTML because it expects a JavaScript object instead of a string. This allows for more dynamic styling based on component state and other variables.
7. In ES6, var declares a variable with function scope, let declares a variable with block scope, and const declares a variable that cannot be reassigned. Generally, it is best to use const whenever possible, as it prevents unintended variable reassignment.
8. In ES6, a class can be inherited using the extends keyword. For example, to create a subclass of a parent class called Animal, you would use the following syntax: class Dog extends Animal {}
9. In ES6, the super keyword is used to call the constructor of the parent class. The constructor function is used to create and initialize an instance of a class. For example, to call the constructor of a parent class Animal from a subclass Dog, you would use the following syntax: super(props).
10. Arrow functions in ES6 can be defined using the => syntax. They are often used for short, zone-line functions or when it is necessary to preserve the lexical scope of the function. However, arrow functions should not be used in situations where the this keyword needs to be dynamically bound, such as in methods or event handlers. In those cases, a regular function declaration or the bind() method should be used instead.