JavaScript Practical & Deep Knowledge Questions

Basics

- Write a program to reverse a string without using built-in reverse().
- Explain 'var', 'let', and 'const' with practical examples.
- Check if a number is prime.
- Write a function to count vowels in a given string.
- Demonstrate hoisting with an example.

Functions & Scope

- Write a closure that keeps track of how many times a function has been called.
- Explain the difference between function declarations and function expressions with examples.
- Implement a function curry(fn) that performs currying.
- Create a debounce function in JavaScript.
- Explain 'this' keyword in different contexts.

Objects & Arrays

- Clone a JavaScript object deeply without using JSON methods.
- Write a function to flatten a nested array.
- Difference between shallow copy and deep copy with code example.
- Implement your own version of Array.prototype.map().
- Explain prototype chaining with example.

Asynchronous JavaScript

- Explain event loop with an example of setTimeout and promises.
- Write code to execute multiple promises in parallel and wait for all of them to finish.
- Implement your own version of Promise.all().
- Explain async/await with error handling using try/catch.
- Create a function that retries a failed network request up to 3 times.

Advanced Concepts

- Explain how JavaScript's garbage collection works.
- What is memoization? Write a function to memoize another function.
- Implement a simple EventEmitter class in JavaScript.

- Write code to implement Singleton design pattern.
- Difference between deep freeze and shallow freeze of objects.

DOM & Browser

- Write code to create a DOM element dynamically and append it to body.
- Explain event delegation with an example.
- Implement drag-and-drop functionality without using libraries.
- Explain localStorage, sessionStorage, and cookies with examples.
- Write a function that detects if the user is on a mobile device.

ES6+ Features

- Explain destructuring with practical examples.
- Use spread operator to merge objects and arrays.
- What are generators? Write a generator function that yields Fibonacci numbers.
- Explain WeakMap and WeakSet with use cases.
- Demonstrate optional chaining with an example.