HTML/CSS Dev

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Job Role: Frontend Developer with Database Query Knowledge

Key Responsibilities:

1. Web Development:
    - Develop and maintain responsive, cross-browser-compatible web pages using HTML, CSS, and JavaScript.
    - Ensure websites are optimized for performance and user experience.
2. Design and Styling:
    - Create interactive user interfaces and design layouts using CSS frameworks and techniques (e.g., Flexbox, Grid).
    - Implement best practices for mobile-first and responsive design.
3. Database Interaction:
    - Write and optimize SQL queries to interact with databases, perform data retrieval, and ensure smooth integration between the frontend and backend.
    - Collaborate with backend developers to integrate APIs or database functionality into frontend applications.
4. Debugging and Testing:
    - Test cross-browser compatibility and troubleshoot web pages for bugs or performance issues.
    - Debug SQL queries and ensure efficient database operations.
5. Version Control and Collaboration:
    - Use version control systems like Git to manage codebase and collaborate with team members.
6. Problem Solving and Optimization:
    - Continuously improve code structure, reduce redundancy, and enhance web performance.
    - Stay updated with the latest development trends and technologies.

Skills Required:

- Proficiency in HTML5, CSS3, and JavaScript.
- Strong knowledge of CSS frameworks (e.g., Bootstrap, Flexbox, Grid).
- Experience in writing and optimizing SQL queries.
- Familiarity with responsive design and cross-browser compatibility.
- Understanding of frontend performance optimization techniques.
- Basic knowledge of version control (Git).
- Good communication and collaboration skills.

Preferred:

- Familiarity with JavaScript frameworks (e.g., React, Vue.js).
- Basic understanding of backend development or APIs.
- Knowledge of Django or other backend frameworks (if relevant to the role).

1. What are the differences between HTML and XHTML?
Answer: HTML is more lenient with syntax, while XHTML follows stricter XML rules.

2. What is the CSS box model?
Answer: The box model consists of content, padding, border, and margin.

3. How do you optimize a website for performance?
Answer: By minimizing HTTP requests, using compressed images, and enabling caching.

4. What is the concept of database normalization?
Answer: Normalization organizes data to minimize redundancy and improve integrity.

5. Explain media queries in CSS.
Answer: Media queries are used to apply different styles based on device characteristics like screen size.

6. What is the difference between 'ID' and 'Class' in HTML?
Answer: 'ID' is unique to a single element, while 'Class' can be applied to multiple elements.

7. How do you make a layout responsive?
Answer: Using fluid grids, flexible images, and media queries.

8. What is a foreign key in a database?
Answer: A foreign key is a field that links two tables and ensures referential integrity.

9. Explain Flexbox in CSS.
Answer: Flexbox is a layout model that allows elements to align and distribute space within a container.

10. What is Git and how does version control work?
Answer: Git is a version control system that tracks changes in code and allows collaboration.

This is the first 10 questions from the array. The pattern is consistent throughout for all 50 questions. This format is clean and can easily be copied into a PDF, with each question followed by its corresponding answer in a readable format.

If you'd like to generate the full set or a different format, I can continue or adjust the output accordingly.

11. What are pseudo-classes in CSS?
Answer: Pseudo-classes define the special state of an element, like `:hover` or `:focus`.

12. Explain the difference between inline, block, and inline-block elements in HTML.
Answer: Inline elements do not break the flow, block elements take up the entire width, and inline-block elements are like inline but with block-level features.

13. What are CSS preprocessors?
Answer: CSS preprocessors like SASS and LESS add variables, mixins, and other features to regular CSS.

14. Explain how cookies, sessionStorage, and localStorage differ.
Answer: Cookies store small data with an expiration, sessionStorage stores data per session, and localStorage persists even after closing the browser.

15. What are relational databases?
Answer: Relational databases use tables to store data, and relationships are established between tables.

16. What is REST in web development?
Answer: REST is an architectural style for creating APIs that follow principles like statelessness and resource-based access.

17. Explain CSS specificity.
Answer: Specificity determines which CSS rule is applied when multiple rules match the same element.

18. What is a closure in JavaScript?
Answer: A closure is a function that has access to its own scope, the scope of the outer function, and the global scope.

19. What is the DOM?
Answer: The DOM (Document Object Model) represents the structure of a web page as a tree of objects.

20. Explain how `box-shadow` works in CSS.
Answer: `box-shadow` applies shadow effects to an element, with properties for offset, blur, spread, and color.

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21. What is the difference between SQL and NoSQL databases?
Answer: SQL databases use structured tables, while NoSQL databases are more flexible, using document, key-value, or graph models.

22. How do you handle cross-browser compatibility issues?
Answer: By using CSS resets, vendor prefixes, and testing across multiple browsers.

23. Explain the importance of the 'alt' attribute in HTML images.
Answer: The 'alt' attribute provides descriptive text for images, improving accessibility and SEO.

24. What are the types of positioning in CSS?
Answer: There are four types: static, relative, absolute, and fixed positioning.

25. What are media types in HTML?
Answer: Media types like 'screen', 'print', and 'all' are used to specify different style rules for different devices.

26. Explain the difference between GET and POST requests.
Answer: GET requests retrieve data without side effects, while POST requests send data to the server, often resulting in changes.

27. What is the difference between margin and padding?

Answer: Padding is the space inside the element between the content and border, while margin is the space outside the border.

28. What are web workers in JavaScript?
Answer: Web workers allow JavaScript to run in the background, improving performance by executing tasks in parallel with the main thread.

29. How does event delegation work in JavaScript?
Answer: Event delegation allows a parent element to handle events for its child elements, improving performance and code maintainability.

30. What are responsive images?
Answer: Responsive images adjust based on screen size and resolution using the `srcset` attribute and media queries.

Here's the continuation from question 31:

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31. What is the purpose of `viewport` in HTML?
Answer: The `viewport` meta tag controls how a web page is displayed on different devices, particularly on mobile screens, ensuring responsive behavior.

32. Explain the concept of promises in JavaScript.
Answer: Promises represent the eventual completion or failure of an asynchronous operation and allow chaining of `.then()` and `.catch()` for handling results.

33. What are semantic elements in HTML?
Answer: Semantic elements, like `<article>`, `<section>`, `<header>`, and `<footer>`, provide meaning to the content they contain, improving readability and accessibility.

34. How does the `z-index` property work in CSS?
Answer: `z-index` controls the stack order of elements. Higher values bring elements to the front, while lower values send them to the back.

35. What is a foreign key in a relational database?

Answer: A foreign key is a field (or set of fields) in one table that uniquely identifies a row in another table, establishing a link between the tables.

36. Explain how async/await works in JavaScript.
Answer: `async/await` simplifies handling promises by allowing asynchronous code to be written in a more synchronous style.

37. What are CSS transitions?
Answer: CSS transitions allow smooth changes between two states of an element, for example, when changing the color of a button on hover.

38. What is a self-join in SQL?
Answer: A self-join occurs when a table is joined with itself, often used to compare rows within the same table.

39. What is Flexbox in CSS?
Answer: Flexbox is a layout model that provides a flexible way to distribute space and align items within a container, even when their size is unknown.

40. What is the purpose of the `rel="noopener noreferrer"` attribute in anchor tags?
Answer: This attribute enhances security by preventing the new page opened by the link from accessing the `window.opener` object and stops the referrer information from being sent.

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41. Explain database normalization.
Answer: Database normalization is the process of organizing a database to reduce redundancy and improve data integrity through dividing data into related tables.

42. What is the difference between synchronous and asynchronous code?
Answer: Synchronous code is executed line by line, blocking further execution until completion, while asynchronous code allows execution to continue while waiting for a task to complete (like fetching data).

43. What is the `transform` property in CSS?
Answer: The `transform` property allows elements to be scaled, rotated, skewed, or translated on the 2D or 3D plane.

44. What is a subquery in SQL?
Answer: A subquery is a query within another SQL query that can be used to perform complex filtering, calculations, or comparisons.

45. What is the difference between `==` and `===` in JavaScript?
Answer: `==` compares values after type coercion, while `===` compares both value and type, making it a strict comparison.

46. How can you optimize website performance?
Answer: Techniques include minimizing HTTP requests, compressing images, using lazy loading, minifying CSS/JS files, and utilizing browser caching.

47. What is a JOIN operation in SQL?
Answer: A JOIN operation retrieves data from multiple tables based on related columns, such as INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL JOIN.

48. What is CSS Grid Layout?
Answer: CSS Grid is a powerful 2D layout system that allows for the creation of complex, responsive layouts by defining rows and columns within a container.

49. What is a foreign key constraint?
Answer: A foreign key constraint enforces referential integrity by ensuring that values in a column (or set of columns) in one table correspond to valid entries in another table.

50. What is memoization in JavaScript?
Answer: Memoization is an optimization technique that stores the results of expensive function calls and returns the cached result when the same inputs occur again.
