**Module 15- HTML in Full Stack**

**Theory Assignment**

**1. HTML Basics**

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

**Answer:**  
HTML (HyperText Markup Language) is the standard markup language used to create and structure webpages. It provides the basic framework of a webpage by defining elements such as headings, paragraphs, links, images, and other multimedia.  
The purpose of HTML in web development is:

* To structure the content of a webpage.
* To organize text, images, and other resources for display in browsers.
* To act as the foundation for styling (using CSS) and functionality (using JavaScript).

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

**Answer:**  
The basic structure of an HTML document includes the following mandatory tags:

<!DOCTYPE html> → Defines the document type and version of HTML.

<html> → Root element that wraps the entire document.

<head> → Contains metadata (title, character set, links to CSS, etc.).

<title> → Defines the title of the webpage (appears in browser tab).

<body> → Contains all visible content of the webpage.

**Example structure:**

<!DOCTYPE html>

<html>

<head>

<title>My First Webpage</title>

</head>

<body>

<h1>Hello, World!</h1>

</body>

</html>

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

**Answer:**

* **Block-level elements:**  
  These elements take up the full width of the page, always starting on a new line. They are used for larger structural sections.  
  **Examples:** <div>, <p>, <h1> to <h6>, <section>, <article>, <header>.
* **Inline elements:**  
  These elements take only as much width as necessary and do not start on a new line. They are used within text.  
  **Examples:** <span>, <a>, <strong>, <em>, <img>.

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

**Answer:**  
**Role of Semantic HTML:**  
Semantic HTML uses meaningful tags that describe the role and purpose of the content, instead of just how it looks.

**Importance:**

* **Accessibility:** Screen readers and assistive technologies can better interpret content, making websites usable for people with disabilities.
* **SEO (Search Engine Optimization):** Search engines can understand webpage content more accurately, improving ranking and visibility.

**Examples of semantic elements:**

* <header> → Defines the header section of a webpage.
* <footer> → Defines the footer section.
* <article> → Represents an independent piece of content.
* <section> → Represents a thematic grouping of content.
* <nav> → Represents navigation links.

**Lab Assignment**

**Task:** Create a simple HTML webpage.

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>HTML Basics Page</title>

</head>

<body>

<!-- Header Section -->

<header>

<h1>Welcome to My Webpage</h1>

</header>

<!-- Main Content -->

<main>

<p>This is a simple webpage created using HTML. It contains text, lists, links, and sections.</p>

<!-- Ordered List -->

<h2>Ordered List</h2>

<ol>

<li>HTML</li>

<li>CSS</li>

<li>JavaScript</li>

</ol>

<!-- Unordered List -->

<h2>Unordered List</h2>

<ul>

<li>Web Development</li>

<li>Design</li>

<li>Programming</li>

</ul>

<!-- Link -->

<p>

Visit <a href="https://www.w3schools.com" target="\_blank">W3Schools</a> to learn more about HTML.

</p>

</main>

<!-- Aside Section -->

<aside>

<h3>Note:</h3>

<p>This is an aside section, often used for side notes or advertisements.</p>

</aside>

<!-- Footer Section -->

<footer>

<p>&copy; 2025 My First Webpage</p>

</footer>

</body>

</html>

**2. HTML Forms**

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

**Answer:**  
HTML forms are used to collect user input and send it to a server for processing. They play a crucial role in web applications such as user registration, login, surveys, search bars, and contact forms.

* **<input>**: Used for different types of user input like text, email, password, number, date, etc.
* **<textarea>**: Used for multi-line text input, such as writing a message or feedback.
* **<select>**: Provides a dropdown menu from which users can choose one (or multiple) options.
* **<button>**: Represents a clickable button, commonly used to submit or reset a form.

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

**Answer:**

* **GET Method:**
  + Sends form data appended in the URL.
  + Data is visible in the address bar.
  + Suitable for requests where no sensitive information is involved.
  + Example use: Search queries, filtering products.
* **POST Method:**
  + Sends form data inside the body of the HTTP request.
  + Data is not visible in the URL.
  + More secure and can handle large amounts of data.
  + Example use: Login forms, registration forms, payment processing.

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

**Answer:**  
The **<label>** element is used to provide a descriptive name for form controls (input, textarea, select). When linked to an input using the **for attribute**, it allows users to click the label to focus the input field.

This improves **accessibility** because:

* Screen readers can identify form fields correctly.
* It provides a larger clickable area, improving usability for users with mobility impairments.

**Lab Assignment**

**Task: Contact Form**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Contact Form</title>

</head>

<body>

<h2>Contact Us</h2>

<form action="#" method="POST">

<!-- Full Name -->

<label for="fullname">Full Name:</label>

<input type="text" id="fullname" name="fullname" required minlength="3" maxlength="50">

<br><br>

<!-- Email -->

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

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

<br><br>

<!-- Phone Number -->

<label for="phone">Phone Number:</label>

<input type="tel" id="phone" name="phone" pattern="[0-9]{10}" required>

<small>(Enter 10-digit phone number)</small>

<br><br>

<!-- Subject -->

<label for="subject">Subject:</label>

<select id="subject" name="subject" required>

<option value="">--Select--</option>

<option value="general">General Inquiry</option>

<option value="support">Support</option>

<option value="feedback">Feedback</option>

<option value="other">Other</option>

</select>

<br><br>

<!-- Message -->

<label for="message">Message:</label>

<textarea id="message" name="message" rows="5" required minlength="10" maxlength="500"></textarea>

<br><br>

<!-- Submit Button -->

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

</form>

</body>

</html>

**3. 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>.**

**Answer:**  
An HTML table is used to display data in a structured, row-and-column format.

* **<table>** → Defines the beginning and end of a table.
* **<tr> (Table Row)** → Defines a row inside the table.
* **<th> (Table Header Cell)** → Defines a header cell, usually displayed in bold and centered.
* **<td> (Table Data Cell)** → Defines a regular cell containing data.
* **<thead>** → Groups the table’s header rows, improving readability and accessibility.

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

**Answer:**

* **colspan**: Merges multiple columns into a single cell.  
  Example:
* <td colspan="2">Merged across 2 columns</td>
* **rowspan**: Merges multiple rows into a single cell.  
  Example:
* <td rowspan="2">Merged across 2 rows</td>

**Difference:**

* colspan works horizontally (across columns).
* rowspan works vertically (across rows).

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

**Answer:**  
Tables should be used **sparingly for layout purposes** because:

* They make web pages harder to maintain.
* They are not responsive by default.
* Screen readers may have difficulty interpreting them when not used for tabular data.

**Better alternative:**

* Use **CSS layout techniques** like **Flexbox** or **CSS Grid**, which are more flexible, accessible, and responsive.

**Lab Assignment**

**Task: Product Catalog Table**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Product Catalog</title>

</head>

<body>

<h2>Product Catalog</h2>

<table border="1" cellspacing="0" cellpadding="8" style="border-collapse: collapse; width: 80%; text-align: center;">

<thead style="background-color: #f2f2f2;">

<tr>

<th>Product Name</th>

<th>Product Image</th>

<th>Price</th>

<th>Description</th>

<th>Availability</th>

</tr>

</thead>

<tbody>

<tr>

<td rowspan="2">Smartphone</td>

<td><img src="https://via.placeholder.com/80" alt="Smartphone"></td>

<td>$500</td>

<td>High-performance smartphone with 128GB storage.</td>

<td>In Stock</td>

</tr>

<tr>

<td><img src="https://via.placeholder.com/80" alt="Smartphone"></td>

<td>$450</td>

<td>Basic version with 64GB storage.</td>

<td>Out of Stock</td>

</tr>

<tr>

<td>Laptop</td>

<td><img src="https://via.placeholder.com/80" alt="Laptop"></td>

<td colspan="2">Price starts from $800 (varies by configuration)</td>

<td>In Stock</td>

</tr>

<tr>

<td>Headphones</td>

<td><img src="https://via.placeholder.com/80" alt="Headphones"></td>

<td>$50</td>

<td>Wireless headphones with noise cancellation.</td>

<td>In Stock</td>

</tr>

</body>

</table>

</body>

</html>