

CTEVT, DIPLOMA, QUESTION & SOLUTION

Web Technology & Programming I

(For Diploma I Yrs. II Part / II Yrs. I Part)

Second & Third Semester



Published in : www.arjun00.com.np

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SCAN ME
To Visit My Website.



Web Technology & Prog– I (DCOM) 2ndSem

(2078) Question Paper Solution.

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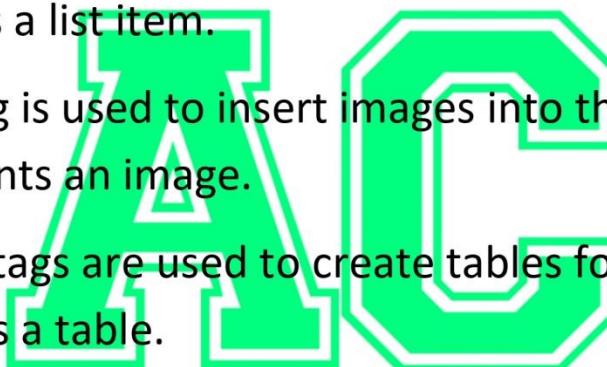
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1. a) Define HTML. Explain the type of tags in HTML.

- **HTML** (Hyper Text Markup Language) is designing language used for designing or creating webpage for Internet. HTML is a set of logical codes called as markup tags, that can be applied and used for defining how the text, image or other information are displayed on the browser.
- Tags can be categorized into different types based on their functionality and purpose. **The main types of tags in HTML:-**
- **Structural Tags:** These tags define the basic structure and layout of the web page.
 - ✓ <html>: Represents the root element of an HTML document.
 - ✓ <head>: Contains meta-information about the document.
 - ✓ <body>: Encloses the visible content of the document.
 - **Heading Tags:** These tags are used to define headings or titles of sections.
 - ✓ <h1> to <h6>: Represents different levels of headings, with <h1> being the highest.
 - **Paragraph Tags:** These tags are used to define paragraphs of text.
 - ✓ <p>: Represents a paragraph.

- **Link Tags:** These tags are used to create hyperlinks to other web pages or resources.
 - ✓ <a>: Creates an anchor or hyperlink.
- **Formatting Tags:** These tags are used to format and style the content.
 - ✓ : Makes the text bold.
 - ✓ <i>: Puts the text in italics.
 - ✓ <u>: Underlines the text.
 - ✓ <s>: Strikes through the text.
- **List Tags:** These tags are used to create ordered or unordered lists.
 - ✓ : Represents an unordered list.
 - ✓ : Represents an ordered list.
 - ✓ : Represents a list item.
- **Image Tag:** This tag is used to insert images into the web page.
 - ✓ : Represents an image.
- **Table Tags:** These tags are used to create tables for tabular data.
 - ✓ <table>: Creates a table.
 - ✓ <tr>: Represents a table row.
 - ✓ <td>: Represents a table cell.
- **Form Tags:** These tags are used to create input forms for user interaction.
 - ✓ <form>: Creates a form.
 - ✓ <input>: Represents an input field.
 - ✓ <button>: Creates a button.



b) Explain about internet protocols and its application.

➤ **Internet Protocol (IP)** is a set of rules and procedures that govern how data is transmitted across the internet. It is the primary set of digital message formats and rules for exchanging messages between computers across a single network or a series of interconnected networks.

➤ Application of internet protocols:-

- **SMTP** :- Simple Mail Transfer Protocol is an email protocol that establishes rules for exchanging information between email clients and accounts.
- **Internet Protocol** :- This protocol routes data packets from one network node to another.
- **File Transfer Protocol** :- This protocol allows file transfers between different hosts in different internetworking environments.
- **Hypertext Transfer Protocol** :- This protocol is used to transfer data over the internet and helps users connect to various web servers.
- **Transmission Control Protocol** :- This protocol ensures end-to-end delivery of data between distinct nodes.
- **Telnet** :- This protocol provides a bidirectional interactive text-oriented communication facility using a virtual terminal connection.
- **DNS**:- This protocol is a naming database that locates and translates domain names into IP addresses.
- **User Datagram Protocol**:- This protocol provides a connectionless datagram service that emphasizes reduced latency over reliability.

**c) What are the purpose of <sub>, <sup>, <strike> and
 tags.**

Explain and <body> tag with its attributes.

▪ **<sub>**

➤ This tag is used to create subscript text, which is typically smaller and positioned below the baseline of the surrounding text. It is commonly used for chemical formulas, mathematical equations, and footnotes.

▪ **<sup>**

➤ This tag is used to create superscript text, which is typically smaller and positioned above the baseline of the surrounding text. It is commonly used for mathematical exponents, footnotes, and citations.

▪ **<strike>**

➤ The <strike> tag is used to indicate that the text it encloses has been struck through or crossed out. It is commonly used to indicate deleted or outdated content.

▪ **
**

➤ The
 tag is a line break tag that inserts a line break or new line within a block of text. It is a self-closing tag and does not require a closing tag.

▪ ****

➤ The tag is an HTML tag that defines the font size, color, and face of text. The tag is used inside the <body> tag. The syntax for the tag is Our Text .

➤ **The tag has three attributes:-**

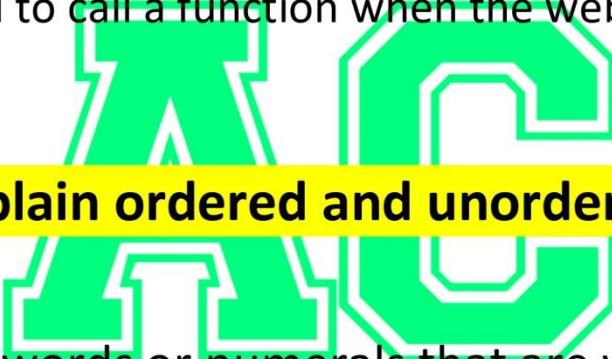
- ✓ Face: Specifies the font family of the text. For example, Arial, Times New Roman, or Verdana.
- ✓ Color: Specifies the color of the text.
- ✓ Size: Specifies the font size.

■ **<body>**

➤ The <body> tag has attributes like arrays, matrices, and linked lists.

The <body> tag has attributes like:

- ✓ Onunload: Used to call a function when a visitor leaves the page.
- ✓ Onblur: Used to call a function when the web page loses its focus.
- ✓ Onerror: Used to call a function when the web page fails to load.



2 a) Define list. Explain ordered and unordered list with an example.

➤ A list is a series of words or numerals that are written or printed together in a meaningful sequence. There are three types of list:-

- ✓ Ordered list
- ✓ Unordered list
- ✓ Description list

■ **Ordered list :-** An ordered list is used when the sequence or order of items is important. Each item in the list is represented by an (list item) tag. By default, ordered lists are numbered sequentially.

For Example :-

```
<ol>
  <li>First item</li>
  <li>Second item</li>
  <li>Third item</li>
</ol>
```

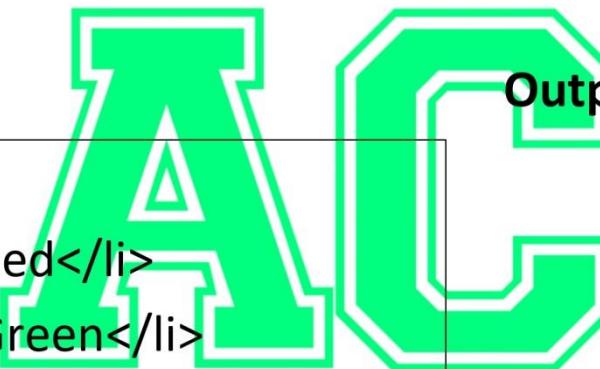
Output:-

```
1. First item
2. Second item
3. Third item
```

- **Unordered list :-** An unordered list is used when the order of items is not significant. Each item in the list is represented by an **** (list item) tag. By default, unordered lists use bullet points to represent each item.

For Example :-

```
<ul>
  <li>Red</li>
  <li>Green</li>
  <li>Blue</li>
</ul>
```



Output:-

```
• Red
• Green
• Blue
```

- **Description list :-** A description list is used to present a list of terms and their corresponding descriptions. It is represented by the **<dl>** element. Each term is represented by a **<dt>** (description term) tag, and its corresponding description is represented by a **<dd>** (description) tag. The **<dt>** and **<dd>** elements are placed within the **<dl>** element.

For Example :-

```
<dl>
<dt>HTML</dt>
<dd>-HyperText Markup Language </dd>
<dt>CSS</dt>
<dd>-Cascading Style Sheets </dd>
<dt>JS</dt>
<dd>-JavaScript</dd>
</dl>
```

Output:-

HTML	-HyperText Markup Language
CSS	-Cascading Style Sheets
JS	-JavaScript

b) List out the attributes and its functions that are included in ** and **<marquee>** tag.**

➤ The **** tag is an HTML tag that defines the font size, color, and face of text. The **** tag is used inside the **<body>** tag. The syntax for the **** tag is ** Our Text **. it is now considered obsolete in HTML5, and its functionality is better achieved using CSS. Nonetheless, if you encounter legacy code or specific requirements, you may still see the **** tag being used.

➤ **The **** tag has three attributes:-**

- ✓ Face: Specifies the font family of the text. For example, Arial, Times New Roman, or Verdana.
- ✓ Color: Specifies the color of the text.
- ✓ Size: Specifies the font size.

<marquee> tag

➤ The HTML <marquee> tag is a non-standard element that scrolls text, images, or other content. It can scroll content in any direction, including left to right, right to left, top to bottom, and bottom to top.

The <marquee> tag has several functions, including:-

- ✓ Creating scrolling text or images on a web page
- ✓ Providing syntax for creating tables
- ✓ Making text bold
- ✓ Creating text or images that move across the screen
- ✓ Inserting links

The <marquee> tag has several attributes, including:-

- ✓ Behavior: Specifies the action of scrolling the text. Possible values include alternate, scroll, and slide. The default value is scroll.
- ✓ Bgcolor: Specifies the background color.
- ✓ Direction: Specifies the direction for scrolling the text. Possible values include left, right, up, and down. The default value is left.
- ✓ Vspace: Specifies a vertical space.
- ✓ Hspace: Specifies a horizontal space.

3. a) Write a HTML code to design a table which must look similar to the one provided: (included in draft).

Seminar			
Day/Time	Schedule		Topic
	Begin	End	
Sunday	8:00 am	2:00 pm	Introduction to HML
Monday	8:00 am	11:00 pm	Validity : DTD
Tuesday	10:00 am	2:00 pm	X path
Wednesday	2:00 pm	5:00 pm	CSS
Thursday	12:00 pm	5:00 pm	XML
Friday	10:00 pm	3:00 pm	presentation

```

<table width="673" style="height: 279px; width: 549px;" border="1">
<tbody>
<tr style="height: 31px;">
<td colspan="3" style="width: 547.667px; height: 31px;">
<p style="text-align: center;">Seminar</p>
</td></tr>
<tr style="height: 31px;">
<td rowspan="2" style="width: 151.688px; text-align: center; height: 62px;">
<p>&nbsp;</p>
<p>Day/Time</p>
</td>
<td style="width: 212.354px; height: 31px;">
<p style="text-align: center;">Schedule</p>
</td><td rowspan="2" style="width: 183.625px; height: 62px;">
<p>&nbsp;</p>
<p style="text-align: center;">Topic</p>
</td></tr>
<tr style="height: 31px;">
<td style="width: 212.354px; height: 31px;">
<p style="text-align: center;">&nbsp;&nbsp;Begin&nbsp;&nbsp;&nbsp;&nbsp;&nbsp; End</p>
</td></tr>

```



```
<tr style="height: 31px;">
<td style="width: 151.688px; text-align: center; height: 31px;">
<p>Sunday</p>
</td><td style="width: 212.354px; text-align: center; height: 31px;">
<p>&nbsp;8:00 am&nbsp; &nbsp; &nbsp;2:00 pm</p>
</td><td style="width: 183.625px; text-align: left; height: 31px;">
<p>&nbsp; Introduction to HML</p>
</td></tr>
<tr style="height: 31px;">
<td style="width: 151.688px; text-align: center; height: 31px;">
<p>Monday</p>
</td><td style="width: 212.354px; text-align: center; height: 31px;">
<p>&nbsp;8:00 am &nbsp; &nbsp; 11:00 pm</p>
</td><td style="width: 183.625px; text-align: left; height: 31px;">
<p>&nbsp; Validity : DTD</p>
</td></tr>
<tr style="height: 31px;">
<td style="width: 151.688px; text-align: center; height: 31px;">
<p>Tuesday</p>
</td><td style="width: 212.354px; text-align: center; height: 31px;">
<p>10:00 am&nbsp; &nbsp; &nbsp;2:00 pm</p>
</td><td style="width: 183.625px; text-align: left; height: 31px;">
<p>&nbsp; X path</p>
</td></tr>
<tr style="height: 31px;">
<td style="width: 151.688px; text-align: center; height: 31px;">
<p>Wednesday</p>
</td><td style="width: 212.354px; text-align: center; height: 31px;">
<p>2:00 pm&nbsp; &nbsp; &nbsp;5:00 pm</p>
```



```
</td><td style="width: 183.625px; text-align: left; height: 31px;">
<p>&nbsp; CSS</p>
</td></tr>
<tr style="height: 31px;">
<td style="width: 151.688px; text-align: center; height: 31px;">
<p>Thursday</p>
</td>
<td style="width: 212.354px; text-align: center; height: 31px;">
<p>12:00 pm&nbsp; &nbsp; 5:00 pm</p></td>
<td style="width: 183.625px; text-align: left; height: 31px;">
<p>&nbsp; XML</p>
</td></tr>
<tr style="height: 31px;">
<td style="width: 151.688px; text-align: center; height: 31px;">
<p>Friday</p>
</td><td style="width: 212.354px; text-align: center; height: 31px;">
<p>10:00 pm&nbsp; &nbsp; 3:00 pm</p></td>
<td style="width: 183.625px; text-align: left; height: 31px;">
<p>&nbsp;presentation</p>
</td></tr>
</tbody>
</table>
```



b) Explain about internal and external links with example.

- **Internal links** are used to navigate within the same website or document. They are created by specifying the target location within the same HTML document or by referencing another HTML document within the same website. Internal links are typically used for creating navigation menus, table of contents, or linking to other sections within the same page.

➤ Example of Internal link are About Us

✓ **Advantages** of Internal Links:

- Improved website navigation
- Increased engagement and time spent on the website
- Enhanced SEO

✓ **Disadvantages** of Internal Links:

- Limited reach
- Potential for broken links
- Overuse or poor implementation

➤ **External links** are used to direct users to a different website or web page.

They are created by specifying the complete URL (including the protocol, domain, and path) of the external resource. External links are commonly used for referencing external websites, online resources, or linking to pages on different domains.

➤ Example of External link are Visit our site

✓ **Advantages** of External Links:

- Access to external resources
- Credibility and authority
- Networking and partnerships

✓ **Disadvantages** of External Links:

- Risk of directing users away
- Unreliable or broken links
- SEO considerations

#Additional

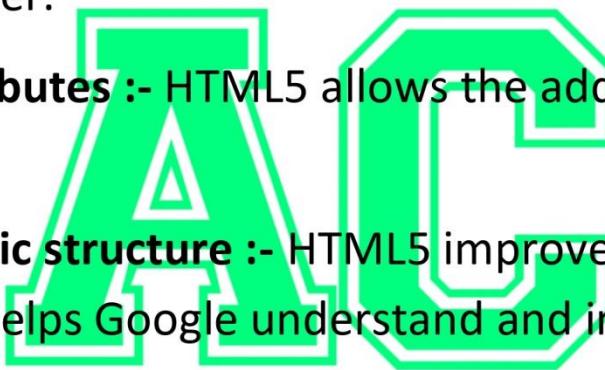
Difference between external link and internal link :-

External link	Internal link
It is difficult to control.	It is easy, fast and free to control.
It appears within the body text, in content.	It appears in website navigation as well as in the content.
It passes SEO authority from other site to your site, increasing your “domain authority”.	It passes SEO authority pages on your site, increasing the “page authority” of specific pages.
It has more value.	It has less value.
It connects to your external pages.	It connects to your internal pages.
Domain 1 A links to Domain 2 b.	Domain 1 A links to B.
It improves the quality of web pages.	It helps bots to find other web pages on your site.
It helps in increasing traffic to your website.	It also helps in increasing traffic to your website.

4. a) Discuss the new features introduced in HTML5.

➤ **HTML5 introduced many new features, including:-**

- **New elements and attributes :-** HTML5 supports embedding audio, video, documents, and dynamic graphs directly into web pages. It also includes new elements like time, audio, description, embed, fig, shape, footer, article, canvas, navy, output, section, source, track, and video.
- **New form controls :-** HTML5 supports new types of form controls, such as date and time, email, number, category, title, URL, and search. It also includes five new form elements: datalist, output, keygen, progress, and meter.
- **Custom data attributes :-** HTML5 allows the addition of custom data attributes.
- **Improved semantic structure :-** HTML5 improved the semantic structure, which helps Google understand and interpret the content.
- **Multimedia features :-** HTML5 supports both audio and video controls using <audio> and <video> tags. It also includes new graphics elements, including vector graphics and tags.
- **Rich media experiences :-** HTML5 supports rich media experiences while eliminating the need for plugins such as Flash or Java.



b) List some HTML editors and tools. Write their advantages.

➤ Here are some popular HTML editors and tools along with their advantages:-

1. Sublime Text :- Sublime is a cross platform code editor tool. It supports all markup languages.

• **Advantages:-**

- ✓ Highly customizable and extensible through plugins and packages.
- ✓ Offers a distraction-free writing environment.
- ✓ Supports multiple selections and powerful search and replace functionality.
- ✓ Fast and lightweight, suitable for large projects.

2. Visual Studio Code :- Visual Studio Code was developed by Microsoft as a multi-platform and multi-language software.

• **Advantages:-**

- ✓ Rich feature set with built-in Git integration, debugging, and terminal access.
- ✓ Wide range of extensions available for customization.
- ✓ Intuitive user interface and excellent code editing experience.
- ✓ Supports various programming languages, including HTML, CSS, and JavaScript.



3. Notepad :- Notepad is a simple text editor. It is an inbuilt desktop application available in Windows OS.

• **Advantages:-**

- ✓ You can save your notes as text files anywhere you want.
- ✓ You can also migrate your notes to another app by opening them in any app that understands text files.
- ✓ Notepad offers basic text manipulation functions, such as finding and replacing text.

- ✓ Notepad is a lightweight and simple text editor that loads quickly and is easy to use.

4. Notepad++ :- Notepad++ is a free, open-source, multi-language code editor which was initially developed for Windows-based computers. It uses 'Scintilla' as the editing component and is written in C++.

- **Advantages:-**

- ✓ Notepad++ keeps the layout and structure of the code when it is opened or edited.
- ✓ Notepad++ is a popular text editor among developers and programmers, making it an ideal choice for beginners.

5. Atom: Atom is an open source code editor tool for MAC, Linux and Windows.



- **Advantages:-**

- ✓ Highly customizable with a vast library of themes and packages.
- ✓ GitHub's official code editor, providing seamless integration with Git and GitHub.
- ✓ Offers a user-friendly interface and smooth editing experience.
- ✓ Supports multiple panes and project-wide search and replace.

c) Define cascading style sheet. Explain linking external style sheet files to a HTML document with an example.

➤ **Cascading Style Sheets (CSS)** is a style sheet language used to describe the presentation and formatting of a document written in HTML or XML. It is a fundamental technology in web development that allows web designers and developers to control the visual appearance of web pages.

- Linking an external style sheet to an HTML document allows you to separate the presentation (CSS) from the structure (HTML) of a webpage. This promotes maintainability and reusability of styles across multiple pages. To link an external style sheet to an HTML document, you can use the <link> element within the "<head>" section of your HTML file.

➤ **Example:-**

1. Create an HTML file (index.html):

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>External Style Sheet Example</title>
    <!-- Link to external CSS file -->
    <link rel="stylesheet" type="text/css" href="styles.css">
</head> <body> <h1>Welcome to my website</h1>
        <p>This is a simple example of linking an external style
sheet.</p>
</body>
</html>
```

2. Create a CSS file (styles.css):-

```
1 /* styles.css */
2 body {
3     font-family: Arial, sans-serif;
4     background-color: #f4f4f4;
5     color: #333;
6     margin: 0;
7     padding: 0;
8 }
9 h1 {
10     color: #007bff;
11 }
12 p {
13     font-size: 1.2em;
14 }
```

In this example:-

- The HTML file ('index.html') contains the content structure of the webpage.
- The CSS file ('styles.css') contains the styling rules.
- The '<link>' element in the '<head>' section of 'index.html' establishes a link between the HTML file and the external CSS file. The 'href' attribute specifies the path to the CSS file.

5. a) Write HTML code for the following form:

User Registration

Fields marked with * are required.



Email*

Password *

Retype Password *

First Name*

Last Name*

Phone Number*

 +

Address*

Town

Postcode/zip*

Country*

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>User Registration</title>
</head>
<style>
label
{ width: 140px; display: inline-block;
}
.button { width:140px; margin: auto; display: line-block; position: absolute;
 top: 100%; left: 25%;
}
</style>
<body>
<h1>User Registration</h1>
<p class="required">Fields marked with
<span style="color: #000000;">*</span> are required.</p>
<p> <label for="email">Email<span class="required">*</span>
</label> <input type="email" id="email" name="email" />
</center></p> <p>
<label for="password">Password <span style="color: #000000;">*</span>
</label><input type="password" id="password" name="password"
class="class_password" />
 <class="toggle-password" onclick="togglePassword('password')">⊗
</p>
```



<p><label for="retypassword">Retype Password *</label><input type="password" id="retypassword" name="retypassword" class="class_password" />
<class="toggle-password" onclick="togglePassword('retypassword')">⊗</p><p>
 <label for="firstName">First Name*</label>
 <input type="text" id="firstName" name="firstName" />
</p><p>
 <label for="lastName">Last Name*</label>
 <input type="text" id="lastName" name="lastName" />
</p><p> <label for="phoneNumber">Phone Number*</label>
 <input type="text" id="phoneNumber" name="phoneNumber" /></p><p>
 <label for="address">Address*</label>
 <input type="text" id="address" name="address" />
</p><p> <label for="address">*</label>
 <input type="text" id="address" name="address" /> </p><p>
 <label for="town">Town</label><input type="text" id="town" name="town" /></p><p>
 <label for="postcode">Postcode/zip*</label>
 <input type="text" id="postcode" name="postcode" /></p><p>
 <label for="country">Country*</label>
 <select id="country" name="country">
 <option value="nepal">Nepal</option>
 <option value="canada">Canada</option>
 <option value="uk">UK</option>
 </select></p>



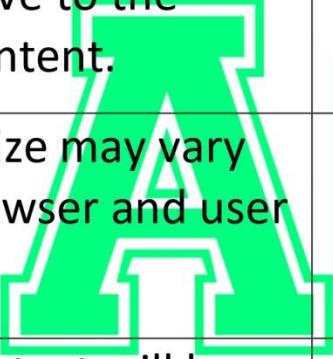
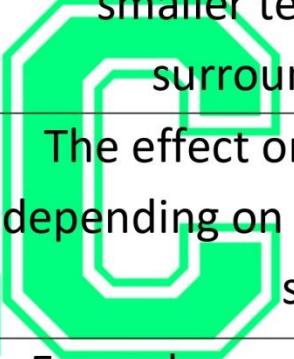
```
<p> <button type="submit" style="position: absolute; left: 15% ; top: 81%;>Register</button></p> <script>
function togglePassword(inputId)
{
const passwordInput = document.getElementById(inputId);
  const type = passwordInput.type === 'password' ? 'text' : 'password';
  passwordInput.type = type;
}
</script></body></html>
```

b) Differentiate between:

**i.
 tag and <p> tag**

 tag	<p> tag
It is an empty element.	It is a container element.
It is used to insert line break.	It is used to define a paragraph of the text on the Web page.
It does not insert any extra space.	It inserts line break with extra space in the beginning.
This tag has no attribute.	This tag has an attribute align.
Example: <p>This is a line of text. Here is a new line.</p>	Example: <p>This is a paragraph of text.</p>
Self-closing tag.	Requires opening and closing tags.

ii <BIG> tag and <small> tag

<BIG> tag	<small> tag
It is used to Increases the size of the enclosed text.	It is used to Decreases the size of the enclosed text.
<Big> tag is no longer supported by HTML5.	<Small> tag is still available in HTML5.
The <big> tag is always enclosed within the <html> tag.	The <small> tag should be used within the <body> tag.
A presentational tag that suggests larger text relative to the surrounding content. 	A presentational tag that suggests smaller text relative to the surrounding content. 
The effect on text size may vary depending on the browser and user settings.	The effect on text size may vary depending on the browser and user settings.
Example: <big>This text will be displayed in a larger size.</big>	Example: <small>This text will be displayed in a smaller size.</small>

6. Write short notes on; (Any Four)

a) Heading tag

➤ **Heading tag** is used to define the headings of a page. Heading tags are used to separate headings and subheadings on a webpage. They are used to improve the readability and SEO of a webpage. Heading tags rank in order of importance, from H1 to H6, with H1 usually being the title. The most commonly used headings on web pages are H1, H2, and H3.

Heading tags help improve accessibility for people who can't easily read screens. They also help the search engines to understand the content of the page, which is crucial for SEO.

➤ Heading tags are important for several reasons:-

- ✓ **Readability**:- Heading tags improve the readability and SEO of a webpage. They help readers scan content to get an idea of what the text is about.
- ✓ **Accessibility** :- Heading tags help improve accessibility for people who can't easily read screens. Many assistive technologies, such as screen readers, use heading tags to make navigation easier.
- ✓ **Search engines**:- Heading tags provide context on what your page is about and provide a hierarchy. They help search engines understand the main topic and subtopics of your content, and how they relate to each other.

b) <FRAMESET ROWS> and <FRAMESET COLS>

➤<frameset ROWS>:-

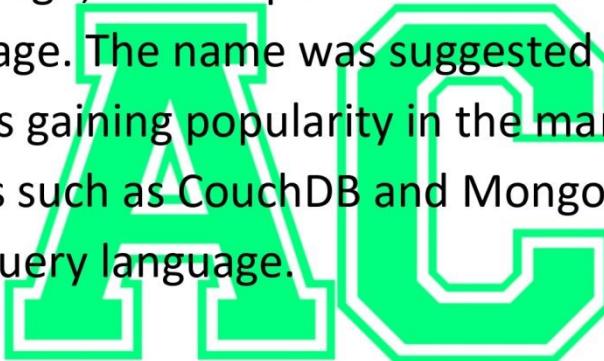
- The <frameset ROWS> attribute is used to divide the available vertical space within a <frameset> into rows.
- It specifies the height of each row in pixels or as a percentage of the available space.
- The value of ROWS is a comma-separated list of heights, indicating the height of each row from top to bottom.
- Example: <frameset ROWS="100,200,300"> will create three rows, with the first row having a height of 100 pixels, the second row 200 pixels, and the third row 300 pixels.

➤<frameset COLS>:-

- The <frameset COLS> attribute is used to divide the available horizontal space within a <frameset> into columns.
- It specifies the width of each column in pixels or as a percentage of the available space.
- The value of COLS is a comma-separated list of widths, indicating the width of each column from left to right.
- Example: <frameset COLS="25%,50%,25%"> will create three columns, with the first column occupying 25% of the available width, the second column 50%, and the third column 25%.

c) Java Script

➤ **JavaScript (js)** is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreter, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity. Although, JavaScript has no connectivity with Java programming language. The name was suggested and provided in the times when Java was gaining popularity in the market. In addition to web browsers, databases such as CouchDB and MongoDB uses JavaScript as their scripting and query language.



➤ Features of JavaScript :-

- ✓ JavaScript is an object-oriented programming language that uses prototypes rather than using classes for inheritance.
- ✓ It is a light-weighted and interpreted language.
- ✓ It is a case-sensitive language.
- ✓ JavaScript is supportable in several operating systems including, Windows, macOS, etc.
- ✓ It provides good control to the users over the web browsers.
- ✓ All popular web browsers support JavaScript as they provide built-in execution environments.

- ✓ JavaScript follows the syntax and structure of the C programming language. Thus, it is a structured programming language.
- ✓ JavaScript is a weakly typed language, where certain types are implicitly cast (depending on the operation).

d) Web Browser and search engine

➤ A **web browser** is a software application that allows users to access the internet and websites. When a user requests a web page, the browser retrieves the files from a web server and displays the page on the user's screen.

➤ Features of web browsers are:-

- ✓ Web address bar: Allows users to input a web address and visit a website.
- ✓ Back and forward buttons: Takes the user to the previous or the next page they were on.
- ✓ Refresh: A button which can be used to reload a web page.

Web browsers also **create a small database** on the local drive of the computer where the browser is installed. This database stores various files like cache, cookies, etc.

Some common web browsers include: Google Chrome, Safari, Mozilla Firefox, Microsoft Edge, Internet Explorer etc.

➤ A **search engine** is Internet based software. It is used to access the required information or location of the information form the Internet. When an user request for search by providing keyword, it provides the list of websites and their links, from its database.

Some of the popular search engines at present are google.com, bing.com. yahoosearch.com, webcrawler.com.

➤ Search engines have many features, including:-

- ✓ **Page ranking:** A search engine's main component is the ranking of each page on a website.
- ✓ **Search interfaces:** Search engines use algorithms to crawl the web, index and categorize content, and retrieve relevant results for a given search query.
- ✓ **Search logs:** Search logs can tell you what your customers are searching for, so you can see what is in demand and where there may be opportunities to expand your range.
- ✓ **Content relevance:** The better the content of a page matches a search query, the more likely it will achieve a good ranking.
- ✓ **Keyword density:** Search engines like Google use keyword density to understand the relevance of each piece of content.
- ✓ **Quality of content:** Content quality is a key ranking factor for search engines.
- ✓ **Site map:** Search engine crawlers use sitemaps to survey your entire website, index all its pages, and make your content appear and rank in search results.
- ✓ **Speed:** Search engines include “Speed” as a ranking factor.

e) JQuery

➤ **jQuery** is a small, light-weight and fast JavaScript library. It is cross-platform and supports different types of browsers. It is also referred as ?write less do more? because it takes a lot of common tasks that requires many lines of JavaScript code to accomplish, and binds them into methods that can be called with a single line of code whenever needed. It is also very useful to simplify a lot of the complicated things from JavaScript, like AJAX calls and DOM manipulation.

- ✓ jQuery is a small, fast and lightweight JavaScript library.
- ✓ jQuery is platform-independent.
- ✓ jQuery means "write less do more".
- ✓ jQuery simplifies AJAX call and DOM manipulation.

Features of jQuery

➤ Following are the important features of jQuery.

- ✓ HTML manipulation
- ✓ DOM manipulation
- ✓ DOM element selection
- ✓ CSS manipulation
- ✓ Effects and Animations
- ✓ Utilities
- ✓ AJAX
- ✓ HTML event methods
- ✓ JSON Parsing
- ✓ Extensibility through plug-ins



f) DOM

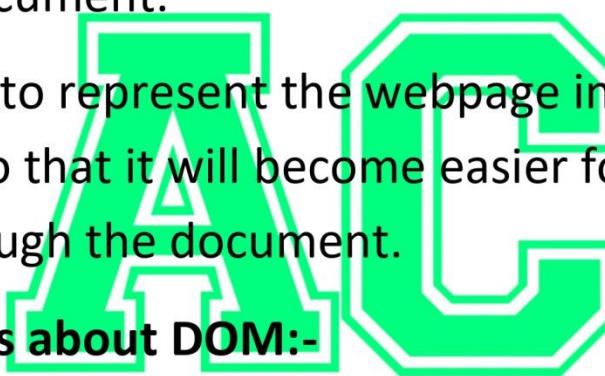
➤ The **Document Object Model** (DOM) is a programming interface for web documents. It represents the page as nodes and objects so that programs can change the document structure, style, and content.

The DOM tree is a hierarchical representation of an HTML or XML document. It consists of a root node, which is the document itself, and a series of child nodes that represent the elements, attributes, and text content of the document.

The DOM allows you to programmatically read, manipulate, and modify an XML document.

The DOM is a way to represent the webpage in a structured hierarchical way so that it will become easier for programmers and users to glide through the document.

➤ Some other details about DOM:-



- ✓ The DOM represents the structure of a document as a tree-like object.
- ✓ The nodes in the DOM Document have a hierarchical relationship to each other.
- ✓ The DOM views an HTML document as a tree of nodes.
- ✓ A node represents an HTML element.
- ✓ With DOM, we can easily access and manipulate tags, IDs, classes, Attributes, or Elements of HTML.

-The End-

Web Technology & Prog– I (IT) 2ndSem

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Website :- www.arjun00.com.np

Facebook :-www.facebook.com/Arjun00.com.np

1. a) Define internet. Explain its uses and services.

➤ The **Internet** is an interconnection of thousands of networks and millions of computers linking businesses, education institutions, government agencies and individuals together. It is the world largest computer network.

➤ **The Uses of internet are :-**

- ✓ E-mail communication.
- ✓ Faster, easier and cheaper communication.
- ✓ Exchange of Information.
- ✓ E-Commerce activities including marketing and sales.
- ✓ Online classes/E-learning.
- ✓ Downloading software, image, audio, video etc.
- ✓ It allows real time conversation such as audio/video conversation.
- ✓ It provides electronic discussion forum and bulletin board.
- ✓ It allows gathering information through online services.
- ✓ Providing support to customers and business partners.
- ✓ Online banking and online payment system.
- ✓ Creating new business space known as cyber space.



➤ The Services of internet are :-

- ✓ World Wide Web (WWW): Interlinked hypertext documents accessed via web browsers.
- ✓ Email: Electronic mail for message and file exchange.
- ✓ File Transfer Protocol (FTP): Enables file transfer between computers.
- ✓ VoIP (Voice over Internet Protocol): Allows voice communication over the Internet.
- ✓ Social Media: Platforms for social networking and content sharing.
- ✓ Search Engines: Tools like Google for information retrieval.
- ✓ Cloud Computing: Services for online data storage and computing resources.
- ✓ Online Banking: Internet-based platforms for financial transactions and account management.

b) Define HTML. Write the structure of HTML and describe different parts.

➤ **HTML** (Hyper Text Markup Language) is designing language used for designing or creating webpage for Internet. HTML is a set of logical codes called as markup tags, that can be applied and used for defining how the text, image or other information are displayed on the browser.

➤ The basic Structure of HTML :-

```
<HTML>
  <HEAD>
    <TITLE>
      Document Title
```

```
</TITLE>
</HEAD>
<BODY>
    Body of the webpage
</BODY>
</HTML>
```

- **<!DOCTYPE>** :- It declares the version of HTML being used.
- **<HTML>** :- It is the root element of an HTML document.
- **<head>** :- It contains metadata and non-visible information about the webpage.
- **<Title>** :- It specifies the title of the webpage, which is displayed in the browser's title bar or tab.
- **<body>** :- It contains the visible content of the webpage.
- **<Header>** :- It contains introductory or navigational elements for the webpage.
- **<footer>** :- It contains information like copyright notices or contact information.
- **Semantic Sections** :- HTML5 introduced semantic elements like `<article>`, `<section>`, `<nav>`, etc., for better organization and meaning of content.
- **Comments** :- They provide documentation or clarification within the code.

2. a) Explain marquee, heading, paragraph, underline tag with syntax and attribute?

➤ <marquee> tag is a non-standard element that scrolls text, images, or other content. It can scroll content in any direction, including left to right, right to left, top to bottom, and bottom to top.

Syntax :-

```
<marquee>  
  <--- contents --->  
</marquee>
```

The <marquee> tag has several attributes, including:-

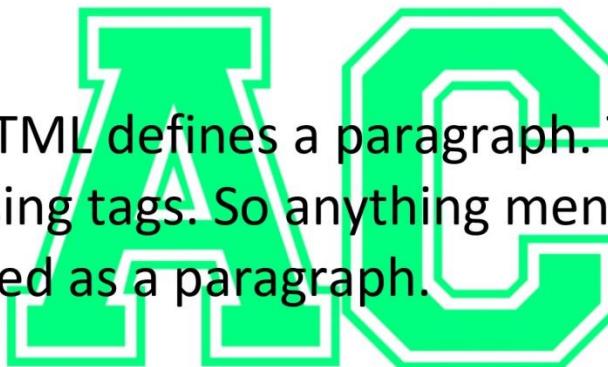
- ✓ Behavior: Specifies the action of scrolling the text. Possible values include alternate, scroll, and slide. The default value is scroll.
- ✓ Bgcolor: Specifies the background color.
- ✓ Direction: Specifies the direction for scrolling the text. Possible values include left, right, up, and down. The default value is left.
- ✓ Vspace: Specifies a vertical space.
- ✓ Hspace: Specifies a horizontal space.

➤ **Heading tag** is used to define the headings of a page. Heading tags are used to separate headings and subheadings on a webpage. There are six levels of headings defined by HTML. These 6 heading elements are h1, h2, h3, h4, h5, and h6; with h1 being the highest level and h6 being the least.

Syntax :-

```
<h1>Heading1</h1>
<h2>Heading2</h2>
<h3>Heading3</h3>
<h4>Heading4</h4>
<h5>Heading5</h5>
<h6>Heading6</h6>
```

- **Attributes:** HTML heading tags can use attributes like ID, class, and align. However, the h1 tag only uses global attributes. HTML5 doesn't support the align attribute, so CSS should be used instead.



- The **<p> tag** in HTML defines a paragraph. These have both opening and closing tags. So anything mentioned within <p> and </p> is treated as a paragraph.

Syntax :-

```
<p> contents </p>
```

➤ Attributes of a paragraph tag:-

- ✓ Align: Specifies the alignment of the text.
- ✓ Id: Must be unique to the page.
- ✓ Class: Applies styling to the paragraph.
- ✓ Lang: Defines the language used in the paragraph.
- ✓ Style: Applies specific styling to a paragraph.

➤ **<u>** tag stands for underline which helps to underline the text enclosed within the **<u>** tag. Underlining the text is mainly done to indicate the unarticulated or styled differently from normal text, i.e. to denote the misspelled words. The HTML **<u>** tag is supported by HTML4.1 but deprecated in HTML5. To achieve the same, the CSS text-decoration property can be used by setting its value as underline.

Syntax :-

<u> contents </u>

➤ Attributes:-

- ✓ The **<u>** tag does not contain any specific **attribute**.
- ✓ The **<u>** tag supports the **Global attributes** in HTML.
- ✓ The **<u>** tag supports the **Event attributes** in HTML.

✓

b) Write an html code for the following form given below.

Username:

Password:

Gender:

Male

Female

Other

Select a District:

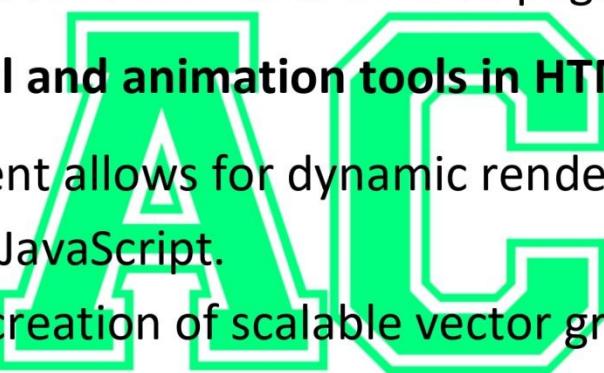
Email Address:

Submit

```
<html>
<body>
    <form action="submit_action.php" method="post">
        <label for="username">Username:</label>
        <input type="text" id="username" name="username" required>
        <br>
        <label for="password">Password:</label>
        <input type="password" id="password" name="password" required>
        <br>
        <label>Gender:</label><div>
        <input type="checkbox" id="male" name="gender" value="male" required>
        <label for="male">Male</label></div><div>
        <input type="checkbox" id="female" name="gender" value="female" required>
        <label for="female">Female</label></div><div>
        <input type="checkbox" id="other" name="gender" value="other" required>
        <label for="other">Other</label>
        <br></div>
        <label for="district">Select a District:</label>
        <select id="district" name="district" required>
            <option value="district1">Kathmandu</option>
            <option value="district2">Lalitpur</option>
            <option value="district3">Bhaktapur</option>
        </select>
        <br>
        <label for="email">Email Address:</label>
        <input type="email" id="email" name="email" required>
        <br>
        <input type="submit" value="Submit">
    </form>
</body>
</html>
```

3. a) Define HTML editors. Explain the use of graphical and animation tools in HTML.

- An **HTML editor** is a tool for creating and editing HTML code. They give you a variety of features, like syntax highlighting, autocompletion, and debugging. An HTML editor also helps you streamline the coding process so you can easily deal with large amounts of complicated code.
- Graphical and animation tools in HTML are used to create visually appealing and interactive elements on web pages.
- **The use of graphical and animation tools in HTML:**
- ✓ The canvas element allows for dynamic rendering of graphics and animations using JavaScript.
 - ✓ SVG enables the creation of scalable vector graphics directly within HTML.
 - ✓ CSS animations provide simple animation and transition effects for HTML elements. CSS frameworks and libraries offer pre-built styles and animations for easy integration.
 - ✓ JavaScript libraries and frameworks provide advanced tools for creating complex graphics, data visualizations, and interactive animations.



These tools enhance the visual appeal and interactivity of web pages, making them more engaging for users.

b) Explain hyperlink tag with suitable HTML code. how frame tag is used? Explain with example.

➤ The **hyperlink tag** in HTML is represented by the `<a>` element, which stands for "anchor tag". It is used to link one page to another page or to a section of the same page. The term "anchor" comes from the idea of creating a link to a specific point in a document. It consists of the href, name, and target attribute.

```
<!DOCTYPE html>
<html>
<head>
    <title></title>
</head>
<body>
<p>Click on
<a href="https://www.arjun00.com.np/">
target="_blank"> this-link </a>to go on home
page of arjun00.</p>
</body>
</html>
```



Output:-

Click on this-link to go on home page of arjun00.

➤ The **Frame tag** is used to display multiple sites on a single web page. It divides the browser window into multiple sections, called frames. Each frame can load a separate HTML page.

The frame tag supports name attributes and the src attribute. The src attribute specifies the source file that should be loaded into the frame. The contents of a frame must not be in the same document as the frame's definition.

The frame tag was valid in HTML4 but is deprecated in HTML5.

For Example:-

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <title>Frames Example</title>
5 </head>
6 <frameset cols="25%,50%,25%">
7     <frame src="left_frame.html" name="left">
8     <frame src="main_content.html" name="main">
9     <frame src="right_frame.html" name="right">
10    <noframes>
11        <body>
12            Your browser does not support frames.
13        </body>
14    </noframes>
15 </frameset>
16 </html>
```



Output:-

Not Found

The requested URL was not found on this server.

Not Found

The requested URL was not found on this server.

Not Found

The requested URL was not found on this server.

4. a) Explain different methods of including CSS in HTML.

➤ There are three ways to include CSS in HTML are given below:-

- Inline CSS
- Internal or Embedded CSS
- External CSS

1. Inline CSS:- Inline CSS contains the CSS property in the body section attached to the element is known as inline CSS. This kind of style is specified within an HTML tag using the style attribute.

For Example:-

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <title>Inline CSS</title>
5 </head>
6
7 <body>
8 <p style="color:#009900; font-size:50px;
9     font-style:italic; text-align:center;">
10        Arjun Chaudhary
11    </p>
12 </body>
13 </html>
```

Output:-

Arjun Chaudhary

2. Internal or Embedded CSS:- This can be used when a single HTML document must be styled uniquely. The CSS rule set should be within the HTML file in the head section i.e. the CSS is embedded within the <style> tag inside the head section of the HTML file.

For Example: -

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <title>Internal CSS</title>
5     <style>
6         .main {
7             text-align: center;
8         }
9         .ar {
10            color: #009900;
11            font-size: 50px;
12            font-weight: bold;
13        }
14        .arj {
15            font-style: bold;
16            font-size: 20px;
17        }
18     </style>
19 </head>
20 <body>
21     <div class="main">
22     <div class="ar">Arjun chy</div>
23     <div class="arj">
24         All Question and Solution
25     </div>
26     </div>
27 </body>
28 </html>
```

Output:-

Arjun chy

All Question and Solution

3. External CSS: External CSS contains separate CSS files that contain only style properties with the help of tag attributes (For example class, id, heading, ... etc). CSS property is written in a separate file with a .css extension and should be linked to the HTML document using a link tag. It means that, for each element, style can be set only once and will be applied across web pages.

For Example:-

HTML file:

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <link rel="stylesheet" type="text/css"
5 href="styles.css">
6   </head>
7   <body>
8     <p> Arjun Chaudhary.</p>
9   </body>
10 </html>
```

styles.css file:

```
1 p {
2   color: Red;
3   font-size: 20px;
4 }
```

Output:-

Arjun Chaudhary

b) Explain Table tag with an example.

➤ The <table> tag in HTML is used to create tables, which organize data into rows and columns. Tables are commonly used to display structured data, such as tabular data, pricing information, schedules, and more.

For Example:-This is Simple Example of table tag :-

```
1 <table>
2   <thead>
3     <tr>
4       <th>Name</th>
5       <th>Roll No</th>
6     </tr>
7   </thead>
8   <tbody>
9     <tr>
10      <td>Arjun</td>
11      <td>2</td>
12    </tr>
13    <tr>
14      <td>Ganesh</td>
15      <td> 4</td>
16    </tr>
17  </tbody>
18 </table>
```



Output:-

Name	Roll no
Arjun	2
Ganesh	4

➤ The <table> tag and its related elements :-

- <table>: This is the main container element for the table.
- <thead>: This element represents the table header section and is used to group the header rows.
- <tr>: This element represents a table row.
- <th>: This element represents a table header cell. It is used within a <tr> element to define header cells in the header row (<thead>).

- <tbody>: This element represents the table body section and contains the main data rows.
- <td>: This element represents a table data cell. It is used within a <tr> element to define data cells within the data rows (<tbody>).

5. a) What do you mean by Javascript? How to insert Javascript code in HTML?

➤ **JavaScript (js)** is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser.

➤ **To insert JavaScript code in HTML, you can use the <script> tag:-**

- Wrap the JavaScript code in a pair of <script> and </script> tags.
- Place the <script> tag in the <head> or <body> section of your HTML. The placement depends on when you want the JavaScript to load.
- To include an external JavaScript file, use the <script> tag with the **src** attribute. The **src** attribute should be the path to your JavaScript file.
- Include the script tag between the <head> tags in your HTML document.

You can also refer to an external JavaScript file using the **src** attribute.

JavaScript is often placed before the closing body tag to help reduce the page loading time.

b) How to perform form validation for a required field in HTML?

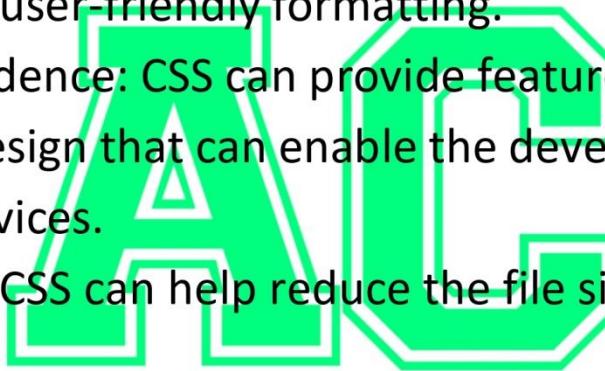
➤ To perform form validation for a required field in HTML, you can follow these steps:-

- ✓ Add a <form> element to enclose the form content.
- ✓ Use an <input> element for the required field.
- ✓ Include the required attribute in the <input> element to indicate it as a required field.
- ✓ Optionally, provide a label using the <label> element associated with the input field using the for attribute.
- ✓ Add a submit button using the <input> element with type="submit".
- ✓ When the form is submitted, the browser's built-in form validation will check if the required field is empty.
- ✓ If the required field is empty, the browser will display an error message and prevent the form from being submitted.
- ✓ Customize the error message using the pattern attribute or JavaScript if desired.
- ✓ Consider implementing server-side validation to ensure data integrity and security.

6. a) What are the advantage of CSS? Differentiate between server side and client side scripting?

➤ Advantages of CSS:-

- ✓ Consistency: CSS can help ensure consistent styling across an entire website or multiple pages.
- ✓ Easier maintenance: CSS can make it easier for developers to maintain and update their designs.
- ✓ Faster page speed: CSS can help improve page speed by using less code.
- ✓ Better user experience: CSS can help make web pages easier on the eye and allow for user-friendly formatting.
- ✓ Platform independence: CSS can provide features like media queries and responsive design that can enable the developer to write code to run on various devices.
- ✓ Reduced file size: CSS can help reduce the file size of web pages.



Client-side scripting	Server-side scripting
Source code is visible to the user.	Source code is not visible to the user because its output of server-side is an HTML page.
Its main function is to provide the requested output to the end user.	Its primary function is to manipulate and provide access to the respective database as per the request.
It runs on the user's computer.	It runs on the webserver.

<p>It usually depends on the browser and its version.</p>	<p>In this any server-side technology can be used and it does not depend on the client.</p>
<p>There are many advantages linked with this like faster. Response times, a more interactive application.</p>	<p>The primary advantage is its ability to highly customize, response requirements, access rights based on user.</p>
<p>It does not provide security for data.</p>	<p>It provides more security for data.</p>
<p>It is a technique used in web development in which scripts run on the client's browser.</p>	<p>It is a technique that uses scripts on the webserver to produce a response that is customized for each client's request.</p>
<p>HTML, CSS, and JavaScript are used.</p>	<p>PHP, Python, Java, Ruby are used.</p>
<p>No need of interaction with the server.</p>	<p>It is all about interacting with the servers.</p>
<p>It reduces load on processing unit of the server.</p>	<p>It surge the processing load on the server.</p>

b) Write short notes on:

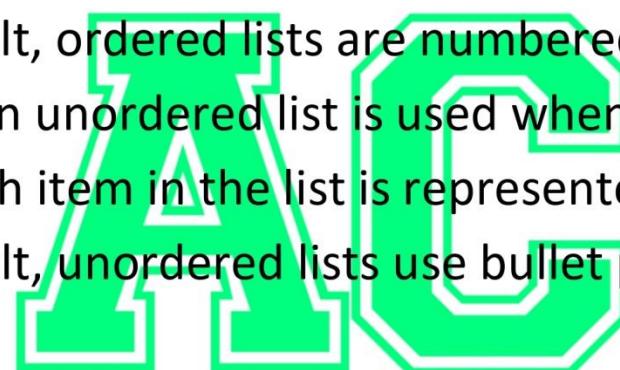
i) List tag

➤ The list tag is used to group related information and create well-structured views and easily maintained documents.

There are three types of list tag:-

- ✓ Ordered list
- ✓ Unordered list
- ✓ Description list

- **Ordered list :-** An ordered list is used when the sequence or order of items is important. Each item in the list is represented by an (list item) tag. By default, ordered lists are numbered sequentially.
- **Unordered list :-** An unordered list is used when the order of items is not significant. Each item in the list is represented by an (list item) tag. By default, unordered lists use bullet points to represent each item.
- **Description list :-** A description list is used to present a list of terms and their corresponding descriptions. It is represented by the <dl> element. Each term is represented by a <dt> (description term) tag, and its corresponding description is represented by a <dd> (description) tag. The <dt> and <dd> elements are placed within the <dl> element.



ii) Responsive web design

- Responsive web design (**RWD**) is a technique that involves designing websites to adapt to the device a user is using. The goal of RWD is to ensure that a website looks and functions well regardless of the device it's being viewed on.
- **RWD involves three main components:-**
 - ✓ The media query
 - ✓ The web browser
 - ✓ The responsive web interface

Media queries are a key part of RWD, as they allow designers to create different layouts based on the size of the viewport. They can also be used to detect other things about the environment, such as whether the user is using a touchscreen or a mouse.

RWD involves a mix of flexible grids and layouts, images, and the intelligent use of CSS media queries. It also involves responsive typography, which involves changing font sizes within media queries or using viewport units to reflect different amounts of screen real estate.

RWD also involves the meta viewport tag, which instructs the browser how to adjust the page to the width of each device. If the meta viewport element is absent, mobile browsers will display web pages with default desktop settings.

-The End-

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Website :- www.arjun00.com.np

Facebook :-www.facebook.com/Arjun00.com.np

1. a) Define www. Explain the concept of www.

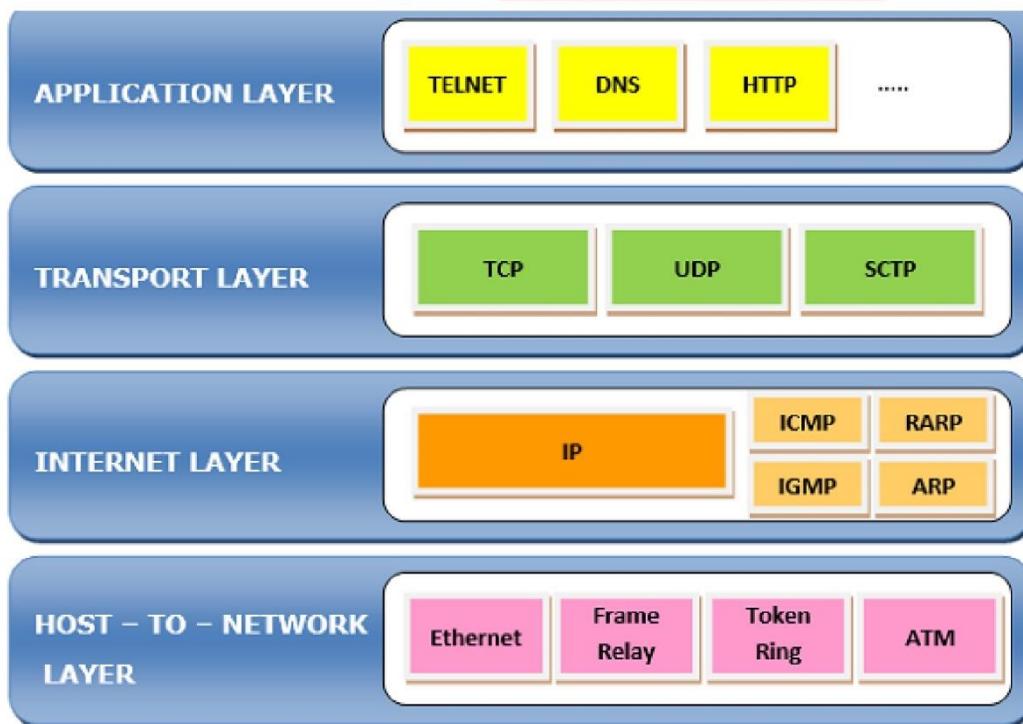
➤ WWW stands for **World Wide Web**. It is one of the services provided by the internet. It is a collection of websites that are connected to the internet. It is also known as the Web. It was invented by Tim Berners-Lee in 1989 and became publicly available in 1991.

➤ **The concept of www:-**

- ✓ **Hypertext:** Documents linked together through hyperlinks, allowing users to navigate between pages.
- ✓ **Hyperlinks:** Clickable elements that connect web pages and resources, enabling seamless navigation.
- ✓ **URLs:** Addresses that uniquely identify web pages, specifying the protocol, domain, and resource path.
- ✓ **Web Browsers:** Software applications that allow users to access and view web pages.
- ✓ **Web Servers:** Computers or systems that host websites and deliver web pages to users upon request.
- ✓ **HTTP/HTTPS Protocols:** Communication between web browsers and servers occurs through the Hypertext Transfer Protocol (HTTP) or its secure version (HTTPS).

b) What do you mean by TCP/IP reference model? Explain with suitable diagram.

- The **TCP/IP Reference Model** is a four-layered suite of communication protocols developed by the Department of Defense (DoD) in the 1960s. It is named after the two main protocols used in the model, TCP and IP. TCP stands for "Transmission Control Protocol" and IP stands for "Internet Protocol".
- The four layers in the TCP/IP protocol suite are :-
 - **Host-to-Network Layer** :- It is the lowest layer that is concerned with the physical transmission of data. TCP/IP does not specifically define any protocol here but supports all the standard protocols.
 - **Internet Layer** :- It defines the protocols for logical transmission of data over the network. The main protocol in this layer is Internet Protocol (IP) and it is supported by the protocols ICMP, IGMP, RARP, and ARP.
 - **Transport Layer** :- It is responsible for error-free end-to-end delivery of data. The protocols defined here are Transmission Control Protocol (TCP) and User Datagram Protocol (UDP).
 - **Application Layer** :- This is the topmost layer and defines the interface of host programs with the transport layer services. This layer includes all high-level protocols like Telnet, DNS, HTTP, FTP, SMTP, etc.



2. a) Define HTML tag. Explain the tag and tag with its attribute and example.

- An **HTML tag** is a set of characters that make up a formatted command for a web page. HTML tags are a type of markup language that help web browsers convert HTML documents into web pages.
- ** tag** is used to insert an image into an HTML document. It's an empty tag that only contains attributes, and closing tags are not used.

The tag has two required attributes:-

- ✓ src: Specifies the location of the image file.
- ✓ alt: Specifies an alternate text for the image.

For Example :-

```

```

- The ** tag** is an HTML tag that defines the font size, color, and face of text. The **** tag is used inside the **<body>** tag. The syntax for the **** tag is ** Our Text **.
- The ** tag has three attributes:-**
 - ✓ Face: Specifies the font family of the text. For example, Arial, Times New Roman, or Verdana.
 - ✓ Color: Specifies the color of the text.
 - ✓ Size: Specifies the font size.

For Example :-

```
<font size="4" color="blue" face="Verdana">This is some text.</font>
```

b) What is heading tag? Explain with an example.

- **Heading tag** is used to define the headings of a page. Heading tags are used to separate headings and subheadings on a webpage. There are six levels of headings defined by HTML. These 6 heading elements are h1, h2, h3, h4, h5, and h6; with h1 being the highest level and h6 being the least.

For Example :-

```
<h1>Heading1</h1>
<h2>Heading2</h2>
<h3>Heading3</h3>
<h4>Heading4</h4>
<h5>Heading5</h5>
<h6>Heading6</h6>
```

3. a) What do you mean by list? Explain the different types of list with examples.

➤ A list is a series of words or numerals that are written or printed together in a meaningful sequence. There are three types of list:-

- ✓ Ordered list
- ✓ Unordered list
- ✓ Description list

▪ **Ordered list :-** An ordered list is used when the sequence or order of items is important. Each item in the list is represented by an (list item) tag. By default, ordered lists are numbered sequentially.

For Example :-

```
<ol>
  <li>First item</li>
  <li>Second item</li>
  <li>Third item</li>
</ol>
```



Output:-

1. First item
2. Second item
3. Third item

▪ **Unordered list :-** An unordered list is used when the order of items is not significant. Each item in the list is represented by an (list item) tag. By default, unordered lists use bullet points to represent each item.

For Example :-

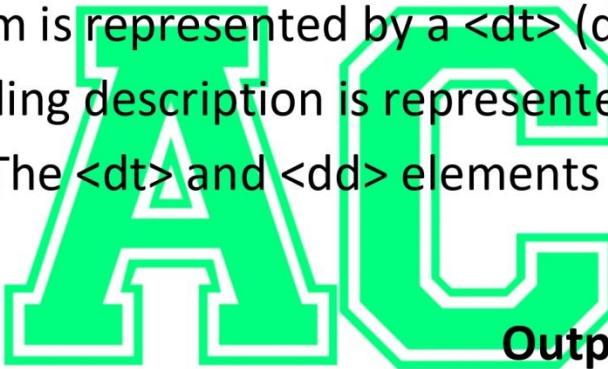
```
<ul>
  <li>Red</li>
  <li>Green</li>
  <li>Blue</li>
</ul>
```

Output:-

- Red
- Green
- Blue

- **Description list :-** A description list is used to present a list of terms and their corresponding descriptions. It is represented by the `<dl>` element. Each term is represented by a `<dt>` (description term) tag, and its corresponding description is represented by a `<dd>` (description) tag. The `<dt>` and `<dd>` elements are placed within the `<dl>` element.

For Example :-



Output:-

```
<dl>
  <dt>HTML</dt>
  <dd>-HyperText Markup Language </dd>
  <dt>CSS</dt>
  <dd>-Cascading Style Sheets </dd>
  <dt>JS</dt>
  <dd>-JavaScript</dd>
</dl>
```

HTML	-HyperText Markup Language
CSS	-Cascading Style Sheets
JS	-JavaScript

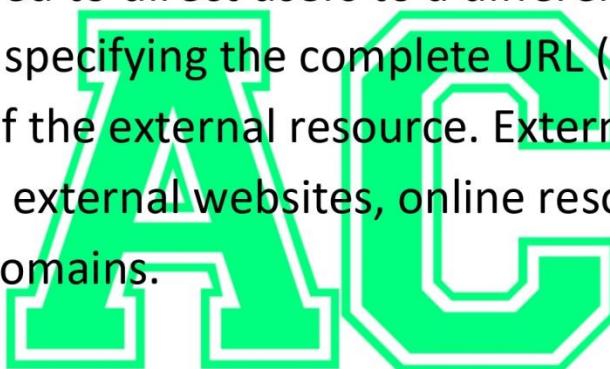
b) Explain the internal and external hyper link with a suitable example. Explain the anchor tag.

➤ Internal link are used to navigate within the same website or document. They are created by specifying the target location within the same HTML document or by referencing another HTML document within the same website. Internal links are typically used for creating navigation menus, table of contents, or linking to other sections within the same page.

For Example :-

```
<a href="about.html">About Us</a>
```

➤ External links are used to direct users to a different website or web page. They are created by specifying the complete URL (including the protocol, domain, and path) of the external resource. External links are commonly used for referencing external websites, online resources, or linking to pages on different domains.



For Example :-

```
<a href="https://www.arjun00.com.np" target="_blank">Visit our site</a>
```

➤ Anchor tag is also known as anchor link or <a>tag. It is used to link one page to another page or to a section of the same page. The term "anchor" comes from the idea of creating a link to a specific point in a document. It consists of the href, name, and target attribute.

For Example :-

```
<a href="https://www.arjun00.com.np">Click here to visit our site</a>
```

4. a) Explain the table tag with an example.

➤ The <table> tag in HTML is used to create tables, which organize data into rows and columns. Tables are commonly used to display structured data, such as tabular data, pricing information, schedules, and more.

For Example:-This is Simple Example of table tag :-

```
1 <table>
2   <thead>
3     <tr>
4       <th>Name</th>
5       <th>Roll No</th>
6     </tr>
7   </thead>
8   <tbody>
9     <tr>
10      <td>Arjun</td>
11      <td>2</td>
12    </tr>
13    <tr>
14      <td>Ganesh</td>
15      <td> 4</td>
16    </tr>
17  </tbody>
18 </table>
```



Output:-

AC

Name	Roll no
Arjun	2
Ganesh	4

➤ The <table> tag and its related elements :-

- <table>: This is the main container element for the table.
- <thead>: This element represents the table header section and is used to group the header rows.
- <tr>: This element represents a table row.
- <th>: This element represents a table header cell. It is used within a <tr> element to define header cells in the header row (<thead>).

- <tbody>: This element represents the table body section and contains the main data rows.
- <td>: This element represents a table data cell. It is used within a <tr> element to define data cells within the data rows (<tbody>).

b) List some HTML editors and tools.

➤ Here are some HTML editors and tools :-

- ✓ **Notepad** :- Notepad is a simple text editor. It is an inbuilt desktop application available in Windows OS.
- ✓ **Notepad++** :- Notepad++ is a free, open-source, multi-language code editor which was initially developed for Windows-based computers. It uses 'Scintilla' as the editing component and is written in C++.
- ✓ **Sublime Text** :- Sublime is a cross platform code editor tool. It supports all markup languages. It is a Fast and lightweight, suitable for large projects.
- ✓ **Visual Studio Code** :- Visual Studio Code was developed by Microsoft as a multi-platform and multi-language software. It Supports various programming languages, including HTML, CSS, and JavaScript.
- ✓ **Atom**: Atom is an open source code editor tool for MAC, Linux and Windows. it is a user-friendly interface and smooth editing experience.

5. a) Define HTML. Explain about HTML <Div> tag with suitable example.

- **HTML** (Hyper Text Markup Language) is designing language used for designing or creating webpage for Internet. HTML is a set of logical codes called as markup tags, that can be applied and used for defining how the text, image or other information are displayed on the browser.
- The HTML **<div> tag** is also known as the division tag. **<div>** tag is a block-level element that separates content into sections on a web page. It's used to create containers or boxes within a document or page. The **<div>** tag is a container for HTML elements that can be styled with CSS or manipulated with JavaScript. It's one of the most important structural tags. The **<div>** tag can be styled using the class or id attribute. To add a background color in HTML, use the CSS background-color property.

For Example :-

```
<div>
    <h2>London</h2>
    <p>London is the capital city of England.</p>
    <p>London has over 13 million inhabitants.</p>
</div>
```

London

Output:-

London is the capital city of England.

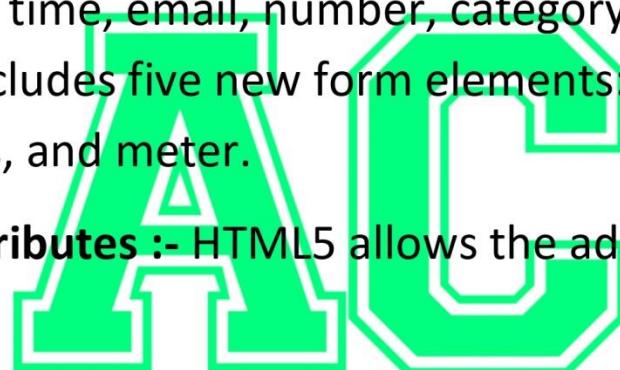
London has over 13 million inhabitants.

b) Discuss the new features introduced in HTML.

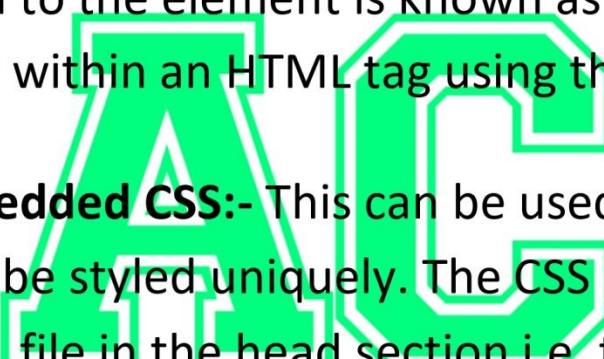
➤ HTML5 is the latest version of Hypertext Markup Language.

HTML5 introduced many new features, including:-

- **New elements and attributes** :- HTML5 supports embedding audio, video, documents, and dynamic graphs directly into web pages. It also includes new elements like time, audio, description, embed, fig, shape, footer, article, canvas, navy, output, section, source, track, and video.
- **New form controls** :- HTML5 supports new types of form controls, such as date and time, email, number, category, title, URL, and search. It also includes five new form elements: datalist, output, keygen, progress, and meter.
- **Custom data attributes** :- HTML5 allows the addition of custom data attributes.
- **Improved semantic structure** :- HTML5 improved the semantic structure, which helps Google understand and interpret the content.
- **Multimedia features** :- HTML5 supports both audio and video controls using <audio> and <video> tags. It also includes new graphics elements, including vector graphics and tags.
- **Rich media experiences** :- HTML5 supports rich media experiences while eliminating the need for plugins such as Flash or Java.



6. a) Define cascading style sheet. Explain all three ways of using style sheet in HTML page.

- **Cascading Style Sheets (CSS)** is a style sheet language used to describe the presentation and formatting of a document written in HTML or XML. It is a fundamental technology in web development that allows web designers and developers to control the visual appearance of web pages.
- **The three ways of using Style sheet in HTML page are given below:-**
- **Inline CSS:-** Inline CSS contains the CSS property in the body section attached to the element is known as inline CSS. This kind of style is specified within an HTML tag using the style attribute.

 - **Internal or Embedded CSS:-** This can be used when a single HTML document must be styled uniquely. The CSS rule set should be within the HTML file in the head section i.e. the CSS is embedded within the <style> tag inside the head section of the HTML file.
 - **External CSS:** External CSS contains separate CSS files that contain only style properties with the help of tag attributes (For example class, id, heading, ... etc). CSS property is written in a separate file with a .css extension and should be linked to the HTML document using a link tag. It means that, for each element, style can be set only once and will be applied across web pages.

b) Difference between client-side scripting and server-side scripting language.

Client-side scripting	Server-side scripting
Its main function is to provide the requested output to the end user.	Its primary function is to manipulate and provide access to the respective database as per the request.
It runs on the user's computer.	It runs on the webserver.
It usually depends on the browser and its version.	In this any server-side technology can be used and it does not depend on the client.
There are many advantages linked with this like faster response times, a more interactive application.	The primary advantage is its ability to highly customize, response requirements, access rights based on user.
It does not provide security for data.	It provides more security for data.
It is a technique used in web development in which scripts run on the client's browser.	It is a technique that uses scripts on the webserver to produce a response that is customized for each client's request.
HTML, CSS, and JavaScript are used.	PHP, Python, Java, Ruby are used.
No need of interaction with the server.	It is all about interacting with the servers.

7. Write the HTML code to build Travel reservation form. (The form should include: Full name, Email address, Select tour package, Arrival time, Number of persons, discount Coupon code, Term and Condition).



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Travel Reservation Form</title>
5 </head>
6 <body>
7   <h1>Travel Reservation Form</h1>
8
9   <form action="submit_reservation.php" method="post">
10    <label for="full-name">Full Name:</label>
11    <input type="text" id="full-name" name="full-name"
12 required><br><br>
13
14    <label for="email">Email Address:</label>
15    <input type="email" id="email" name="email"
16 required><br><br>
17
18    <label for="tour-package">Select Tour Package:</label>
19    <select id="tour-package" name="tour-package" required>
20      <option value="">-- Select Package --</option>
21      <option value="package1">Package 1</option>
22      <option value="package2">Package 2</option>
23      <option value="package3">Package 3</option>
24    </select><br><br>
25
26    <label for="arrival-time">Arrival Time:</label>
27    <input type="time" id="arrival-time" name="arrival-time"
28 required><br><br>
29
30    <label for="num-persons">Number of Persons:</label>
31    <input type="number" id="num-persons" name="num-persons"
32 required><br><br>
33 <label for="coupon-code">Discount Coupon Code:</label>
34 <input type="text" id="coupon-code" name="coupon-
35 code"><br><br>
```

```
36 <input type="checkbox" id="terms" name="terms" required>
37 <label for="terms">I agree to the Terms and
38 Conditions</label><br><br>
39
40 <input type="submit" value="Submit">
41 </form>
42
43 </body>
44 </html>
```

Output :-

Travel Reservation Form

Full Name:

Email Address:

Select Tour Package:

Arrival Time: : :

Number of Persons:

Discount Coupon Code:

I agree to the Terms and Conditions



8. What is java Script. How to add java script code to HTML? Explain it.

- **JavaScript (js)** is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser.
- **To add JavaScript code in HTML, you can use the <script> tag:-**
- Wrap the JavaScript code in a pair of `<script>` and `</script>` tags.
 - Place the `<script>` tag in the `<head>` or `<body>` section of your HTML. The placement depends on when you want the JavaScript to load.
 - To include an external JavaScript file, use the `<script>` tag with the `src` attribute. The `src` attribute should be the path to your JavaScript file.
 - Include the script tag between the `<head>` tags in your HTML document.
- You can also refer to an external JavaScript file using the `src` attribute.
- JavaScript is often placed before the closing body tag to help reduce the page loading time.

9. Write short notes on: (Any Two)

a) Canvas and SVG

- Canvas and SVG are both HTML5 APIs for rendering graphics.
- **Canvas** is better for dynamic and interactive graphics, such as games, charts, and simulations. Canvas is raster based, meaning it's arrays of pixels arranged on a grid. Canvas graphics are stored as bitmap images, meaning they are separate from the document and can only be modified by redrawing them.
- **SVG** stands for Scalable Vector Graphics. SVG files are made up of vector graphics, which means they can be scaled to any size without losing quality. SVG graphics are stored as DOM elements, which allows them to be manipulated by CSS and JavaScript.

#Additional



SVG	Canvas
Vector based (composed of shapes)	Raster based (composed of pixel)
SVG has better scalability. So it can be printed with high quality at any resolution.	Canvas has poor scalability. Hence it is not suitable for printing on higher resolution.
SVG gives better performance with smaller number of objects or larger surface.	Canvas gives better performance with smaller surface or larger number of objects.
SVG can be modified through script and CSS.	Canvas can be modified through script only.
Multiple graphical elements, which become the part of the page's DOM tree.	Single element similar to in behavior. Canvas diagram can be saved to PNG or JPG format.

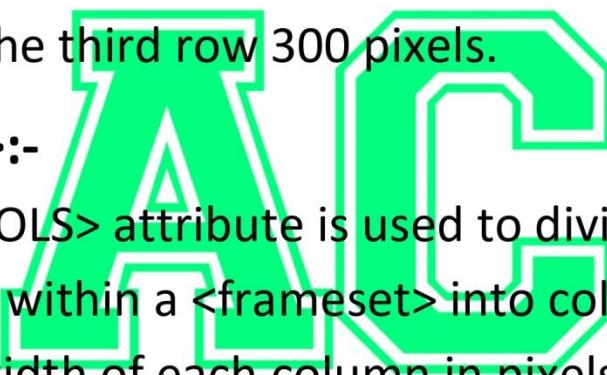
b) <FRAMESET ROWS> and <FRAMESET COLS>

➤ <frameset ROWS>:-

- The <frameset ROWS> attribute is used to divide the available vertical space within a <frameset> into rows.
- It specifies the height of each row in pixels or as a percentage of the available space.
- The value of ROWS is a comma-separated list of heights, indicating the height of each row from top to bottom.
- Example: <frameset ROWS="100,200,300"> will create three rows, with the first row having a height of 100 pixels, the second row 200 pixels, and the third row 300 pixels.

➤ <frameset COLS>:-

- The <frameset COLS> attribute is used to divide the available horizontal space within a <frameset> into columns.
- It specifies the width of each column in pixels or as a percentage of the available space.
- The value of COLS is a comma-separated list of widths, indicating the width of each column from left to right.
- Example: <frameset COLS="25%,50%,25%"> will create three columns, with the first column occupying 25% of the available width, the second column 50%, and the third column 25%.



e) JQuery

➤ **jQuery** is a small, light-weight and fast JavaScript library. It is cross-platform and supports different types of browsers. It is also referred as ?write less do more? because it takes a lot of common tasks that requires many lines of JavaScript code to accomplish, and binds them into methods that can be called with a single line of code whenever needed. It is also very useful to simplify a lot of the complicated things from JavaScript, like AJAX calls and DOM manipulation.

- ✓ jQuery is a small, fast and lightweight JavaScript library.
- ✓ jQuery is platform-independent.
- ✓ jQuery means "write less do more".
- ✓ jQuery simplifies AJAX call and DOM manipulation.

Features of jQuery

➤ Following are the important features of jQuery.

- ✓ HTML manipulation
- ✓ DOM manipulation
- ✓ DOM element selection
- ✓ CSS manipulation
- ✓ Effects and Animations
- ✓ Utilities
- ✓ AJAX
- ✓ HTML event methods
- ✓ JSON Parsing
- ✓ Extensibility through plug-ins



-The End-