**HTML5**

**Theory Assignment**

1. **HTML Basics:-**

**Question 1: Define HTML. What is the purpose of HTML in web development?**

**HTML** (HyperText Markup Language) is the standard language used to create and structure content on the web. It provides the basic building blocks for web pages by defining elements like headings, paragraphs, links, images, and more.

**Question 2: Explain the basic structure of an HTML document. Identify the mandatory tags and their purposes.**

**Mandatory tags and their purposes:**

* <!DOCTYPE html>: Declares the document type and version of HTML.
* <html>: Root element of the HTML document.
* <head>: Contains meta-information (e.g., title, character encoding, links to CSS).
* <title>: Sets the title of the web page shown in the browser tab.
* <body>: Contains the visible content of the web page.

**Question 3: What is the difference between block-level elements and inline elements in HTML? Provide examples of each.**

**Block-level elements**:

* Take up the full width available.
* Typically used for structuring sections of content.

**Examples**:

* <div>, <p>, <h1> to <h6>, <ul>, <ol>, <li>, <section>

**Question 4: Discuss the role of semantic HTML. Why is it important for accessibility and SEO? Provide examples of semantic elements**.

**Accessibility:** Screen readers and assistive technologies can better understand and navigate the page.

**SEO (Search Engine Optimization):** Search engines better index and rank content that is well-structured and meaningful.

**Maintainability:** Easier for developers to read and manage code.

**Examples of semantic elements**:

* <header>: Represents the header of a page or section.
* <nav>: Defines navigation links.
* <main>: Highlights the main content of the document.
* <article>: Specifies independent, self-contained content.
* <section>: Groups related content thematically.
* <footer>: Represents the footer for a page or section.
* <aside>: Content indirectly related to the main content

1. **HTML Forms:-**

**Question 1: What are HTML forms used for? Describe the purpose of the input, textarea, select, and button elements.**

**HTML forms** are used to **collect user input** and send it to a server for processing

**<input>**: A versatile element used to collect single-line data like text, email, password, dates, and more.

* Example:

<input type="text" name="username" />

**<textarea>**: Used for **multi-line text input**, like comments or messages.

* Example:

<textarea name="message" rows="4" cols="50"></textarea>

**<select>**: Provides a **drop-down list** of options.

* Example:

<select name="country">

<option value="us">United States</option>

<option value="ca">Canada</option>

</select>

**<button>**: Represents a clickable **button**, typically used to submit or reset the form

Example:

<button type="submit">Submit</button>

**Question 2: Explain the difference between the GET and POST methods in form submission. When should each be used?**

**GET Method**:

* Appends form data to the **URL** as query parameters.
* **Visible** in the browser’s address bar.
* **Not secure** for sensitive data.

<form method="get" action="/search">

**POST Method**:

* Sends form data **in the body** of the HTTP request.
* **More secure** (especially when used with HTTPS).
* **Not visible** in the URL.
* **Best for**: Submitting sensitive data, such as passwords, or large amounts of data.

<form method="post" action="/submit">

**Question 3: What is the purpose of the label element in a form, and how does it improve accessibility?**

* The **<label>** element defines a **caption for a form control** (e.g., input or select)

<label for="email">Email:</label>

<input type="email" id="email" name="email" />

1. **HTML Tables:-**

**Question 1: Explain the structure of an HTML table and the purpose of each of the following elements: <table>, <tr>, <th>, <td>and <thead>.**

**HTML tables** are used to display data in rows and columns.

**Main table elements:**

* **<table>**: The container element that defines the table.
  + Example: <table> ... </table>
* **<tr>** (table row): Defines a single **row** in the table.
  + Example: <tr> ... </tr>
* **<th>** (table header): Defines a **header cell** in a row (usually bold and centered by default).
  + Use inside <thead> or <tr>.
  + Example: <th>Name</th>
* **<td>** (table data): Defines a **regular cell** containing data.
  + Use inside a <tr>.
  + Example: <td>John</td>
* **<thead>**: Groups the **header content** of a table.
  + Improves semantics and accessibility.
  + Typically used along with <tbody> .

**Question 2: What is the difference between colspan and rowspan in tables? Provide examples.**

Both attributes allow cells to span **multiple columns or rows**, making complex tables easier to create.

* **colspan**: Makes a cell span **multiple columns**.
* **rowspan**: Makes a cell span **multiple rows**.

**Question 3: Why should tables be used sparingly for layout purposes? What is a better alternative?**

**Tables should be used only for displaying tabular data**, not for page layout, for several reasons:

**Problems with using tables for layout:**

* **Accessibility**: Screen readers have trouble interpreting non-tabular tables.
* **Maintainability**: Harder to edit and update compared to CSS-based layouts.
* **Responsiveness**: Tables don’t adapt well to different screen sizes (like mobile).
* **Semantics**: Misuses HTML structure, which harms SEO and accessibility.

**Better alternative:**

* Use **CSS with semantic HTML** (like <div>, <section>, <header>, <main>, etc.) and layout techniques such as:
  + **Flexbox**
  + **CSS Grid**