Module - 2 : MERN STACK - HTML

Theory Assignment :

Q - 1 : Define HTML. What is the purpose of HTML in web development?
A -1 : HTML is the standard markup language used to create and structure content on the web.
- HTML (HyperText Markup Language) serves as the fundamental building block of web pages, providing the structure and content for everything displayed in a web browser.
- Its primary purposes in web development include:
    - **Structuring Content,**
    - **Defining Semantics,**
    - **Enabling Navigation,**
    - **Embedding Media.**

Q - 2 : Explain the basic structure of an HTML document. Identify the mandatory tags and their purposes.
A - 2 : The basic structure of an HTML document is designed to provide a clear and organized framework for web content.
- Here are the mandatory tags and their purpose.

1. <DOCTYPE>	Defines the document type.
2. <html>	Defines an HTML document.
3. <head>	Contains metadata/information for the document.
4. <title>	Defines a title for the document.
5. <body>	Defines the Document's body.

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

A - 3 : <u>**Block-level elements:**</u>

- **Start on a new line:** They always begin on a new line and occupy the full available width of their parent container.
- **Create a "block" of content:** They effectively create a distinct block that pushes other elements above or below them.
- **Support full box model properties:** They can have top, bottom, left, and right margins, padding, width, and height properties applied to them.
- **Examples:** <div>,<p>,<h1>-<h6>,
,<li>,<table>,<form>.

<u>**Inline elements:**</u>

- **Do not start on a new line:** They flow within the existing line of content and only occupy the necessary width to display their content.
- **Do not create a "block":** They allow other inline elements (or text) to sit directly next to them on the same line.
- **Limited box model properties:** They primarily support horizontal margins and padding (left and right), but top and bottom margins, and explicit width and height properties often have no effect or behave unexpectedly.
- **Examples:** <span>,<a>,<strong>,<em>,<img>,<input>,<label>

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

A - 4 : Semantic HTML uses tags that clearly describe their purpose, improving web content's accessibility, SEO, and maintainability by giving it meaningful structure that browsers, search engines, and users can understand.

- Accessibility and SEO are important because they both serve the core goal of improving user experience, which is a direct ranking factor for search engines.

- **Examples of semantic HTML** elements include <article>,<nav>,<header> and <footer>for structural content, as well as <p> for paragraphs, <h1> to <h6> for headings, and <em> and <strong> for emphasizing text.

Q - 5 : What are HTML forms used for? Describe the purpose of the input, textarea, select, and button elements.

A - 5 : HTML forms are used to collect user input on web pages.
- This input can then be sent to a server for processing or handled by client-side scripts.

- **Purpose of different Elements** :

<input> : This is a versatile element used to create various interactive controls for web-based forms.

<textarea> : This element defines a multi-line text input control. It is used when a user needs to enter a larger amount of text.

<select> : This element creates a dropdown list (or a list box if the size attribute is greater than 1), allowing users to choose one or more options from a predefined list.

<button> : This element represents a clickable button that can be used to submit a form, reset form fields, or trigger a JavaScript function.

Q-6 : Explain the difference between the GET and POST methods in form submission. When should each be used?

A - 6 :

- **GET** is for requesting data and is less secure for sensitive information due to URL visibility and length limitations.
- **POST** is for sending data to the server, offers better security for sensitive information, and has no practical data size limitations.

USE OF GET METHOD :

- Retrieving data from the server (e.g., searching, filtering, displaying a specific page).
- The request is intended to be bookmarkable or shareable.
- The data being sent is not sensitive and is relatively small.
- The request should not alter the server's state.

USE OF POST METHOD :

- Submitting data to create or update resources on the server (e.g., submitting a form to create a new user, posting a comment, uploading a file).
- Sending sensitive data like passwords or credit card information.
- Sending large amounts of data.
- The request is intended to alter the server's state.

Q - 7 : What is the purpose of the label element in a form, and how does it improve accessibility?

A - 7 : The <label> HTML element represents a caption for an item in a user interface.

- It improves accessibility by programmatically linking the label text to the form input, so a screen reader announces the label when the input is focused.

Q - 8 : Explain the structure of an HTML table and the purpose of each of the following elements: <table>, <tr>, <th>, <td>, and <thead>.

A - 8 : An HTML table structures data into rows and columns. The fundamental elements involved in creating a table are :

<table>	This element defines the entire table.
<tr>	This element defines a table row.
<th>	This element defines a table header cell.
<td>	This element defines a table data cell.
<thead>	This element represents the table's header section.

Q - 9 : What is the difference between colspan and rowspan in tables? Provide examples.

A - 9 :

Colspan	Rowspan
merges cells horizontally. It specifies the number of columns a single cell should stretch across.	merges cells vertically. It specifies the number of rows a single cell should stretch down across.

Example of colspan:
 	
\<table\>
 \<tr\>
  \<th colspan="2"\>Name\</th\>
  \<th\>Age\</th\>
 \</tr\>
 \<tr\>
  \<td\>John\</td\>
  \<td\>Doe\</td\>
  \<td\>30\</td\>
 \</tr\>
	Example of rowspan:
	
	\<table\>
	 \<tr\>
	  \<th\>Category\</th\>
	  \<th\>Item\</th\>
	  \<th\>Price\</th\>
	 \</tr\>
	 \<tr\>
	  \<td rowspan="2"\>Electronics\</td\>
	  \<td\>Laptop\</td\>
	  \<td\>$1200\</td\>

</table>	</tr> <tr> <td>Smartphone</td> <td>$800</td> </tr> </table>

Q - 10 : Why should tables be used sparingly for layout purposes? What is a better alternative?

A - 10 : Tables should be used sparingly for layout purposes because they present significant issues for accessibility, are not semantically correct, lead to less flexible designs, and make websites difficult to maintain.

- The better alternative is to use modern CSS techniques, specifically CSS Flexbox and Grid, for all layout needs.