1. *Explain how CSS differs from HTML in web development.*

HTML, or Hyper Text Markup Language, serves as the foundational framework for organizing and structuring the content on a web page, allowing elements such as headings, paragraphs, and images to be arranged in a coherent manner. On the other hand, CSS, or Cascading Style Sheets, is responsible for enhancing the visual appearance of this content. It enables designers to add colors, fonts, layouts, and various styles, transforming a plain web page into an aesthetically pleasing and engaging user experience.

1. *List the methods of including CSS in an HTML document and briefly describe each.*

CSS (Cascading Style Sheets) can be integrated into HTML through three main methods:

i. External Style Sheet: This involves linking to a separate CSS file, allowing uniform styling across an entire website. Updates to the stylesheet instantly reflect on all linked pages, ensuring consistency.

ii. Inline Styles: This method applies styles directly within HTML elements using the style attribute. While it allows for specific styling, it can lead to duplicated code and is less maintainable.

iii. Internal Styles: CSS rules are placed within a “<style>” element in the HTML document's “<head>”. This is suitable for small sites or single-page styling but can complicate maintenance for larger projects.

1. *Describe the anatomy of a CSS rule.*

A CSS ruleset is composed of two main components: an element selector and a block of property declarations. The selector is responsible for identifying which HTML elements will receive specific styles, while the properties declaration block contains the various style rules that define how those selected elements should be presented on the page. This structure allows for precise control over the visual appearance of web content, enabling developers to create visually appealing and well-organized layouts.

1. *When might you want to use RGBA instead of RGB?*

In cases where some degree of color transparency is needed.

1. *How do Hex color values differ from RGB?*

Hex color codes are created using a hashtag (#) followed by a six-digit alphanumeric combination that represents colors in a hexadecimal format. In contrast, the RGB system organizes colors by mixing varying amounts of red, green, and blue components. Each of these primary color elements is measured on a scale from 0 to 255, which allows for a vast array of color possibilities. The combination of these values ultimately defines the final shade displayed.

1. *When might a developer prefer to use HSL over other color formats?*

HSL (Hue, Saturation, Lightness) offers a format that is generally easier for people to understand compared to the HEX color code system. Additionally, the RGB function has been updated to include the option for alpha transparency, allowing users to adjust the opacity of colors without the need to switch to the RGBA format.

1. *What are the primary text properties used in CSS to modify the appearance and layout of text?*

Text-align, text-decoration, text-indent, text-transform, letter-spacing, letter-height.

1. *In what scenarios might it be beneficial to use vh or vw as a unit for font size?*

VW (viewport width) and VH (viewport height) units are measurements that adjust based on the dimensions of the user's screen. This flexibility allows for the creation of responsive typography, meaning that text can scale dynamically and maintain its proportionate size regardless of the device or screen size being used. By utilizing these units, designers can ensure that their text remains legible and visually appealing across various platforms, providing a seamless reading experience for all users.

1. *Explain the difference between em and rem units.*

In CSS, units of measurement are crucial for defining element sizes on a webpage. The "rem" unit, meaning "root em," is relative to the font size of the document's root element (`<html>`), ensuring consistent scaling throughout the document. In contrast, the "em" unit is based on the font size of its immediate parent element. This allows for dynamic sizing but can lead to complexities in nested elements. In summary, rem units provide a stable reference, while em units rely on parent sizes, potentially causing inconsistencies in nested structures.

1. *If multiple font families are listed in the font-family property, how does the browser decide which one to display?*

When a user accesses a webpage, their browser first checks for the presence of the primary font specified in the font list. If this font is installed on their computer, the browser will render the text using that font. In cases where the primary font is unavailable, the browser will sequentially attempt to display the next font in the list. To ensure a consistent fallback option, the last font in the list must always belong to one of the five generic font families: serif, sans-serif, monospace, cursive, or fantasy. This structured approach guarantees that the text remains legible and visually appealing, even if the preferred fonts are not available.