**Batch 1**

**In JavaScript, setTimeout() is an example of a** *callback* **function.**

setTimeout(() => {

console.log("Hello after 2 seconds");

}, 2000);

**How do you pass data between components in React?**

* Using *props*.

<ChildComponent name="John" />

**What is a regular expression in JavaScript?**

* A pattern used for matching text.

const regex = /hello/;

console.log(regex.test("hello world"));

**Which type of component in React uses the useState hook?**

* *Functional components.*

**React components.**

* Components are reusable pieces of UI in React.

**How can you integrate third-party libraries with React?**

* Install via npm and import into components.

npm install axios

import axios from 'axios';

**Why should you use React Strict Mode?**

* It helps identify potential problems in an application.

**What is Tailwind and why is it used?**

* A utility-first CSS framework to speed up styling.

**What is the difference between useState and useEffect hooks in React?**

* useState manages state; useEffect handles side effects.

**How do you embed a video in HTML?**

<video controls>

<source src="video.mp4" type="video/mp4">

</video>

**How does the try-catch-finally block work in JavaScript?**

* try runs code, catch handles errors, finally always runs.

**What is the output of mapping over an empty array?**

* An empty array.

**What are the key features of React?**

* Virtual DOM, JSX, components, one-way data binding.

**What is the use of reduce() in JavaScript?**

* Reduces array to a single value.

[1,2,3].reduce((acc, val) => acc + val, 0); // 6

**What is react?**

* A JavaScript library for building UIs.

**What is NPM?**

* Node Package Manager for JavaScript packages.

**Batch 2**

**Explain the concept of promises chaining in JavaScript.**

* Handling asynchronous operations in sequence.

fetch(url)

.then(res => res.json())

.then(data => console.log(data));

**What is the setInterval() function in JavaScript?**

* Repeats a function at a specified interval.

setInterval(() => console.log("Ping"), 1000);

**What are the major differences between let, const, and var regarding scope?**

* var: function-scoped, let/const: block-scoped.

**What are the different data types in JavaScript?**

* Number, String, Boolean, Object, Undefined, Null, Symbol, BigInt.

**What is the difference between JSON.parse() and JSON.stringify()?**

* parse converts JSON string to object; stringify converts object to JSON string.

**What are arrow functions, and how do they differ from regular functions?**

* Shorter syntax, no this binding.

**What is the difference between == and === in JavaScript?**

* == compares value; === compares value and type.

**What is the difference between synchronous and asynchronous code in JavaScript?**

* Synchronous: one after another; Asynchronous: can happen out of order.

**How do you embed a video in HTML?**

* See Batch 1.

**What is destructuring in JavaScript? Provide an example.**

const { name, age } = { name: 'Alice', age: 25 };

**What is a callback function in JavaScript?**

* A function passed into another function as an argument.

**What is a regular expression in JavaScript?**

* See Batch 1.

**How does the localStorage work in JavaScript? Can you give an example?**

localStorage.setItem('key', 'value');

localStorage.getItem('key');

**What is the difference between an object and an array in JavaScript?**

* Object: key-value pairs; Array: ordered list of values.

**Batch 3**

**How do you integrate Bootstrap with React?**

* Install Bootstrap and import in index.js or App component.

npm install bootstrap

import 'bootstrap/dist/css/bootstrap.min.css';

**How do you create a responsive layout using Bootstrap?**

* Using grid system and responsive classes.

<div class="row">

<div class="col-md-6">Left</div>

<div class="col-md-6">Right</div>

</div>

**What is React Router? Why is it used?**

* For navigation in a React app without reloading the page.

**What is the Virtual DOM in React?**

* A lightweight copy of the real DOM for efficient updates.

**How can you integrate third-party libraries with React?**

* See Batch 1.

**What is React Router and how is it used?**

* See above.

**What is React, and why is it used?**

* See Batch 1.

**What is NPM?**

* See Batch 1.

**What is the difference between state and props?**

* state: internal to component; props: passed to component.

**Explain the difference between createContext() and useContext().**

* createContext creates a Context object; useContext consumes the context.

**What are the key features of React?**

* See Batch 1.

**What is React Fragment, and why is it used?**

* To group multiple elements without adding extra nodes.

<>

<h1>Hello</h1>

<p>World</p>

</>

**React components.**

* See Batch 1.

**How do you manage complex state in a React application?**

* Using useReducer, context API, or state management libraries like Redux.

**Batch 4**

**Explain the difference between find(), findOne(), and findById().**

* find(): multiple documents; findOne(): first match; findById(): match by ID.

**What is middleware in Express?**

* Functions that execute during the request-response cycle.

**Explain the difference between createContext() and useContext().**

* See Batch 3.

**What is the Virtual DOM in React?**

* See Batch 3.

**What is CORS and how do you handle it in Express?**

* Cross-Origin Resource Sharing; handled with cors package.

npm install cors

const cors = require('cors');

app.use(cors());

**What is React Router and how is it used?**

* See Batch 3.

**What is React, and why is it used?**

* See Batch 1.

**What is NPM?**

* See Batch 1.

**What is the difference between state and props?**

* See Batch 3.

**What is an API, and why is it used in React applications?**

* Interface to connect frontend with backend data/services.

**What are the key features of React?**

* See Batch 1.

**How do you use environment variables in Node.js?**

* Using process.env and dotenv package.

npm install dotenv

require('dotenv').config();

console.log(process.env.PORT);

**What is Tailwind and why is it used?**

* See Batch 1.

**How does conditional rendering work in React?**

* Render different UI based on conditions.

{isLoggedIn ? <LogoutButton /> : <LoginButton />}