1. HTML Basics – Theory Assignment

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

Answer:
HTML (Hyper Text Markup Language) is the standard language used to create and structure content on the web. It is the backbone of all web pages and tells the browser how to display text, images, links, and other elements.

Purpose of HTML in Web Development:

- Defines the structure of a web page.
- Helps organize content using tags and elements.
- Works alongside CSS (for styling) and JavaScript (for interactivity).
- Allows for embedding of images, videos, forms, and links.

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

Answer:

A basic HTML document includes the following structure:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
    <!-- Page content here -->
  </body>
</html>
```

Mandatory Tags and Their Purposes:

- <!DOCTYPE html>: Declares the document type and version (HTML5).
- <html>: Root element that wraps all HTML content.
- <head>: Contains metadata like title, character set, and links to styles/scripts.
- <title>: Specifies the title shown on the browser tab.
- <body>: Contains the visible content of the web page (text, images, links, etc.).

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

Answer:

Feature	**Block-Level Elements**	**Inline Elements**
Display	Occupy full width of the parent container	Occupy only as much width as needed
Line Behavior	Start on a new line	Do not start on a new line
Common Use	Used for layout and content structure	Used for small parts within block-level
Examples	, <p>, <h1>, <section>	, <a>, , <img>

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

Answer:

Semantic HTML refers to using HTML elements that clearly describe their meaning and purpose in the content. It improves the readability of the code for both developers and machines (like screen readers and search engines).

Importance:

- **Accessibility**: Helps screen readers and assistive technologies understand the structure and meaning of content.
- **SEO (Search Engine Optimization)**: Search engines can better index and rank pages based on meaningful content.

Examples of Semantic Elements:

- <header>: Represents the header of a document or section.
- <nav>: Defines a navigation section.
- <main>: Represents the main content.
- <article>: Represents a self-contained piece of content.
- <section>: Defines sections in a document.
- <footer>: Represents the footer section.

2. HTML Forms – Theory Assignment

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 data from users and send it to a server for processing.

Form Elements:

- <input>: Allows users to enter text, numbers, emails, passwords, etc.
- <text area>: Provides a multi-line input box, suitable for messages or comments.
- <select>: Creates a dropdown list of options.
- <button>: Triggers form submission or custom actions when clicked.

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

Answer:

Feature	**GET Method**	**POST Method**
Data Visibility	Appended to the URL (visible)	Sent in the request body (hidden)
Use Case	Non-sensitive data (e.g., search)	Sensitive data (e.g., login, contact)
Bookmarkable	Yes	No
Data Length Limit	Limited	No limit

When to Use:

- **GET**: When retrieving data (e.g., search filters).
- **POST**: When submitting private or large data (e.g., contact forms).

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

Answer:

The <label> element defines a text label for an input element.

Purpose & Benefits:

- Associates descriptive text with a form field.
- When a user clicks the label, the associated input gets focus.
- Improves accessibility for screen readers by explaining the purpose of the input.
- Helps users with disabilities navigate and fill forms more easily.

Example:

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

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

3. HTML Tables – Theory Assignment

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:

HTML Table Structure:

- <table>: Main tag that defines a table.
- <tr> (Table Row): Defines a single row of cells.
- <th> (Table Header): Defines header cells, usually bold and centered.
- <td> (Table Data): Defines standard data cells.
- <thead>: Groups the header content of a table for better structure and readability.

Example:

```
<table>
  <thead>
    <tr>
      <th>Name</th>
      <th>Age</th>
    </tr>
  </thead>
  <tr>
    <td>John</td>
    <td>25</td>
  </tr>
</table>
```

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

Answer:

Attribute	Function	Example
colspan	Merges multiple columns into one cell	<td colspan="2">Merged Columns</td>
rowspan	Merges multiple rows into one cell	<td rowspan="2">Merged Rows</td>

Purpose: Used to create complex layouts within a table.

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

Answer:
Using tables for layout is discouraged because:

- They are not responsive and don't adapt well to different screen sizes.
- They make the code harder to maintain and understand.
- Not ideal for accessibility or SEO.

Better Alternatives:

- Use **CSS Flexbox** or **CSS Grid** for designing page layouts. These methods are more modern, flexible, and mobile-friendly.