📄 HTML - 30 Questions and Answers

1. **What is HTML?**
   HTML stands for HyperText Markup Language, used to create web pages.

2. **What are HTML attributes?**
   Attributes provide additional information about an element, like class, id, etc.

3. **Difference between HTML4 and HTML5?**
   HTML5 adds new tags like <article>, <video>, <audio>, and better multimedia support.

4. **What is the ?**
   It declares the HTML version (like HTML5).

5. **What are void elements?**
   Self-closing tags like <br>, <img>, <input>.

6. **What is the tag for?**
   It holds metadata like title, styles, and scripts.

7. **Difference between block and inline elements?**
   Block takes full width, inline fits content.

8. **Purpose of ?**
   To group media with captions.

9. **What is a favicon?**
   A small icon shown in the browser tab.

10. *What are data- attributes?**
    Custom attributes to store data in HTML.

11. **How to embed audio and video?**
    Using <audio> and <video> tags.

12. **What are global attributes?**
    Attributes usable on all elements (id, class, style).

13. **Purpose of ?**
    To define reusable content fragments.

14. **How to create a table?**
    Using <table>, <tr>, <td>, <th>.

15. **Difference between and ?**
    <em> emphasizes meaning, <i> is visual.

16. **How to add comments in HTML?**
    <!-- comment -->

17. **What is an HTML entity?**
    Special characters like < (for <).

18. **What is a marquee (deprecated)?**
    A scrolling text element.

19. **What is ?**
    Displays contact information.

20. **Purpose of ?**
    Shows task progress visually.

21. **What is accessibility in HTML?**
    Designing content usable by everyone, including people with disabilities.

22. **Relative vs Absolute URLs?**
    Relative links within site, absolute full external links.

23. **What is form action?**
    URL to send form data to.

24. **GET vs POST?**
    GET appends data to URL; POST sends in body.

25. **How to make an image clickable?**
    Wrap <img> inside <a>.

26. **What is ?**
    Fallback content if JavaScript is off.

27. **What is ?**
    Suggests word-break points.

28. **Purpose of & ?**
    Expandable/collapsible content.

29. **What are Web Storage APIs?**
    localStorage and sessionStorage.

30. **What is an iframe?**
    Embeds external content into a page.

🎨 CSS - 30 Questions and Answers

1. **What is CSS?**
   Stylesheet language for web design.

2. **Types of CSS?**
   Inline, Internal, External.

3. **What are CSS selectors?**
   Patterns to select HTML elements.

4. **What is Box Model?**
   Content, Padding, Border, Margin.

5. **Relative vs Absolute position?**
   Relative to itself, absolute to ancestor.

6. **What are pseudo-elements?**
::before, ::after for styling.

7. **What is Flexbox?**
One-dimensional layout system.

8. **What is CSS Grid?**
Two-dimensional layout system.

9. **What is z-index?**
Stacking order of elements.

10. **What are media queries?**
Responsive design rules.

11. **em vs rem?**
em relative to parent; rem to root.

12. **What is opacity?**
Transparency of element.

13. **What are transitions?**
Smooth animation between states.

14. **What is @keyframes?**
Defines animation steps.

15. **What is sticky positioning?**
Sticks while scrolling.

16. **visibility vs display?**
visibility: hidden hides; display: none removes.

17. **What is float?**
Floating element left or right.

18. **What is clear?**
Stops elements floating beside.

19. **What is clip-path?**
Clips element into shape.

20. **What is object-fit?**
Resize images/videos in containers.

21. **CSS variables?**
Custom properties like --main-color.

22. **What is filter?**
Visual effects like blur.

23. **What is backface-visibility?**
Shows/hides back of element.

24. **What is user-select?**
Controls text selection.

25. **aspect-ratio in CSS?**
    Maintains width-height ratio.

26. **static vs fixed position?**
    Static is default; fixed stays on screen.

27. **Layering in CSS?**
    Using z-index.

28. **What is hover effect?**
    Style when mouse hovers.

29. **What is object-position?**
    Aligns replaced content.

30. **What is overflow?**
    Handles content exceeding container.

Absolutely! Here's a fresh **set of 30 JavaScript Questions and Answers**, perfect for mock interviews, quick revision, or self-assessment:

💻 JavaScript - 30 Questions and Answers

1. What is JavaScript?

JavaScript is a scripting language used to create dynamic content like interactive forms, animations, and real-time updates on web pages.

---

2. What are the different data types in JavaScript?

- String
- Number
- Boolean
- Undefined
- Null
- Object
- Symbol (ES6)
- BigInt (ES11)

---

3. Difference between var, let, and const?

- var: Function-scoped, can be redeclared.
- let: Block-scoped, can be reassigned.
- const: Block-scoped, cannot be reassigned.

4. What is typeof operator?

It returns the data type of a variable, e.g., typeof "Hello" returns "string".

5. What is the difference between == and ===?

- ==: Loose comparison (type conversion allowed).
- ===: Strict comparison (no type conversion).

6. What are functions in JavaScript?

Functions are reusable blocks of code that perform specific tasks.

7. What is the difference between function expression and function declaration?

- **Declaration:** function foo() {}
- **Expression:** const foo = function() {}

8. What is an Arrow Function?

A shorter syntax introduced in ES6:

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

9. What is a callback function?

A function passed as an argument to another function.

10. What is a Promise?

A Promise handles asynchronous operations and can be:

- **Pending**
- **Resolved (Fulfilled)**
- **Rejected**

11. What is async and await?

They simplify working with Promises for cleaner asynchronous code.

12. What is the this keyword?

this refers to the object that owns the function being executed.

---

13. What is hoisting?

Hoisting moves function and variable declarations to the top of their scope.

---

14. What is closure in JavaScript?

A closure is a function that retains access to its outer function's variables, even after the outer function has returned.

---

15. What is the DOM?

Document Object Model — an interface that represents the page's structure.

---

16. How to select elements in DOM?

- getElementById()
- querySelector()
- getElementsByClassName()
- getElementsByTagName()

---

17. What is event bubbling and capturing?

- **Bubbling:** Event flows from child to parent.
- **Capturing:** Event flows from parent to child.

---

18. What is event.preventDefault()?

It prevents the default behavior of an element (like form submission).

---

19. What are template literals?

String literals that allow embedded expressions using backticks:

`Hello ${name}`

20. What is destructuring in JavaScript?

Extracting values from arrays or objects into variables.

const [a, b] = [1, 2];

const {name, age} = person;

---

21. What is spread operator?

It expands an array/object into individual elements.

const arr = [1, 2, 3];

const newArr = [...arr, 4];

---

22. What is rest parameter?

It collects multiple arguments into a single array.

function sum(...numbers) {}

---

23. How to create an object in JavaScript?

const person = { name: "John", age: 30 };

---

24. What are ES6 classes?

A cleaner way to create objects and handle inheritance.

```
class Person {

  constructor(name) {

    this.name = name;

  }

}
```

---

25. What is JSON?

JavaScript Object Notation — a lightweight data format (key-value pairs).

---

26. What is setTimeout() and setInterval()?

- setTimeout(): Runs a function once after a delay.

- setInterval(): Runs a function repeatedly at intervals.

---

27. What is the difference between null and undefined?

- null: Intentionally empty.

- undefined: Variable declared but not assigned.

---

28. What is a higher-order function?

A function that takes a function as argument or returns a function.

---

29. What are default parameters?

Function parameters with default values if not provided.

function greet(name = "Guest") {}

---

30. What is the difference between map(), filter(), and reduce()?

- map(): Transforms each array element.

- filter(): Filters elements based on condition.

- reduce(): Accumulates array into a single value.

Bootstrap - 30 Questions and Answers

1. **What is Bootstrap?**
   A popular CSS framework for responsive design.

2. **What are containers in Bootstrap?**
   They center and align content (.container, .container-fluid).

3. **Difference between container and container-fluid?**
   .container has fixed width, .container-fluid spans full width.

4. **What are breakpoints?**
   Responsive design points (xs, sm, md, lg, xl, xxl).

5. **What is a Navbar?**
   Pre-built responsive navigation bar.

6. **What is Bootstrap Grid?**
   12-column flexible grid system.

7. **What are utility classes?**
   Predefined classes for margins, padding, colors, etc.

8. **How to create a Modal?**
   Use .modal structure.

9. **What is a Carousel?**
   Slideshow component.

10. **How to style forms in Bootstrap?**
    Use .form-control, .form-group.

11. **What is a Card component?**
    Pre-styled content container.

12. **How to use Flex utilities?**
    Use .d-flex, .justify-content-*.

13. **How to create a Button?**
    Use .btn classes like .btn-primary.

14. **What is a Badge?**
    Small count or label.

15. **How to make tables responsive?**
    Wrap in .table-responsive.

16. **What is a Breadcrumb?**
    Navigation trail.

17. **How to use Spinners?**
    Use .spinner-border or .spinner-grow.

18. **What is Toast?**
    Non-blocking message alert.

19. **What is an Accordion?**
    Collapsible content.

20. **What is Offcanvas?**
    Sidebar that slides into view.

21. **What is a Progress Bar?**
    Use .progress for visual progress.

22. **How to customize Bootstrap?**
    Override SCSS variables.

23. **What are Alerts?**
    Styled messages using .alert.

24. **What is a Jumbotron (deprecated)?**
    Large hero section.

25. **How to use Icons?**
    Bootstrap Icons or FontAwesome.

26. **What is Row-cols?**
    Set number of columns in a row.

27. **How to add Tooltips?**
    Use data-bs-toggle="tooltip".

28. **What is Sticky Top?**
    Element sticks to top when scrolling.

29. **How to center elements?**
    Use Flexbox utilities.

30. **What is Gutter?**
    Spacing between columns.

❋ React.js - 30 Questions and Answers

1. **What is React?**
   A JavaScript library for building UIs.

2. **What is JSX?**
   Syntax combining HTML+JavaScript.

3. **What are Props?**
   Data passed to components.

4. **What is State?**
   Internal data storage in components.

5. **Functional vs Class Components?**
   Functions vs ES6 Classes.

6. **What are Hooks?**
   Functions like useState for state and effects.

7. **What is useState?**
   Hook for state management.

8. **What is useEffect?**
   Hook for side effects.

9. **What are Fragments?**
   <></> wrapper without extra DOM node.

10. **What is Context API?**
    Global state sharing.

11. **Controlled vs Uncontrolled Components?**
    Controlled via state, uncontrolled uses refs.

12. **What are Keys?**
    Unique identifiers in lists.

13. **What is Prop Drilling?**
    Passing props through multiple layers.

14. **What is useRef?**
    Mutable ref object.

15. **What is Memo?**
    Optimization to avoid re-renders.

16. **What is Lazy Loading?**
    Load components only when needed.

17. **What is an Error Boundary?**
    Catches errors in child components.

18. **What is Reconciliation?**
    React's diffing algorithm for updates.

19. **What is StrictMode?**
    Highlights potential problems in dev mode.

20. **What is Virtual DOM?**
    Lightweight copy of actual DOM.

21. **What is Hydration?**
    Attach React to server-rendered HTML.

22. **What are Portals?**
    Render outside component tree.

23. **What is Suspense?**
    Handle lazy loading gracefully.

24. **What is ForwardRef?**
    Pass refs to child components.

25. **What is HOC (Higher Order Component)?**
    Function returning an enhanced component.

26. **What is useReducer?**
    Alternative to useState for complex logic.

27. **What is PureComponent?**
    Optimized class component.

28. **What is componentDidMount?**
    Lifecycle method after mount (for classes).

29. **What is React Router?**
    Navigation library for React apps.

30. **What is Server-Side Rendering (SSR)?**
    Rendering on the server before reaching client.