ProminentPixel Interview Questions and Answers – Full Guide (Easy English)

✅Section 1: Tell Me About Yourself

Q1. Tell me about yourself.
Hi! I'm [Your Name], a Computer Science graduate from [Your College]. I have a strong interest in web development and enjoy working with technologies like HTML, CSS, JavaScript, and React. I've created several personal projects like a food delivery app and a weather app. I'm a fast learner, problem solver, and looking for opportunities to grow in the software industry.

Q2. Tell me about your family background.
My father is a [profession], my mother is a [homemaker/working professional], and I have [siblings if any]. My family always supports and motivates me to achieve my goals.

✅Section 2: HTML/CSS/JS/DOM

Q3. What is HTML?
HTML stands for HyperText Markup Language. It is used to create the structure of a webpage using elements like headings, paragraphs, images, and links.

Q4. What is CSS?
CSS stands for Cascading Style Sheets. It is used to design and style the HTML content (like colors, layout, fonts, spacing).

Q5. What is JavaScript?
JavaScript is a programming language used to make web pages interactive. It can handle tasks like user input, DOM manipulation, and API calls.

Q6. What is the DOM?
DOM stands for Document Object Model. It represents the structure of an HTML document as a tree so JavaScript can access and change the content, structure, and style dynamically.

Q7. What is the virtual DOM?
The virtual DOM is a lightweight copy of the real DOM used in React. React updates the virtual DOM first, compares the changes, and updates only the changed parts in the real DOM. It improves performance.

Q8. Difference between id and class in HTML? - `id` is unique for one element. - `class` can be shared by multiple elements.

Q9. Box model in CSS?
Box model includes: - Content - Padding - Border - Margin

Q10. Semantic HTML?
Semantic HTML uses meaningful tags like `<article>`, `<header>`, `<footer>`, and `<section>` to improve readability and SEO.

Q11. How do you center a div using CSS?
Using Flexbox:

```css
.parent {
  display: flex;
  justify-content: center;
  align-items: center;
}
```

✅ Section 3: JavaScript + ES6 + Logic

Q12. let vs const vs var
- `var`: function-scoped, re-declarable. - `let`: block-scoped, re-assignable. - `const`: block-scoped, can't be re-assigned.

Q13. What is hoisting?
JavaScript moves variable and function declarations to the top of their scope. `var` and functions are hoisted.

Q14. What is a callback?
A function passed into another function to be called later.

Q15. What is a promise?
A promise handles async operations. It has three states: pending, resolved, and rejected.

Q16. async/await
Used to write asynchronous code in a synchronous manner. Works with Promises.

Q17. What is an arrow function?
Short syntax for functions. It doesn't have its own `this`.

```js
const add = (a, b) => a + b;
```

Q18. map, filter, reduce - map: creates a new array by modifying each item. - filter: returns items that match a condition. - reduce: returns a single value.

Q19. Splice vs Slice

- `slice()` returns a portion of the array (does not modify original). - `splice()` modifies the original array.

Q20. Spread vs Rest

- Spread (`...arr`) expands an array. - Rest (`...args`) gathers remaining items.

Q21. Debouncing and Throttling

Used to optimize performance: - Debounce: limits the function call after a delay. - Throttle: limits function calls to once per time interval.

Q22. Event Delegation in JavaScript?

Instead of adding event to every child, use it on the parent to manage all children efficiently.

Q23. JavaScript Event Loop

Handles asynchronous operations. It uses call stack, callback queue, and microtask queue to manage operations.

✅Section 4: React + Hooks

Q24. What is React?

React is a JavaScript library used to build user interfaces. It is component-based and fast.

Q25. What is JSX?

JSX is JavaScript + XML. It allows HTML to be written inside JavaScript.

Q26. What are components?

Building blocks of React. They can be functional or class-based.

Q27. What is props?

Props are inputs to components. They allow data to pass from parent to child.

Q28. What are hooks?

Hooks are functions that let us use state and lifecycle in functional components.

Q29. useState and useEffect

- useState: creates state. - useEffect: runs side effects (API call, timer, etc).

Q30. useContext

It helps pass data globally without props. Example: theme, language.

Q31. Redux vs useContext

Redux is more structured, good for large apps. useContext is simpler, good for small apps.

Q32. Routing in React

Use `react-router-dom` :

```
<Route path="/home" element={<Home />} />
```

Q33. Lifecycle Methods in React

- Mounting: `componentDidMount` - Updating: `componentDidUpdate` - Unmounting: `componentWillUnmount`

Q34. React Key Prop

Keys help identify which items have changed. Always use unique keys when rendering lists.

✅Section 5: Java + OOPs

Q35. What is OOP?

OOP is Object-Oriented Programming. It focuses on objects and classes.

Q36. 4 Pillars of OOP 1. Encapsulation 2. Abstraction 3. Inheritance 4. Polymorphism

Q37. What is Polymorphism?

One thing behaves differently in different situations (like function overloading).

Q38. What is Inheritance?

One class inherits from another. Types: - Single - Multi-level - Hierarchical

Q39. Why is String immutable in Java?

Because once created, it cannot be changed. It improves security and performance.

Q40. Difference between String and StringBuilder

- String: immutable - StringBuilder: mutable, better performance for many changes

Q41. Interface vs Abstract Class

- Interface: only method declarations. - Abstract class: can have method definitions and abstract methods.

Q42. Constructor in Java

Special method that runs when an object is created.

✅Section 6: SQL Basics

Q43. What is SQL?

SQL is Structured Query Language used to interact with databases.

Q44. Basic SQL Queries - SELECT: fetch data - INSERT: add data - UPDATE: modify data - DELETE: remove data

Q45. Difference between WHERE and HAVING
- WHERE: filters rows before group. - HAVING: filters after GROUP BY.

Q46. Primary Key vs Foreign Key
- Primary Key: unique + not null. - Foreign Key: refers to Primary Key in another table.

Q47. Joins in SQL
- INNER JOIN - LEFT JOIN - RIGHT JOIN - FULL JOIN

Q48. What is normalization?
Organizing data to reduce redundancy and improve data integrity.

✅Section 7: Extra Coding and Puzzles

Q49. Find second largest in array (no sort)

```javascript
function secondLargest(arr) {
  let max = -Infinity, second = -Infinity;
  for (let val of arr) {
    if (val > max) {
      second = max;
      max = val;
    } else if (val > second && val < max) {
      second = val;
    }
  }
  return second;
}
```

Q50. Check if Linked List is circular

```javascript
function isCircular(head) {
  let slow = head, fast = head;
  while (fast && fast.next) {
    slow = slow.next;
    fast = fast.next.next;
    if (slow === fast) return true;
  }
  return false;
}
```

Q51. Coin change (minimum coins)

```javascript
function minCoins(coins, amount) {
  coins.sort((a, b) => b - a);
  let count = 0;
  for (let coin of coins) {
    while (amount >= coin) {
      amount -= coin;
      count++;
    }
  }
  return count;
}
```

Q52. Characters repeating more than n/k times

```javascript
function frequentChars(str, k) {
  let n = str.length, count = {};
  for (let ch of str) count[ch] = (count[ch] || 0) + 1;
  for (let key in count) {
    if (count[key] > n / k) console.log(key);
  }
}
```

Q53. Merge two arrays without duplicates (no inbuilt)

```javascript
function mergeUnique(arr1, arr2) {
  let result = [], seen = {};
  for (let el of [...arr1, ...arr2]) {
    if (!seen[el]) {
      seen[el] = true;
      result.push(el);
    }
  }
  return result;
}
```

This guide now contains **50+ frequently asked questions and answers** covering HTML, CSS, JS, React, SQL, OOP, and logic coding. It's designed in **easy language** to help you **crack the ProminentPixel interview** confidently.

If you want mock interview questions with feedback or audio response help, just ask!