Module 2 – Frontend

HTML HTML Basics

Theory Assignment

• 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, images, links, and forms, using a system of tags.

The purpose of HTML in web development is to structure the content and provide a foundation for building webpages. It allows browsers to render text, multimedia, and interactive elements, making websites accessible and user-friendly.

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

ANS:- Basic Structure of an HTML Document:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Document </title>
  </head>
  <body>

  </body>
</html>
```

Explanation of Mandatory Tags:

1. <!DOCTYPE html>:- This declaration defines the document type and version of HTML. For modern web development, <!DOCTYPE html> specifies HTML5, ensuring the page is rendered correctly by browsers.
2. <html>:- This is the root element of the HTML document. All other elements (except for <!DOCTYPE>) are nested inside the <html> tag.
3. <head> :- Contains metadata about the document, such as the character encoding, title, and links to external files like CSS or JavaScript.

4. <meta charset="UTF-8">:- Specifies the character encoding for the document. UTF-8 ensures that special characters (like accents or non-Latin letters) are displayed correctly.
5. <title> :- Sets the title of the webpage, which appears in the browser's tab or title bar.
6. <body> :- Contains the visible content of the webpage (text, images, videos, links, etc.).

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

ANS:- In HTML, elements are divided into two main categories based on their behavior in the document layout: block-level elements and inline elements. These categories dictate how elements are displayed and how they interact with other content.

block elements :- <p>, <h1> to <h6>,

<div>Box</div>

<p> hello html</p>

<h1>hello html </h1>

inline elements:- <a>, <img>

google

<img src = "book.jpg"   alt = "notebook img" height = "200px" width = "200px">

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

ANS:- Semantic HTML plays a vital role in improving both accessibility and SEO by providing meaningful structure to web content. For accessibility, semantic elements help screen readers interpret content logically, ensuring users with disabilities can navigate websites easily. For SEO, search engines use semantic tags to understand content context, improving search rankings. Elements like <header>, <footer>, <article>, and <section> organize content, making it easier for both users and search engines to understand the page's structure. This leads to better user experience and higher visibility in search results.

 Lab Assignment Task:

• Create a simple HTML webpage that includes:

⇒ A header (<header>), footer (<footer>), main section (<main>), and aside section (<aside>).

⇒ A paragraph with some basic text.

⇒ A list (both ordered and unordered).

⇒ A link that opens in a new tab.

Ans :-<!DOCTYPE html>

<html lang="en">

<head>

   <meta charset="UTF-8">

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

   <title>Webpage</title>

</head>

<body>

   <header>

     <h1>My Webpage</h1>

   </header>

   <main>

     <h2>Introduction</h2>

     <p>This is a simple webpage demonstrating semantic HTML elements.</p>

       HTML

       CSS

       JavaScript

       HTML

       CSS

       JavaScript

```
      </ol>

      <a href="https://www.google.com">google</a>

   </main>


   <aside>

      <h3>Related Topics</h3>

      <p>Explore more about HTML, CSS, and JavaScript.</p>

   </aside>


   <footer>

      <p>&copy; 2024 My Webpage</p>

   </footer>


</body>

</html>
```

HTML Forms

Theory Assignment

• 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 and submit user input, such as data from registration, login, or feedback forms. The <input> element creates various types of interactive fields like text, checkboxes, and buttons. The <textarea> element allows users to input longer, multi-line text. The <select> element creates a dropdown menu for selecting from multiple options. The <button> element is used to trigger actions like submitting or resetting the form. Together, these elements facilitate user interaction and data submission on websites.

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

Ans:- The GET method sends form data as part of the URL, making it visible in the browser's address bar. It is best used for retrieving data or submitting non-sensitive information, like search queries, as it has size limitations. The POST method sends data in the request body, keeping it hidden from the URL and allowing for larger, more secure data submission. POST is ideal for sending sensitive information, passwords, payment details or when data changes the state of the server, like submitting a registration form.

• 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 is used to define a label for an input field, improving clarity by associating descriptive text with the corresponding form control. It enhances accessibility by allowing screen readers to read out the label text when the user focuses on the input field. Additionally, clicking on the label can focus the associated input, making it easier for users to interact with forms. This is particularly helpful for users with disabilities, providing a more inclusive and user-friendly experience.

Lab Assignment

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**

Additional Requirements:

⇒ **Use appropriate form validation using required, minlength, maxlength, and pattern.**

⇒ Link form labels with their corresponding inputs using the for attribute.

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>

   <h2>Contact Us</h2>

   <form name="Contact Us" action="Basics.html" method="POST">

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

     <input type="text" id="fullname" name="fullname" required minlength="2" maxlength="50" placeholder="Enter your full name">

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

     <input type="email" id="email" name="email" required placeholder="Enter your email">

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

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

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

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

    <option value="">Select a subject</option>

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

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

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

</select>

<br><br>


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

<textarea id="message" name="message" required  minlength="10"
maxlength="500" placeholder="Enter your message" rows="4" cols="50"></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:- An HTML table is used to organize data in rows and columns. The <table> element defines the entire table. The <tr> element is used to define a table row, containing either header or data cells. The <th> element is used for table headers,

which are typically bold and centered, indicating the type of data in the columns. The <td> element defines a data cell, containing the actual information. The <thead> element groups the header content, making it easier to style and manage large tables with multiple sections.

• Question 2: What is the difference between colspan and rowspan in tables? Provide examples.
Ans:-
The colspan and rowspan attributes in HTML tables are used to merge cells across columns or rows.

colspan: Merges multiple cells horizontally across columns. For example, <td colspan="2"> will span two columns.
rowspan: Merges cells vertically across rows. For example, <td rowspan="3"> will span three rows.

Example:-
```
<table >
    <tr>
     <td colspan="2">Header spanning 2 columns</td>
    </tr>
    <tr>
     <td rowspan="2">Cell spanning 2 rows</td>
     <td>Data 1</td>
    </tr>
    <tr>
     <td>Data 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 were originally designed to display tabular data, not to structure page layouts. Using tables for layout can make the HTML code less semantic, harder to maintain, and less accessible, especially for screen readers. It also complicates responsive design. A better alternative is to use CSS with layout techniques like Flexbox or CSS Grid. These methods provide more control over the design, are more efficient, and separate content from presentation, improving accessibility and adaptability.

Lab Assignment

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)**

Additional Requirements:
⇒ **Use thead for the table header.**
⇒ **Add a border and some basic styling using inline CSS.**
⇒ **Use colspan or rowspan to merge cells where applicable**

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>
    <h2>Product Catalog</h2>
    <table border>
        <thead >
            <tr>
                <th>Product Name</th>
                <th>Product Image</th>
                <th>Price</th>
                <th>Description</th>
                <th>Availability</th>
            </tr>
        </thead>
        <tbody>
            <tr>
                <td>Smartphone</td>
                <td><img
src="https://rukminim2.flixcart.com/image/312/312/xif0q/mobile/h/g/z/-original-
imah7jsp8bh3s4rv.jpeg?q=70" alt="Smartphone" width="100"></td>
                <td>RS-14,999</td>
```

```html
        <td>Latest model with 5G support, 128GB storage</td>
        <td>In stock</td>
      </tr>
      <tr>
        <td>Laptop</td>
        <td><img
src="https://rukminim2.flixcart.com/image/312/312/xif0q/computer/m/b/n/-original-
imagfdf4xnbyyxpa.jpeg?q=70" alt="Laptop" width="100"></td>
        <td>RS-73,990</td>
        <td>15-inch laptop with Intel i7 processor, 16GB RAM</td>
        <td>In stock</td>
      </tr>
      <tr>
        <td>Headphones</td>
        <td><img
src="https://rukminim2.flixcart.com/image/612/612/xif0q/headphone/e/a/f/-original-
imagtc44nk4b3hfg.jpeg?q=70" alt="Headphones" width="100"></td>
        <td>RS-1499</td>
        <td>Noise-canceling wireless headphones</td>
        <td rowspan="2">Out of stock</td>
      </tr>
      <tr>
        <td>Smart Watch</td>
        <td><img
src="https://rukminim2.flixcart.com/image/612/612/xif0q/smartwatch/5/5/p/-original-
imagxxfxnwbgfgjx.jpeg?q=70" alt="Smart Watch" width="100"></td>
        <td>RS-1999</td>
        <td>Water-resistant smartwatch with heart rate monitor</td>
      </tr>
    </tbody>
  </table>
</body>
</html>
```