HTML:

What are the differences between HTML4 and HTML5?

- **Answer:** HTML5 introduced new features such as semantic elements (<article>, <section>, <nav>), multimedia elements (<audio>, <video>), form enhancements, APIs for offline storage (localStorage, sessionStorage), and improved parsing rules. HTML5 also deprecated certain elements and attributes from HTML4.

What is the purpose of the rel="noopener noreferrer" attribute in anchor tags?

- **Answer:** The rel="noopener noreferrer" attribute improves security and performance by preventing the new page from accessing the window.opener property and stops the referral information from being sent.

Describe the lifecycle of an HTML document.

- **Answer:** The lifecycle of an HTML document includes:
- **Loading:** The browser sends a request to the server and starts receiving the HTML document.
- **Parsing:** The browser parses the HTML document, building the DOM tree and CSSOM tree.
- **Rendering:** The browser combines the DOM and CSSOM trees into the render tree.
- **Layout:** The browser calculates the layout of each element.
- **Painting:** The browser paints the pixels on the screen.
- **Interaction:** The user interacts with the document, and the browser may re-render parts of the document as needed.

Explain the difference between block-level and inline-level elements in HTML.

Answer: Block-level elements take up the full width available, starting on a new line, while inline-level elements only take up as much width as necessary and do not start on a new line.

Explain the difference between <link> and @import in HTML/CSS.

- **Answer:** <link> is an HTML element used to link external CSS files, whereas @import is a CSS at-rule used to import stylesheets within CSS files. <link> is preferred for better performance and older browser compatibility.

```
<link rel="stylesheet" href="styles.css">
@import url('styles.css');
```

CSS:

Explain CSS Grid and how it differs from Flexbox.

Answer: CSS Grid is a layout system optimized for two-dimensional layouts, allowing for precise control over rows and columns. Flexbox is more suited for one-dimensional layouts. Grid can create complex layouts with minimal code.

Explain the concept of CSS Specificity and how it is calculated.

- **Answer:** CSS specificity determines which CSS rule is applied when multiple rules could apply to the same element. It is calculated based on the type of selectors used:
- Inline styles: 1000 points
- ID selectors: 100 points
- Class, attribute, and pseudo-class selectors: 10 points
- Type and pseudo-element selectors: 1 point The highest specificity rule is applied.

What is the difference between position: relative, position: absolute, and position: fixed?

- **Answer:**
  - relative: Positioned relative to its normal position.
  - absolute: Positioned relative to the nearest positioned ancestor.
  - fixed: Positioned relative to the viewport, remaining in the same place even during scrolling.

What are CSS Combinators and how are they used? Provide examples.

- **Answer:** CSS Combinators are used to define the relationship between selectors.
- **Descendant combinator ( )**: Targets elements that are descendants of a specified element.

```
div p {
    color: red;
}
```

Child combinator (>): Targets elements that are direct children of a specified element.

```
div > p {
    color: blue;
}
```

Adjacent sibling combinator (+): Targets an element that is the next sibling of a specified element.

```
h1 + p {
    color: green;
}
```

General sibling combinator (~): Targets elements that are siblings of a specified element.

```
h1 ~ p {
    color: orange;
}
```

Explain the difference between display: none and visibility: hidden.

- **Answer:**
- display: none removes the element from the document flow, and it does not take up any space.
- visibility: hidden makes the element invisible but still takes up space in the document flow.

Gallery Task on HTML and CSS :

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Responsive Image Gallery</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <header>
        <h1>Responsive Image Gallery</h1>
    </header>
    <main>
        <div class="gallery">
            <img src="image1.jpg" alt="Image 1">
            <img src="image2.jpg" alt="Image 2">
            <img src="image3.jpg" alt="Image 3">
            <img src="image4.jpg" alt="Image 4">
            <img src="image5.jpg" alt="Image 5">
            <img src="image6.jpg" alt="Image 6">
        </div>
    </main>
</body>
</html>
```

```css
body {
    font-family: Arial, sans-serif;
    margin: 0;
    padding: 0;
    box-sizing: border-box;
}

header {
    text-align: center;
    padding: 20px;
    background-color: #333;
    color: white;
}

.gallery {
    display: grid;
    grid-template-columns: repeat(auto-fill, minmax(200px, 1fr));
    gap: 10px;
    padding: 10px;
}

.gallery img {
    width: 100%;
    height: auto;
    transition: transform 0.3s, box-shadow 0.3s;
}

.gallery img:hover {
    transform: scale(1.05);
    box-shadow: 0 4px 8px rgba(0, 0, 0, 0.2);
}
```