Module 2 – Frontend – HTML

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

ANS:- HTML (HyperText Markup Language) is the standard language used to create and structure content on the web. It defines the elements of a webpage such as headings, paragraphs, links, images, and other content.

Purpose of HTML in web development: HTML provides the foundational structure of a webpage, allowing developers to organize and display content. It ensures that browsers can interpret and render content correctly, creating a structured and accessible web experience for users. Without HTML, web pages wouldn't be able to display any content in a readable format.

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

ANS:-

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Page Title</title>
  </head>
  <body>
    <!-- Content goes here -->
  </body>
</html>
```

1. **<!DOCTYPE html>**:

   - **Purpose**: This declaration defines the document type and version of HTML being used. It tells the browser to expect an HTML5 document.
   - **Mandatory?**: Yes. This is required to ensure that the document is rendered correctly by the browser.

2. **<html>**:
   - **Purpose**: The root element that encloses the entire HTML document. It indicates that the content is written in HTML.
   - **Mandatory?**: Yes. Every HTML document must have this element as the root container.

3. **<head>**:
   - **Purpose**: Contains metadata about the document, such as its character encoding, viewport settings, title, and links to external resources like stylesheets and scripts.
   - **Mandatory?**: Yes, but can be minimal. The <head> section is required, but it can be kept empty or with very basic elements like <meta> and <title>.

4. **<meta>**:
   - **Purpose**: Provides metadata about the HTML document, such as the character encoding (<meta charset="UTF-8">) and viewport settings for responsiveness.
   - **Mandatory?**: No, but it is highly recommended to include at least <meta charset="UTF-8"> for proper encoding.

5. **<title>**:
   - **Purpose**: Sets the title of the document, which is displayed in the browser's title bar or tab.
   - **Mandatory?**: Yes. Every HTML document should have a <title> tag to help identify the page in browsers and search engines.

6. **<body>**:
   - **Purpose**: Contains the actual content of the webpage, such as text, images, links, and other elements visible to the user.
   - **Mandatory?**: Yes. The body section holds all the content that will be rendered on the page.

7. **Content (Within <body>)**:
   - **Purpose**: This is where you place the actual content of your page, such as paragraphs (<p>), images (<img>), links (<a>), headings (<h1> to <h6>), and other elements.

    - **Mandatory?**: No, but without it, the page would be empty.

Summary of Mandatory Tags:

- <!DOCTYPE html>: Declares the document type.
- <html>: The root element that wraps the entire document.
- <head>: Contains metadata about the document.
- <title>: Provides the document title.
- <body>: Holds the content of the page.

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

ANS:- Block-level elements take up the full width of their container and start on a new line. Examples include <div>, <p>, and <h1>. Inline elements only take up as much width as necessary and do not start on a new line. Examples include <span>, <a>, and <strong>. Block elements are used for larger structures, while inline elements format smaller portions of content.

<div>sagar Lakhnotra </div>

<p> peregraf </p>

<h1>Sagar Laknotra </h1>

<a href="https://www.example.com">Visit Example</a>

<p>This is <strong>very important</strong> information.</p>

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

ANS:- Semantic HTML uses meaningful tags to structure content clearly, improving accessibility and SEO. It helps screen readers interpret content for users with disabilities and ensures search engines better understand page context. This leads to improved user experience and search engine rankings.

Examples of semantic elements include <header>, <article>, <nav>, <section>, and <footer>

Task:

- **Create a simple HTML webpage that includes:**

ANS:-

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Simple Webpage</title>
</head>
<body>

    <header>
        <h1>Welcome to My Simple Webpage</h1>
            <ul>
                <li>Home</li>
                <li>About</li>
                <li>Contact</li>
            </ul>

            <ol>
                <li>Home</li>
            <li>About</li>

            <li>Contact</li>

         </ol>


   </header>

   <main>

      <h2>Main Section</h2>

      <p>This is the main content of the webpage. It contains the most
important information.</p>

   </main>




   <aside>

      <h3>Related Information</h3>

      <p>This section contains related content, such as links or ads.</p>

   </aside>


   <footer>

      <p>&copy; 2024 My Simple Webpage. All rights reserved.</p>

   </footer>


</body>

</html>
```

HTML Forms

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

ANS:- HTML forms are used to collect user input, allowing interaction with a webpage. Forms enable the submission of data, like login credentials, feedback, or contact information, to a server for processing.

- The <input> element is used for user input fields such as text, password, or checkboxes. It allows a variety of data types like text, numbers, and emails.
- The <textarea> element is for multi-line text input, allowing users to provide longer responses, such as comments or messages.
- The <select> element creates a dropdown menu, enabling users to choose from a list of predefined options.
- The <button> element is used to create clickable buttons for submitting forms or triggering actions, such as submitting data to the server.

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

ANS:- The GET method appends form data to the URL as query parameters, making it visible in the address bar. It is suitable for retrieving data or performing non-sensitive actions, such as search forms, and has a data size limit due to URL restrictions.

The POST method sends data in the request body, making it more secure for sensitive information like passwords. It is ideal for submitting forms that alter server data, such as login or registration forms, and can handle larger amounts of data.

Use GET for non-sensitive data retrieval and POST for sensitive data submission or when data changes the server state.

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

ANS:- The <label> element in a form provides a description for form controls. It improves accessibility by linking the label text to the input, making it easier for screen readers to announce the input's purpose. It also allows users to click the label to focus on the associated input, improving usability, especially for users with motor impairments.

Task:

Create a contact form with the following fields:

⇒ Full name (text input)

⇒ Email (email input)

⇒ Phone number (tel input)

⇒ Subject (dropdown menu)

⇒ Message (textarea)

⇒ Submit button

ANS:-

```
<!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>
    <h1>Contact Us</h1>
    <form action="#" method="post">
        <label for="fullname">Full Name:</label>
        <input type="text" id="fullname" name="fullname" required minlength="2" maxlength="50"><br><br>

        <label for="email">Email:</label>
        <input type="email" id="email" name="email" required><br><br>

        <label for="phone">Phone Number:</label>
        <input type="tel" id="phone" name="phone" required pattern="[0-9]{10}"><br><br>

        <label for="subject">Subject:</label>
        <select id="subject" name="subject" required>
            <option value="">Select a subject</option>
            <option value="inquiry">Inquiry</option>
            <option value="feedback">Feedback</option>
            <option value="support">Support</option>
        </select><br><br>

        <label for="message">Message:</label>
        <textarea id="message" name="message" required minlength="10" maxlength="500"></textarea><br><br>

        <button type="submit">Submit</button>
    </form>
</body>
</html>
```

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>.

ANS:-

- <table>: Defines the entire table structure and holds all the table elements.
- <tr>: Represents a row in the table, containing cells like <th> or <td>.
- <th>: Defines a header cell in the table, typically bold and centered, used for column titles. <td>: Defines a regular data cell, used to store table content. <thead>: Groups the header section of the table, containing header rows (<tr>).

```
<table>
    <thead>
        <tr>
            <th>Header 1</th>
            <th>Header 2</th>
            <th>Header 3</th>
        </tr>
    </thead>
    <tbody>
        <tr>
            <td>Data 1</td>
            <td>Data 2</td>
            <td>Data 3</td>
        </tr>
        <tr>
            <td>Data 4</td>
            <td>Data 5</td>
            <td>Data 6</td>
        </tr>
    </tbody>
</table>
```

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

examples.

ANS:-

- colspan allows a cell to span across multiple columns, merging cells horizontally in a row.
- rowspan enables a cell to span across multiple rows, merging cells vertically within a column.
- Both attributes are used in table cells (<td> or <th>) to control the cell's span, adjusting the table's layout.

```
 <table border="1">

  <tr>

    <td colspan="2">Header spanning two columns</td>

    <td rowspan="2">Cell spanning two rows</td>

  </tr>

  <tr>

    <td>Row 2, Cell 1</td>

    <td>Row 2, Cell 2</td>

  </tr>

</table>
```

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

alternative?

ANS:-

Tables should be used sparingly for layout purposes because they are not semantically appropriate for structuring web content, which can negatively impact accessibility, search engine optimization (SEO), and responsiveness. Tables were designed for displaying tabular data, not for page layout. A better alternative is using CSS (Cascading Style Sheets) for layout, which provides more flexibility, ensures better accessibility, and allows for responsive designs across different devices. CSS layouts such as Flexbox and Grid are widely used and more efficient.

Task:

- **Create a product catalog table that includes the following columns:**
    - ⇒ **Product Name**
    - ⇒ **Product Image (use placeholder image URLs)**
    - ⇒ **Price**
    - ⇒ **Description**
    - ⇒ **Availability (in stock, out of stock)**

ANS:-

```
<!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>
    <h1>Product Catalog</h1>
<table border="">
        <thead>
            <tr>
                <th colspan="5">Product Data</th>
            </tr>
            <tr>
                <th>Product Name</th>
                <th>Product Image</th>
                <th>Price</th>
                <th>Description</th>
                <th>Availability</th>
            </tr>
        </thead>
        <tbody>
            <tr>
                <td>Mobile</td>
                <td><img
src="https://rukminim2.flixcart.com/image/312/312/xif0q/mobile/p/r/b/nord-
```

```
ce-3-lite-5g-ce2099-oneplus-original-imagzj42cctpjjze.jpeg?q=70" alt="Product
1" width="100px"></td>
                <td>Rs- 19,999</td>
                <td>Basic description of Product 1</td>
                <td>In stock</td>
            </tr>
            <tr>
                <td>Leptop</td>
                <td><img
src="https://rukminim2.flixcart.com/image/312/312/xif0q/computer/x/0/k/14
iah8-thin-and-light-laptop-lenovo-original-imahfyrf9zzhzyy5.jpeg?q=70"
width="100px" alt="Product 2"></td>
                <td>Rs-52,000</td>
                <td>Basic description of Product 2</td>
                <td rowspan="2">Out of stock</td>
            </tr>

            <tr>
                <td>buds</td>
                <td><img
src="https://rukminim2.flixcart.com/image/612/612/xif0q/headphone/p/0/p/-
original-imagp6skfbnypq5g.jpeg?q=70" width="100px" alt="Product 3"></td>
                <td>Rs-999</td>
                <td>Noise Buds VS102 with 50 Hrs Playtime,</td>
            </tr>
        </tbody>
    </table>
</body>
```

```
</html>
```