**Module 2 – Frontend – HTML**

HTML Basics

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

**HTML** stands for **HyperText Markup Language**.  
It is the **standard language** used to **create and structure** content on the web.

**Purpose in Web Development:**

* It provides the **skeleton** of a webpage.
* Defines **headings, paragraphs, links, images, tables**, etc.
* Works together with **CSS (for design)** and **JavaScript (for interactivity)**.

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

**Basic Structure:**

html

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<!DOCTYPE html>

<html>

<head>

<title>Page Title</title>

</head>

<body>

<h1>Hello World</h1>

<p>This is a paragraph.</p>

</body>

</html>

**Mandatory Tags and Their Purposes:**

| **Tag** | **Purpose** |
| --- | --- |
| <!DOCTYPE html> | Declares the document type and version (HTML5 here) |
| <html> | Root element that wraps the entire HTML document |
| <head> | Contains meta information (title, links, scripts, etc.) |
| <title> | Sets the title of the webpage (seen on the browser tab) |
| <body> | Contains the content that appears on the web page |

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

| **Feature** | **Block-Level Elements** | **Inline Elements** |
| --- | --- | --- |
| Display | Start on a **new line** and take **full width** | Appear **within a line** and take only **necessary width** |
| Layout | Used for **structuring** the page | Used for **formatting** small parts of content |
| Examples | <div>, <p>, <h1>, <ul>, <table> | <span>, <a>, <strong>, <img>, <em> |

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

**Semantic HTML** means using HTML tags that **clearly describe their meaning** and **content purpose**.

**Importance:**

* **Accessibility**: Helps screen readers understand the structure and content.
* **SEO**: Search engines can better index and rank your website.
* **Readability**: Makes code easier for developers to understand.

**Examples of Semantic Elements:**

| **Tag** | **Meaning** |
| --- | --- |
| <header> | Defines the top section or navigation |
| <nav> | Represents site navigation |
| <main> | Represents the main content |
| <article> | Represents a self-contained piece of content |
| <section> | Groups related content |
| <footer> | Bottom section with contact info, links, etc. |
|  |  |

HTML Forms

**Question 1: What are HTML forms used for?**

HTML **forms** are used to **collect user input** and send it to a server.  
Examples: login forms, registration forms, search bars, feedback forms, etc.

**Common Form Elements and Their Purpose:**

| **Element** | **Purpose** |
| --- | --- |
| <input> | Used to create various types of input fields like text boxes, checkboxes, radio buttons, etc. |

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

| **Feature** | **GET** | **POST** |
| --- | --- | --- |
| Data Visibility | Data is visible in the **URL** | Data is **hidden** in the request body |
| Use Case | For **searching, filtering** (non-sensitive data) | For **login, registration** (sensitive data) |
| Bookmarking | Can be **bookmarked** | Cannot be bookmarked |
| Data Length | Limited (URL length restriction) | No major limit |
| Example | example.com/search?query=html | Sends data securely without showing it in the URL |

#### ✅ ****Use GET**** when:

* You’re retrieving or searching for data (e.g., search form)

#### ✅ ****Use POST**** when:

* You’re sending sensitive or large data (e.g., login, feedback)

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

The <label> tag is used to **describe or identify** an input field in a form.

#### ****Why It’s Important:****

* It connects **text descriptions** with form fields.
* Improves **accessibility** by helping **screen readers** and users with disabilities understand what the input field is for.
* Clicking on the label also **activates the input**, improving usability.

#### ****Example:****

html

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

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

Here, the for="email" connects the label to the input with id="email".

HTML Tables

**Question 1: Explain the structure of an HTML table and the purpose of each element**

An **HTML table** is used to display **tabular data** (rows and columns).

**Key Elements and Their Purpose:**

| **Tag** | **Purpose** |
| --- | --- |
| <table> | The **container** element for all table content |
| <tr> | Stands for **table row**; groups a row of cells |
| <th> | Stands for **table header**; used for **headings** (bold and centered by default) |
| <td> | Stands for **table data**; used for **normal data cells** |
| <thead> | Groups the **header rows** of a table; improves structure and readability |

**Example:**

html

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<table>

<thead>

<tr>

<th>Name</th>

<th>Age</th>

</tr>

</thead>

<tr>

<td>Ayush</td>

<td>20</td>

</tr>

</table>

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

| **Attribute** | **Purpose** |
| --- | --- |
| **colspan** | Makes a cell **span across multiple columns** |
| **rowspan** | Makes a cell **span across multiple rows** |

**✅ Example of colspan:**

html

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<tr>

<td colspan="2">Name & Age</td>

</tr>

<tr>

<td>Ayush</td>

<td>20</td>

</tr>

The first row has one cell that spans two columns.

**✅ Example of rowspan:**

html

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<tr>

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

<td>Math</td>

</tr>

<tr>

<td>Science</td>

</tr>

"Ayush" appears once but spans across two rows.

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

#### ****Better Alternative:****

Use **CSS (Cascading Style Sheets)** with:

* **Flexbox** – for 1D layouts (rows or columns)
* **CSS Grid** – for 2D layouts (rows **and** columns)
* Semantic HTML for cleaner structure

#### Example using Flexbox:

html

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<div style="display: flex;">

<div>Name</div>

<div>Age</div>

</div>