

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Answer Key: Wrangle Asynchronous Logic: Advanced 10th Grade Web Dev Quiz

Evaluate architectural patterns and debug the critical interplay between CORS, DOM manipulation, and semantic SEO in complex modern web applications.

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**1. When implementing a high-performance image gallery, why is 'Intersection Observer' in JavaScript preferred over traditional scroll event listeners?**

**Answer:** C) It handles element visibility checks asynchronously, reducing main-thread jank.

The Intersection Observer API provides a way to asynchronously observe changes in the intersection of a target element with an ancestor element or a top-level document's viewport, improving performance by avoiding expensive scroll event calculations.

**2. A CSS specificity of (0, 1, 1) will override a declaration with a specificity of (0, 0, 12).**

**Answer:** A) True

Specificity is calculated in tiers (ID, Class/Attribute/Pseudo-class, Element). One class (0, 1, 0) outweighs any number of element selectors (0, 0, x), so (0, 1, 1) is stronger than (0, 0, 12).

**3. To prevent a 'Flash of Unstyled Content' (FOUC) while using JavaScript to fetch theme preferences, the most robust architectural solution is to:**

**Answer:** B) Inline a small blocking script in the <head> to apply the class before the body renders.

By placing a script in the <head>, it executes before the rest of the HTML is parsed and rendered. This allows the theme to be applied early enough to avoid the visual flickering of the default style.

**4. Which scenario best illustrates the 'Z-index Stack' failure where an element with z-index: 999 stays behind an element with z-index: 1?**

**Answer:** B) The z-index: 999 element is inside a parent that has created a new stacking context.

Stacking contexts are localized. If a parent container has a z-index and position set, its children are confined to that parent's depth relative to other elements on the page, regardless of how high their individual z-index values are.

**5. Using the 'async' attribute on a <script> tag ensures that the script will execute only after the entire HTML document is fully parsed.**

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**Answer:** B) False

The 'async' attribute downloads the script in the background and executes it as soon as it is available, which may be before the HTML is finished parsing. The 'defer' attribute is used to ensure execution after parsing.

**6. In the context of the CSS Grid layout, the property used to control the alignment of the entire grid within the container along the inline (horizontal) axis is:**

**Answer:** B) justify-content

Justify-content is used to align the total grid area when it is smaller than the grid container, specifically along the row axis (horizontal in default left-to-right writes).

**7. A developer uses the Fetch API to get data from a different domain, but the request fails despite the URL being correct. What is the most likely architectural cause?**

**Answer:** B) The server has not configured Cross-Origin Resource Sharing (CORS) headers.

CORS is a security mechanism that prevents web pages from making requests to a different domain than the one that served the page, unless the receiving server explicitly allows it via specific HTTP headers.

**8. When constructing a modern accessible form, the most semantically accurate way to associate a description text with an input field for screen readers is using:**

**Answer:** B) The 'aria-describedby' attribute pointing to the ID of the description.

ARIA (Accessible Rich Internet Applications) attributes like aria-describedby provide programmatic relationships between elements, ensuring assistive technologies can communicate the purpose and context of form fields.

**9. In JavaScript, 'closures' allow an inner function to access variables from its outer scope even after the outer function has finished executing.**

**Answer:** A) True

A closure is the combination of a function bundled together with references to its surrounding state. This is fundamental for data privacy and functional programming patterns in JavaScript.

**10. Which CSS unit is most appropriate for creating a truly fluid typography system that scales based on the user's default browser font size while remaining proportional to the viewport width?**

**Answer:** B) The 'clamp()' function using 'rem' and 'vw' values.

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The clamp() function allows for responsive font sizes that stay within a range (min/max) using viewport units (vw), while the rem unit ensures it respects the user's accessibility settings for base font size.