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

HTML (Hyper Text Markup Language) is the standard language used to create and structure web pages. It organizes content using elements and tags, allowing browsers to display text, images, links, and multimedia. HTML is essential in web development for

- Structuring content (headings, paragraphs, lists, etc.)
- Embedding media and links
- Providing semantic meaning for better accessibility and SEO
- Working with CSS and JavaScript for styling and interactivity

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

Basic structure of HTML

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

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

  <title>Document</title>

</head>

<body>

 </body>

</html>
```

Tag	Purpose
<!DOCTYPE html>	Declares the document type and HTML version
<html>	Root element that wraps the entire HTML content.
<head>	Contains meta-information about the document (e.g., title, links, styles).

<title>	Sets the title of the web page (displayed on the browser tab).
<body>	Contains the visible content of the web page

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

Block-level elements

- Start on a new line and take up the full width available.
  Ex. P, div, h1- h6

Inline elements

- **Do not start on a new line**.
- Take up **only as much width as necessary**.
  Ex. Label, input, img

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

semantic HTML uses HTML5 elements that clearly describe the meaning and purpose of the content they contain.

Why is it important for accessibility and SEO? Provide examples of semantic elements.

1. Accessibility

- Helps screen readers and assistive technologies interpret the structure and content of a page more accurately.
- Makes it easier for users with disabilities to **navigate** and **understand** the page.

2. SEO (Search Engine Optimization)

- Search engines use semantic tags to **understand the content** and **context** of your page.
- Improves indexing and ranking by clearly showing what parts of the page are most important.

Ex. Header, footer, nav, main, section

5. What are HTML forms used for? Describe the purpose of the input, text area, select, and button elements.

HTML forms are used to collect user input and send it to a server for processing.

- User registration/login
- Feedback or contact forms
- Searching content
- Submitting orders or data

Describe the purpose of the input, text area, select, and button elements.

input

- Used to create a variety of input fields (text, email, password, checkbox, radio, etc.).
- Its `type` attribute determines the kind of input it accepts.

Text area

- Allows users to enter **multi-line** text (e.g., comments or messages).
- Useful when more detailed input is required.

select

- Creates a dropdown menu with multiple options.
- Often used when the user must choose one option from a list.

button

- Defines a clickable button.
- Can be used to **submit** the form, **reset** it.

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

GET Method

- Visible in the URL.
- Length is limited (URL length limit varies by browser).
- Suitable for non-sensitive data.

Use GET when:

- You want to bookmark or share the URL with data.
- You are performing searches or retrieving data without side effects.

POST Method

- Data is sent in the body of the HTTP request, not visible in the URL.
- No size limitations for form data.
- More secure for transmitting sensitive data (like passwords)

Use POST when:

- Sending sensitive or private information.
- Performing login, registration, payment, or data modification.

7. What is the purpose of the label element in a form, and how does it improve Accessibility?

The `label` element is used to improve usability by clearly indicating what each form field is for.

1. Screen Reader Support

- Screen readers read the label along with the form control, making the form accessible to visually impaired users.

2. Larger Click Area

- When a label is properly associated with a form control, clicking the label automatically focuses or activates the associated input. This is especially helpful on mobile devices or for users with motor impairments.

3. Clear Association

- Ensures a strong, programmatic link between the label and the form element, which helps assistive technologies identify the field's purpose.

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

An HTML table is used to display data in rows and columns. It is made up of several elements that organize and define the content.

Tag	Purpose
`<table>`	The container element for the entire table
`<tr>`	Table row; contains table cells (`<th>` or `<td>`)
`<th>`	Table header cell; usually bold and centered; describes a column or row
`<td>`	Table data cell; contains actual data
`<thead>`	Groups the header section of the table, often used for styling or accessibility

9. What is the difference between colspan and rowspan in tables? Provide Examples.

`colspan` and `rowspan` are attributes used in table cells (`<td>` or `<th>`) to make a cell combine across multiple columns or rows.

Example of colspan

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

```
<body>
   <table border="1px">
  <tr>
   <th colspan="2">Full Name</th>
  </tr>
  <tr>
   <td>Ruhab</td>
   <td>Sabaliya</td>
  </tr>
</table>

</body>
</html>
```

Example of rowspan

```
<!DOCTYPE html>

<html lang="en">

<head>

   <meta charset="UTF-8">

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

   <title>Document</title>

</head>

<body>

   <table border="1">

  <tr>

   <th rowspan="2">Name</th>
```

```
   <td>John</td>
  </tr>
  <tr>
   <td>Doe</td>
  </tr>
</table>
</body>
</html>
```

9. Why should tables be used sparingly for layout purposes? What is a better Alternative?

- Poor Accessibility
  Screen readers and assistive technologies expect tables to contain tabular data, not layout. Using tables for layout can confuse these tools, making navigation difficult for users with disabilities.
- Rigid and Inflexible Design
  Tables create fixed grid structures that don't adapt well to different screen sizes or devices, making responsive design challenging.
- Slower Page Load and Maintenance
  Tables add extra HTML complexity, making the code bulkier and harder to maintain or update.

Modern web development uses CSS for layout control, which is more flexible and semantic.