Module-1
Introduction about the Internet, HTML and XHTML

2Marks

1. Define Internet

   The internet is a global network of interconnected computers and servers that allows people to communicate, share information, and access resources from anywhere in the world.

2. What is Web Browser

   The web browser is an application software to explore www (World Wide Web). It provides an interface between the server and the client and it requests to the server for web documents and services.

3. Define web Server with Example

   Web server is a program which processes the network requests of the users and serves them with files that create web pages. This exchange takes place using Hypertext Transfer Protocol (HTTP).
   Ex. Apache, Nginx.

4. What is URL

   A URL or Uniform Resource Locator is a Unique identifier that is contained by all the resources available on the internet. It can help to locate a particular resource due to its uniqueness. It is also known as the web address.

5. Define Internet Protocol

   Internet protocols are a set of rules that allow computers and other devices to communicate over the Internet. These protocols ensure that data is sent, received, and understood correctly between different systems.

6. What is an IP Address

   An IP address represents an Internet Protocol address. A unique address that identifies the device over the network.

8Marks

1. Explain how does a web browser works
   - The web browser is an application software to explore www (World Wide Web).
   - It provides an interface between the server and the client and it requests to the server for web documents and services.
   - It works as a compiler to render HTML which is used to design a webpage. Google Chrome, Microsoft Edge, Mozilla Firefox, and Safari are examples of web browsers.

Web Browser Works:

A web browser helps us find information anywhere on the internet. It is installed on the client computer and requests information from the web server such a type of working model is called a client-server model.

The browser receives information through HTTP protocol. In which transmission of data is defined. When the browser received data from the server, it is rendered in HTML to user-readable form and, information is displayed on the device screen.
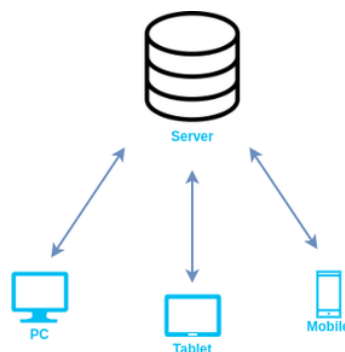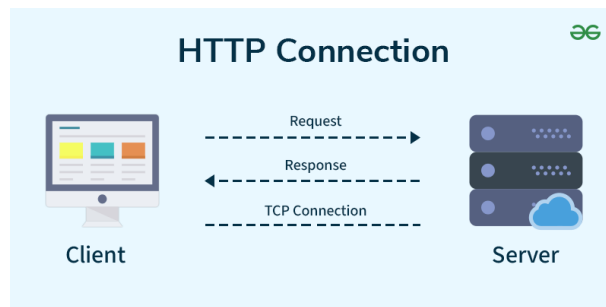
Fig: Client Server Model

2. Explain with diagram about HTTP

HTTP (Hypertext Transfer Protocol):
- HTTP protocol is used to transfer hypertexts over the internet and it is defined by the www (World Wide Web) for information transfer.
- This protocol defines how the information needs to be formatted and transmitted. And, it also defines the various actions the web browsers should take in response to the calls made to access a particular web page.

- Whenever a user opens their web browser, the user will indirectly use HTTP as this is the protocol that is being used to share text, images, and other multimedia files on the World Wide Web.

HTTPS (Hypertext Transfer Protocol Secure):

- HTTPS is an extension of the Hypertext Transfer Protocol (HTTP). It is used for secure communication over a computer network with the SSL/TLS protocol for encryption and authentication. So, generally, a website has an HTTP protocol but if the website is such that it receives some sensitive information such as credit card details, debit card details, OTP, etc. then it requires an SSL certificate installed to make the website more secure.
- So, before entering any sensitive information on a website, we should check if the link is HTTPS or not. If it is not HTTPS then it may not be secure enough to enter sensitive information.

3. Explain about the internet and www
   - The internet is a global network of interconnected computers and servers that allows people to communicate, share information, and access resources from anywhere in the world.
   - It was created in the 1960s by the US Department of Defense as a way to connect computers and share information between researchers and scientists.
   - The World Wide Web, or simply the web, is a system of interconnected documents and resources, linked together by hyperlinks and URLs.
   - It was created by Tim Berners-Lee in 1989 as a way for scientists to share information more easily.
   - The web quickly grew to become the most popular way to access information on the internet.
   - Together, the internet and the web have revolutionized the way we communicate, do business, and access information.
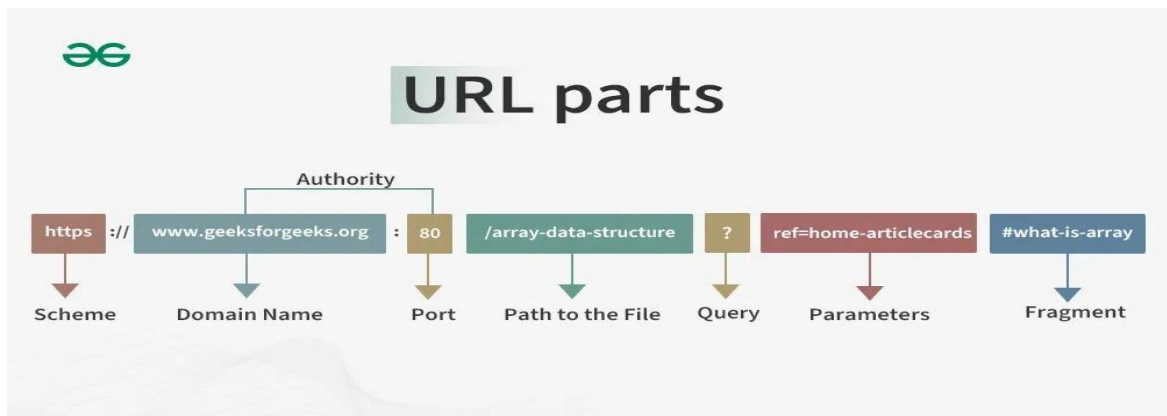
- They have made it possible for people all over the world to connect with each other instantly and have transformed many industries, from media and entertainment to education and healthcare.

10Marks

1. Explain in detail the structure of URL

Different Parts of a URL:
A URL consists of multiple parts that can helps you to visit a particular page on the internet. Every part of a URL has its own importance.

1. **The protocol or scheme:**
A URL starts with a protocol that is used to access the resource on the internet. The resource is accessed through the Domain Name System or DNS. There are multiple protocols available to use like HTTP, HTTPS, FTP, mailto, TELNET etc. The protocol used in the above URL is https.

2. **Domain or Host Name:**
It is the reference or name of the page that you are going to access on the internet. In this case, the domain name is: www.geeksforgeeks.org.

3. **Port Name:**
It is defined just after the domain name by using the colons between itself and the domain name. Generally, it is not visible in the URL. The domain name and the port name combinely can be known as Authority. The default port for web services is port80 (:80).

4. **Path:**
It refers to the path or location of a particular file or page stored on the web server to access the content of it. The path used here is: array-data-structure.

5. Query:

A query mainly found in the dynamic pages. It consists of a question mark(?) followed by the parameters. In above URL query is: ?.
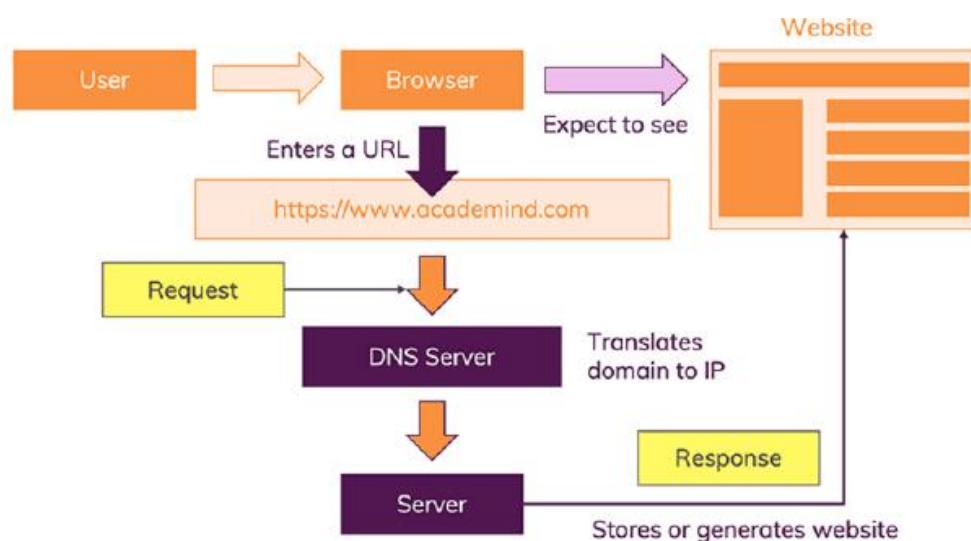
6. Parameters:

These are the pieces of information inside a query string of URL. Multiple parameters can be passed to a URL by using the ampersand (&) symbol to separate them. The query parameter in above URL is: ref=home-articlecards.

7. Fragments:

The fragments appear at the end of a URL starts with a Hashtag(#) symbol. These are the internal page reference that refers to a specific section within the page. The fragment in the above URL is: #what-is-array.

2. Explain in detail how the web works
   1. A user enters a URL into a browser (for example, Google.com. This request is passed to a domain name server.
   2. The domain name server returns an IP address for the server that hosts the Website (for example, 68.178.157.132).
   3. The browser requests the page from the Web server using the IP address specified by the domain name server.
   4. The Web server returns the page to the IP address specified by the browser requesting the page. The page may also contain links to other files on the same server, such as images, which the browser will also request.
   5. The browser collects all the information and displays to your computer in the form of Web page.

3. Write the difference between HTML and XHTML

- The XHTML is syntactically identical to HTML. But XHTML follows certain restrictions. These restrictions are mentioned by following difference.

Sr. No.	HTML	XHTML
1.	The HTML tags are case **insensitive**. Hence <body> or <BODY> or <Body> are treated as one and the same.	The XHTML is **case sensitive** and all the tags in XHTML document must be written in lower case.
2.	We can **omit** the **closing tags** sometimes in HTML document.	For every tag there **must be a closing tag**. Some browsers get confused if the closing tag is not given. There are two ways by which we can mention the closing tags or <a href="Tajmahal.html"/>
3.	In HTML the **attribute values** it not always necessary to **quote** the attribute values. In fact numeric attribute values are rarely quoted in HTML. Only if some special characters or white spaces are present in the attribute values then only it is essential to put quotes around them in HTML.	In every XHTML document the attribute values must be quoted.
4.	In HTML there are some implicit attribute values.	In every XHTML the attribute values must be specified explicitly.
5.	In HTML even if we do not follow the nesting rules strictly it does not cause much difference.	In XHTML document the nesting rules must be strictly followed. These nesting rules are - • A form element cannot contain another form element. • An anchor element does not contain another form element. • List element cannot be nested in the list elements. • If there are two nested elements then the inner element must be enclosed first before closing the outer element. • Text elements cannot be directly nested in form elements.

Module-2

Structuring document for the web, forms and HTML5

2Marks

1. **Define tag with example**

   In HTML, a tag is a piece of code enclosed in angle brackets <> that tells a web browser how to display content. They are the building blocks of HTML documents, defining elements like headings, paragraphs, images, and links.

2. **Define empty element**

   An **empty element** is an element that does not contain any text content. It is simply an instruction to the browser to do something. The most commonly used empty element is <img> i.e. image element. For example –

   < img src = " flower.gif" / >
   Trailing slash
   Element — Attribute
   Name

3. **What is nested HTML element**

   When one HTML element contains another HTML element, then it is called nested HTML element. The container element is called the parent element and the contained element is called child element. For example –

   ```
   <body> ← Parent Element
       <h1> This is heading </h1> ← Child Element
       <h2>This is another heading</h2> ← Sibling Element
   </body>
   ```

4. **Write about following tags**
   a. **<p>**
      The HTML <p>tag is a fundamental element used for creating paragraphs in web development.
   b. **<pre>**
      This tag is used to preserve the white spaces and lines in the text.

5. **Define list with it's different types**

   List is nothing but the collections of items or elements. There are two types of lists - **unordered lists** and **ordered lists.**

6. **Define <header> and <footer> elements in HTML5**

The <header> element specifies the header for the document or section.

The <footer> element specifies a footer for a document or section.
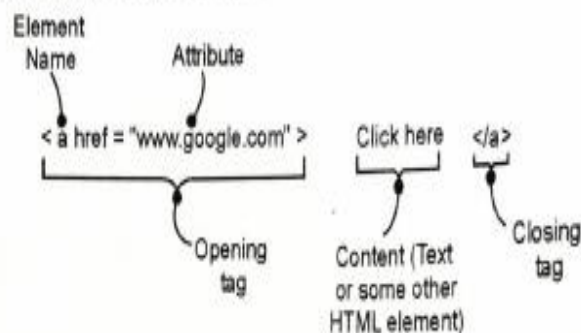
A <footer> element should contain information about its containing element.

8Marks

1. i. Explain elements and attributes

.1 Elements and Attributes

- The HTML element is often interchangeably used with **tag**. But element is a more expansive term that encompasses the element name within angle brackets (i.e., the tag) and the content within the tag.

- The HTML element is identified by **tag** in HTML document.

- The tag consists of the element name within **angle brackets.**

- The element name appears in both the **beginning tag** and the **closing tag**, which contains a forward slash followed by the element's name, again all enclosed within angle brackets.

- The HTML element can also contain **attributes**. The HTML attribute is a name=value pair that provides more information about the HTML element. For example :

```
Element
 Name        Attribute

< a href = "www.google.com" >   Click here   </a>

        Opening       Content (Text      Closing
         tag          or some other       tag
                      HTML element)
```

- An **empty element** is an element that does not contain any text content. It is simply an instruction to the browser to do something. The most commonly used empty element is <img> i.e. image element. For example –

```
< img src = " flower.gif" / >
                            Trailing slash
        Element      Attribute
         Name
```

ii. Explain the nested HTML elements with suitable examples

Nested HTML Elements

- When one HTML element contains another HTML element, then it is called nested HTML element. The container element is called the parent element and the contained element is called child element.
  For example –

```
<body> ← Parent Element
    <h1> This is heading </h1> ← Child Element
    <h2>This is another heading</h2> ← Sibling Element
</body>
```

This can be diagrammatically shown as –
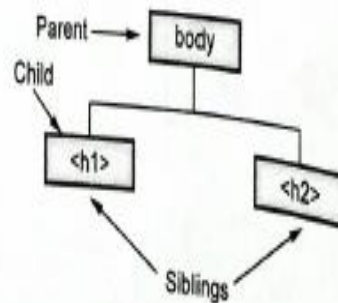

Fig. 1.2.1 HTML Document outline

2. Explain with example <img> tag in HTML

- We can display images as a link. We have to use the <img src=" " > tag for this purpose.
- Within the double quotes image file should be mentioned. Normally .gif or .jpg files are used to display the images on the web browser.
- **Example**

Following HTML Script shows how to insert an image in the web page.

HTML Document [imagedemo.html]

```
<!DOCTYPE html>
<html>
 <head>
     <title> Image Demo </title>
 </head>
 <body>
     <h1> Indian Heritage </h1>
     <p>
     In India, People celebrate the festival of light <br/>
     Which is called as <strong>Diwali</strong>
     </p>
     <img src= "lamp1.jpg" alt= 'Light!!' />
     <br/>
     Diwali suggests us to enlighten our life with hope,health and wealth
     <br/>
 </body>
</html>
```
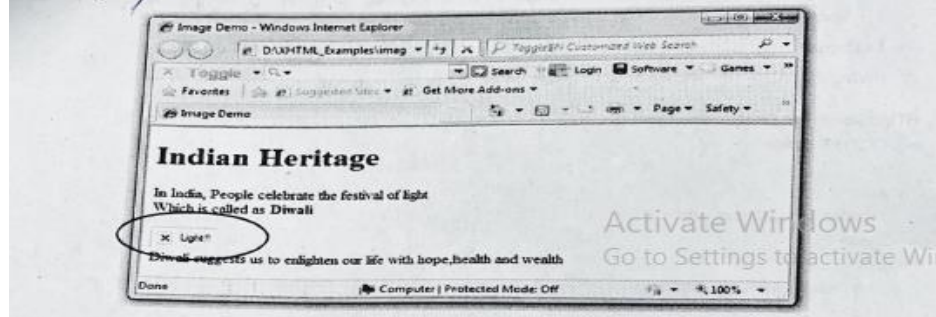
Output

Script Explanation :

In above script we have used <img /> tag in order to display an image. The image tag has two attributes -

- The **src** suggests us to give the image file name. If the desired image is not present in the current directory of web page then the complete path where the image is located must be given.

- The **alt** attribute displays the text when it is not possible to display the image. For instance - in above given **imagedemo.html** script if, the **lamp1.jpg** is not present then we will get following output.

3. Write a simple code to explain ordered and unordered list

Following HTML document makes use of unordered list.

HTML Document [UnordLstDemo.html]

```
<!DOCTYPE html>
<html>
 <head>
    <title> Use of Unordered List </title>
 </head>
 <body>
 <h2>All About Computer ...</h2>
Following are some popular operating systems used in computer
<ul type="disc">
       <li>DOS</li>
       <li>Windows 98</li>
       <li>Windows XP</li>
       <li>Windows Professional</li>
       <li>Windows Vista</li>
       <li>Unix</li>
</ul>
Following are some core subjects on computer science
<ul type="circle">
       <li>Operating system</li>
       <li>Computer Network</li>
       <li>Database management Systems</li>
```
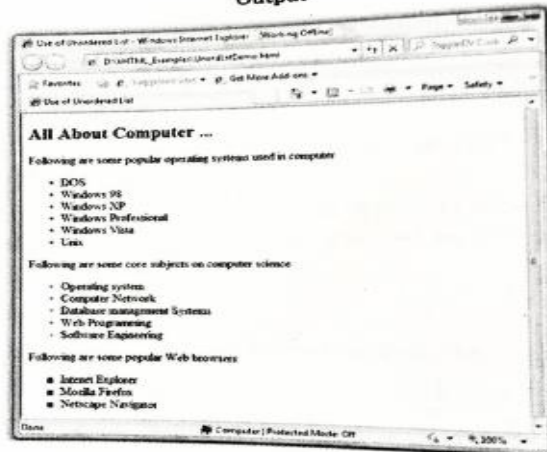
```
        <li>Web Programming</li>
        <li>Software Engineering</li>
    </ul>
    Following are some popular Web browsers
    <ul type="square">
        <li>Intenet Explorer</li>
        <li>Mozilla Firefox</li>
        <li>Netscape Navigator</li>
    </ul>
    </body>
    </html>
```

Output

Ordered List.html

HTML Document [OrdLstDemo1.html]

```
<!DOCTYPE html>

<html>
<head>
    <title> Ordered List Demo </title>
</head>
<body>
    <h4>Information of Nations</h4>
    <ol type="1">
    <li>India
        <ol type="i">
            <li>National Bird: Peacock</li>
            <li>National animal:Tiger</li>
            <li>National game:Hockey</li>
        </ol>
    </li>
    <li>Australia
        <ol type="i">
            <li>National Bird: Emu</li>
            <li>National animal:Kangaroo</li>
            <li>National game:Cricket</li>
        </ol>
    </li>
    </ol>
</body>
</html>
```
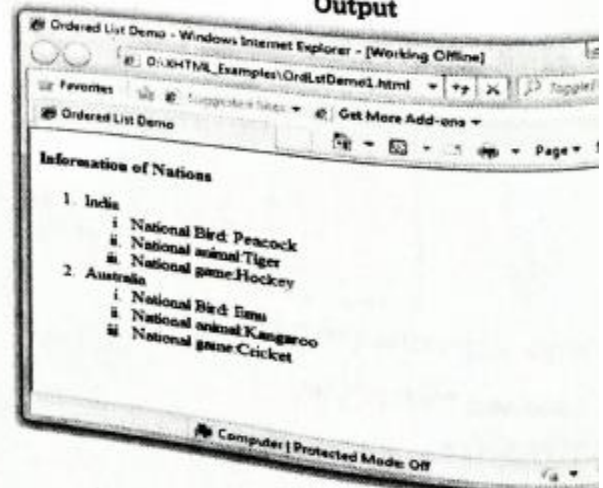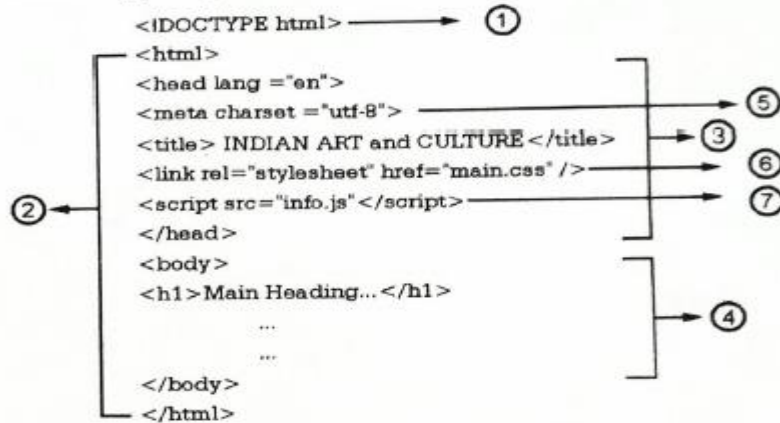
Output

10Marks

1. Explain the structure of HTML document

The structure of HTML document can be illustrated by following sample HTML document

```
<!DOCTYPE html> ──────►  ①
<html>
  <head lang ="en">
    <meta charset ="utf-8">  ──────►  ⑤
    <title> INDIAN ART and CULTURE </title>  ──►③
    <link rel="stylesheet" href="main.css" />─►  ⑥
    <script src="info.js"</script>─────────►  ⑦
  </head>
②◄─
  <body>
    <h1>Main Heading...</h1>
        ...                                  ──►④
        ...
  </body>
</html>
```

1. **Doctype** : The Doctype stands for Document type which tells the browser what type of document (HTML) it is about to process.

2. **HTML** : The <html> element is sometimes called the root element as it contains all the other HTML elements in the document.

3. **Head** : HTML pages are divided into two sections: the head and the body, which correspond to the <head> and <body> elements. The head contains descriptive elements about the document, such as its title, any style sheets or JavaScript files it uses.

4. **Body** : The body contains content (both HTML elements and regular text) that will be displayed by the browser.

5. **Character Encoding** : The <meta> element specifies that the character encoding for the document is **UTF-8.** Character encoding refers to which character set standard is being used to encode the characters in the document. UTF-8 is a more complete variable-width encoding system that can encode all 110,000 characters in the Unicode character set.

6. **External Style Sheet**: The external style sheet such as css can be used with html document.

7. **External Scripts:** sometimes external JavaScript files can be associated with html document.
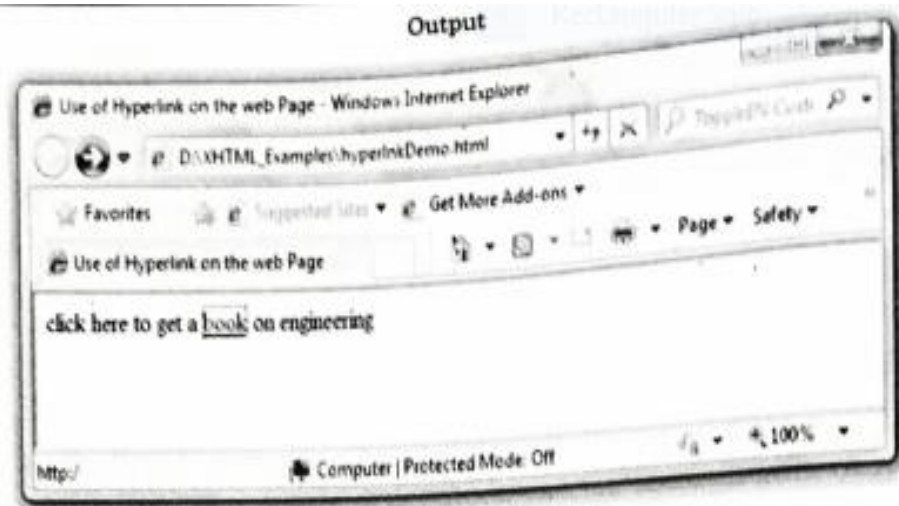
2. Explain the <a> tag with simple HTML code

- There is a common practice to specify the web link in the web page. The link acts as a pointer to some web page or some resource.
- Use of hyperlink in the web page allows that page to link logically with other page.
- We can use hyperlinks by using a tag <a> and by specifying the URL for **href**.
- The value assigned to **href** specifies the target of the link.
- The <a> means beginning of the web link and means end of the web link.
- The most important attribute of the <a> element is the **href** attribute, which indicates the link's destination.
- By default, links will appear as follows in all browsers :
    1) An **unvisited** link is underlined and blue.
    2) A **visited** link is underlined and purple
    3) An **active** link is underlined and red
- Following are the **steps** to be followed to specify web link in the web page.

    Step 1 : The beginning of web link can be specified by the tag <a href = " ". Inside the double quotes mention the URL of desired link.

    Step 2 : Write some text that should act as a hyperlink.

    Step 3 : End the web link

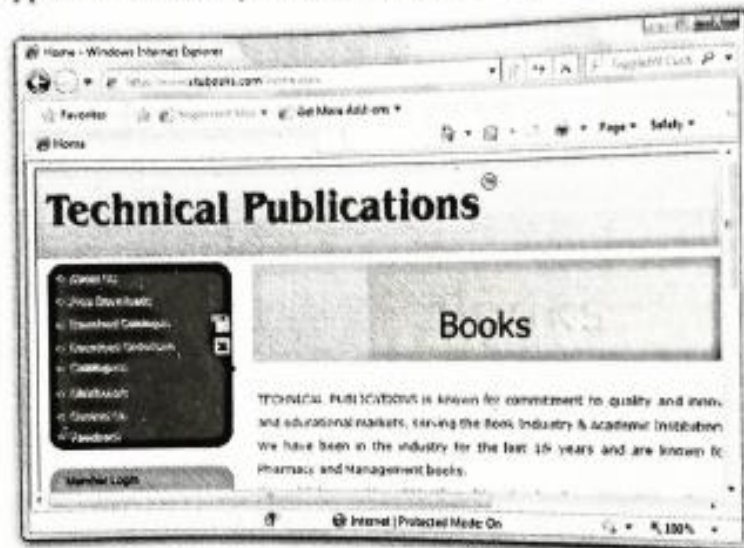Here is a sample program which implements the above given idea -

HTML Document [HyperlnkDemo.html]
```
<!DOCTYPE html>
<html>
<head>
    <title> Use of Hyperlink on the web Page </title>
</head>
<body>
  click here to get a
  <a href="http://www.vtubooks.com">book</a> on engineering
</body>
</html>
```

Activate

Output

If you click on the hyperlink book then you will get the following output.

The target attribute
- If we want to get that link opened in another window we can mention **_target** property. Various targets can be -
- **_self** loads the page into the current window.
- **_blank** loads the page into a new separate browser window.

3. Explain
    a. Text

2.4.1 Text

- **Text** is typically required to place one line text. For example if you want to enter some name then it is always preferred to have Text field on the form.

- The text field can be set using

  ```
  <input type="text" size="30" name ="username" value=" ">
  ```

  The input type is **text** and the **value** of this text field is " " That means the blank text field is displayed initially and we can enter the text of our choice into it. There is **size** parameter which allows us to enter some size of the text field.

- Some other parameters or attributes can be

  o **maxlength** that allows us to enter the text of some maximum length.

  o **name** indicates name of the text field.

  o **align** denotes the alignment of the text in the text field. The alignment can be left, right, bottom and top.

Example Code

HTML Document [TextDemo.html]

```
<!DOCTYPE html>
<html>
    <head>
      <title>My Page</title>
    </head>
    <body>
    <form>
        <b>Input String:</b><br/><input type="text" size="25" value="">
    </form>
    </body>
</html>
```

08m

Output

USon me

Password

Script Explanation :

In above document

1) we have the label "Input String" just before the **<input>** tag. We can also specify the label by using the **<label>** tag as follows -

   ```
   <label>Input String: <br/><input type="text" size="25" value=""></label>
   ```

2) Thus the label gets bound to the text box. This aspect is always beneficial for a web programmer because using label control we can focus on the corresponding text box contents.

3) Initially the text box field is blank. We can type some text inside this text box.

b. Textarea

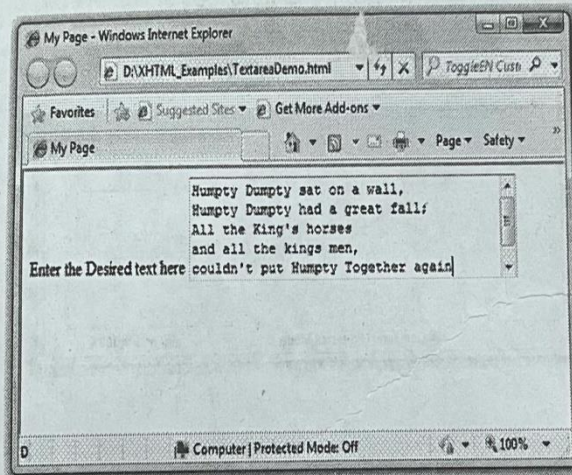**2.4.2 Textarea**

Text field is a form component which allows us to enter single line text, what if we want to have multiple line text? Then you must use textarea component.

Example code

HTML Document [TextareaDemo.html]

```
<IDOCTYPE html>
<html>
<head>
      <title>My Page</title>
</head>
<body>
      <form>
            Enter the Desired text here
            <textarea cols="40" rows="5" name="myname">
            </textarea>
            </form>
</body>
</html>
```

Output

My Page - Windows Internet Explorer

D:\XHTML_Examples\TextareaDemo.html

Favorites | Suggested Sites ▼ | Get More Add-ons ▼

My Page

```
                          Humpty Dumpty sat on a wall,
                          Humpty Dumpty had a great fall;
                          All the King's horses
                          and all the kings men,
Enter the Desired text here couldn't put Humpty Together again
```

Computer | Protected Mode: Off   100%

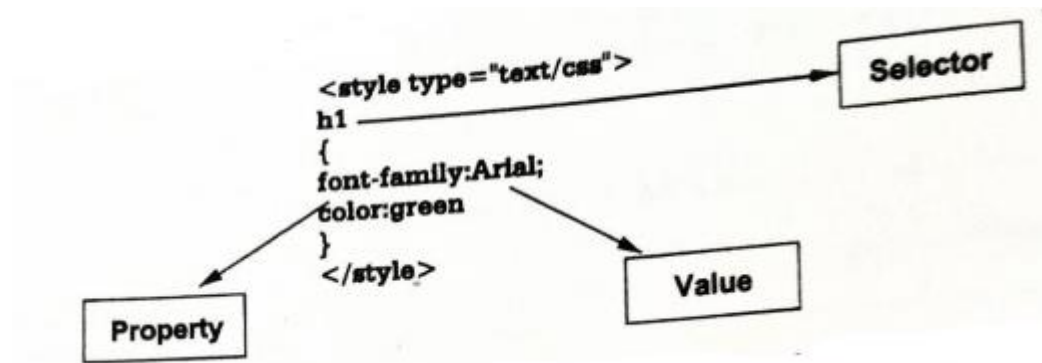Various parameters that can be set for the text area can be

- **row** denotes total number of rows in the text area.
- **col** specifies total number of columns in the text area.
- **name** denotes the name of the text area which can be utilised for handling that component for some specific purpose.
- **wrap** can be **virtual** or **physical**. If the **wrap** is virtual then the line breaks get disappeared when the text is actually submitted to the server. But if the wrap is assigned to the **physical** then the line breaks (if any) appear as it is in the text.

Module-3

Introduction about cascading style sheet

2Marks

1. **What is the syntax for CSS**
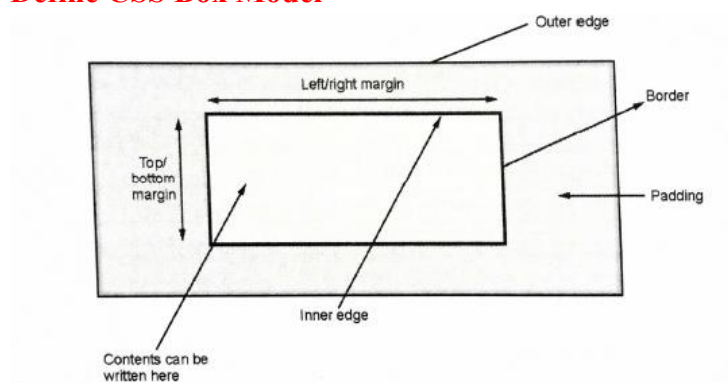

The type attribute tells the browser that what is reading is text which is affected by the cascading style

2. **List out the different selectors available in CSS**

    The different selectors are
    a. Simple selector
    b. Class selector
    c. Generic selector
    d. Id selector
    e. Universal selector
    f. Attribute selector

3. **Define CSS Box Model**

    The Box is used when we insert contents within some rectangle. The box model represents the contents , inner edge, outer edge, margins and padding .

4. **What is the difference between margin and padding**

    Margin means the space between the content and its neighbouring content. There can be top margin, bottom margin, left margin and right margin. The values of these properties can be given in px and in.

Padding means the space between the contents and its border. Various properties of padding are padding- left , padding – right, padding-top, padding-bottom. These values can also be given in px and in.

5. **What does the 'a' in rgba**

'a' Represents the alpha channel value of the color, from 0% (or 0) - fully transparent to 100% (or 1) - fully opaque. None can also be used (indicates no alpha channel). The default value is 100%.The alpha parameter is a number between 0.0 (fully transparent) and 1.0 (fully opaque).

rgba(red, green, blue, alpha)   ex: `rgba(255, 99, 71, 0.5)`

8Marks:

1. **What is CSS ? Describe the benefits of CSS?**

Cascading Style Sheet is a markup language used in the web document for presentation purpose. The primary intension od CSS was to separate out the web content from the web presentation.

(1) **Improved Control Over Formatting** : The web page developer (called as web author) have better control over formatting of web contents.

(2) **Improved Site Maintainability** : It becomes easy to maintain the site because the formatting is centralized into one CSS file.

(3) **Improved Accessibility** : The CSS driven sites are more accessible and give the user significantly enriched experience of accessibility of the web page.

(4) **Improved Download Speed** : As all the formatting is centralized into one CSS file, all presentation will be quicker to download.

(5) **Output Flexibility** : CSS can be used to adopt a page for different output media. This approach to CSS page design is often referred to as responsive design.

(6) **Portability and compatibility:** CSS ensures your designs remain consistent across different devices and platforms, enhancing the user experience and making your site accessible to a broader audience.

2. **Explain what are CSS HSL colors**

hsl(*hue, saturation, lightness*)

Hue is a degree on the color wheel from 0 to 360. 0 is red, 120 is green, and 240 is blue.
Saturation is a percentage value. 0% means a shade of gray, and 100% is the full color.
Lightness is also a percentage. 0% is black, 50% is neither light or dark, 100% is white

Saturation can be described as the intensity of a color.
100% is pure color, no shades of gray.
50% is 50% gray, but you can still see the color.
0% is completely gray; you can no longer see the color.

Lightness
The lightness of a color can be described as how much light you want to give the color, where 0% means no light (black), 50% means 50% light (neither dark nor light) and 100% means full lightness (white).

Shades of Gray
Shades of gray are often defined by setting the hue and saturation to 0, and adjust the lightness from 0% to 100% to get darker/lighter shades

10Marks

1. Explain
   a. Inline style sheet
   b. Document level style sheet
   c. External level style sheet

   Inline Sheet

Inline Style Sheet

- The inline cascading style sheet is a kind of style sheet in which the styles can be applied to HTML tags. This tag can be applied using following rule -

```
Tag
{
property: value
}
```

- For example :

```
<p style="font-family: Arial;color:red" >
```

Here for the tag **p** two properties are used such as **font-family** and **color** and those are associated with the values such as Arial and red respectively.

- Note that if we want to use **more than one property** then we have to use separator such as semicolon. In the following HTML document we have used cascading style sheet-

HTML Document [InlineStyle.html]

```
<!DOCTYPE html >
<html>
<head>
    <title>Inline Cascading Style Sheet</title>
</head>
<body>
    <p>This is simple text</p>
    <p style='font-size: 30pt ;font-family:Script'>This text is different </p>
    <p style='font-size: 40pt ;color:#ff0000'>This text is colored.</p>
</body>
</html>
```

Document Level Style Sheet

- This type style sheet appears only in the head section and in the body section newly defined Selector tags are used with the actual contents.

- For example : In the following HTML script we have defined **h1, h2, h3** and **p** selectors. For each of these **selectors** different property and values are set. Such setting will help us to represent our web page in some decorative form.

- The most important thing while writing document level style sheet is that we should mention the **style type="text/css"** in the head section. By this the browser will come to know that the program is making use of cascading style sheet.

HTML Document [DocLevelCSS.html]

```
<IDOCTYPE html>
<html >
<head>
<title>Document Level style sheet</title>
<style type="text/css">
    h1
    {
    font-family:Arial;
    color:green
    }
    h2
    {
    font-family:Arial;
    color:red;
    left:20px
    }
    h3
    {
    font-family:arial;
    color:blue;
    }
    p
    {
    font-size:14pt;
    font-family:verdana
    }
</style>
</head>
<body>
    <h1>
        <center>
        This page is created using Document Level Style Sheet
        </center>
    </h1>
    <h2>
        This line is aligned left and red colored.
    </h2>
    <p>
        The embedded style sheet is the most commonly used style sheet.
        This paragraph is written in Verdana font with font size of 14.
    </p>
    <h3>
    This is a blue <a href="colorname.html">colored</a> line.
    </h3>
</body>
```

External Level Style Sheet

External Stylesheet

- Sometimes we need to apply particular style to more than one web documents in such cases external style sheets can be used.
- The central idea in this type of style sheet is that the desired style is stored in one .css file. And the name of that file has to be mentioned in our web pages.
- Then the styles defined in .css file will be applied to all these web pages.
- Here is a sample program in which external style sheet is used.

Step 1 : Create an HTML document

HTML Document[ExtCSS.html]

```html
<!DOCTYPE html>
<html >
<head>
<link rel="stylesheet" type="text/css" href="ex1.css" />
</head>
<body>
<h1 class="special"> <center> This page is created using External Style
Sheet</center>  </h1>
    <h2>
        This line is aligned left and red colored.
    </h2>
    <p>
    The External style sheet is the compact representation of Cascading Style Sheets.
    This paragraph is written in Monotype Corsiva font with font size of 14.
    </p>
    <h3>
        This is a blue <a href="colorname.html">colored</a> line.

       </h3>
    </body>
    </html>
```

Step 2 : Create a css file which contains the styles that can be applied to different HTML elements present in the above HTML document.

The cascading style sheet ex1.css can be

```css
<!- - The file name ex1.css and can be opened in notepad.-->
h1
{
font-family:Arial
}
h2
{
font-family:times new roman;
color:red;
left:20px
}
h3
{
font-family:arial;
color:blue;
}
p
{
font-size:14pt;
font-family:Monotype Corsiva
}
```
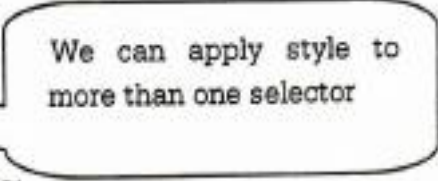
2. Explain with simple code
   a. Simple selector
   b. Class selector
   c. ID selector

a. **Simple selector** form is a single element to which the property and value is applied. It can be applied to group of elements also.

Ex:

```html
<!DOCTYPE html>
<html >
      <head>
      <title>Simple Selector Form</title>
      <style type="text/css">
            h1
            {
            font-family:Arial;
            color:green;
            }
            h2,h3
            {
            font-family:Monotype Corsiva;
            color:red;
            font-size: 28pt;
            }
      </style>
      </head>
      <body>
            <h1>India is My Country</h1>
            <h2>All the Indians are my brothers and sisters</h3>
            <h3>I love my country</h3>
      </body>
</html>
```

> We can apply style to more than one selector

Output

b. Class Selector

Using Class selector we can assign different styles to the same element . These different styles appear on different occurrence of that element

For example

HTML Document[ClassSel.html]

```
<!DOCTYPE html>
<html>
<head>
<title>Class Selector Form</title>
<style type="text/css">
h1.RedText
{
 font-family:Monotype Corsiva;
 color:red;
 font-size: 14pt;
}
h1.BlueText
{
 font-family:Arial;
 color:blue;
 font-size: 10pt;
}
</style>
</head>
<body>
 <h1 class ="RedText">India is My Country</h1>
 <h1 class="BlueText">All the Indians are my brothers and sisters</h1>
 <h3>I love my country</h3>
</body>
</html>
```

c. ID Selector

Id selector is applied to the one specific element
Syntax is
#name_of_id
{
Property: value list;
}

```
HTML Document[IdSel.html]
<!DOCTYPE html>
<html>
 <head>
 <title>id Selector</title>
 <style type="text/css">
     #top
     {
      font-family:Monotype Corsiva;
      color:blue;
      font-size:16pt;
     }
     </style>
 </head>
 <body>
 <div id="top">
     It is the mark of an educated mind to be able to
     entertain a thought without accepting it.
 </div>
 <p>
     -Aristotle
 </p>
 </body>
 </html>
```

1. What is HTML table

HTML Tables allow us to arrange data into rows and columns on a web page, making it easy to display information like schedules, statistics, or other structured data in a clear format. An HTML table is created using the <table> tag.

```
<!DOCTYPE html>
<html>
<body>
   <table>
     <tr>
        <th>Firstname</th>
        <th>Lastname</th>
        <th>Age</th>
     </tr>
     <tr>
        <td>Priya</td>
        <td>Sharma</td>
        <td>24</td>
     </tr>
     <tr>
        <td>Arun</td>
        <td>Singh</td>
        <td>32</td>
     </tr>
     <tr>
        <td>Sam</td>
        <td>Watson</td>
        <td>41</td>
     </tr>
   </table>
</body>

</html>
```

2. **What are <tr> and <th> in HTML table**
   <tr> defines a row within a table, it simply establishes the structure of the row.
   Example: `<tr><td>John Doe</td><td>`**`john.doe@example.com`**`</td></tr>`

   <th> defines a header cell for that row. The **<th>** tag is typically used to represent the headings of columns or rows
   Example: <th>Name</th><th>Email</th>

3. **Define rowspan and colspan**
   In HTML tables, colspan and rowspan are attributes used to merge table cells horizontally and vertically, respectively.
   colspan: This attribute, applied to a <td> or <th> tag, determines how many columns a cell should occupy. For
   example, colspan="2" would make a cell span two columns, displacing the subsequent cells to the right.

   rowspan: Similarly, rowspan, also used on <td> or <th>, defines the number of rows a cell should span
   vertically. rowspan="3" would make a cell occupy three rows, effectively merging cells below it.

4. **What are the different CSS border properties**
   The CSS border properties allow us to specify the style, width, and color of an element's border.
   The **border-style property** specifies what kind of border to display. The different border style property are **(write any four)**
   a. **dotted** - Defines a dotted border
   b. **dashed** - Defines a dashed border
   c. **solid** - Defines a solid border
   d. **double** - Defines a double border
   e. **groove** - Defines a 3D grooved border. The effect depends on the border- color value

f. **ridge** - Defines a 3D ridged border. The effect depends on the border-color value

g. **inset** - Defines a 3D inset border. The effect depends on the border-color value

h. **outset** - Defines a 3D outset border. The effect depends on the border-color value

i. **none** - Defines no border

j. **hidden** - Defines a hidden border

5. How to size an image in HTML

To size an image in HTML, we can use the width and height attributes within the <img> tag, either in pixels or percentages. Alternatively, we can use CSS styles like width, height, or max-width to resize the image.

```
Ex: <img src="image.jpg" width="300" height="200"
alt="Description of the image">
```

8Marks

1. **Explain with simple HTML code the basic table structure**

Table Cells
Each table cell is defined by a <td> and a </td> tag.
td stands for table data.
Everything between <td> and </td> is the content of a table cell.

Table Rows
Each table row starts with a <tr> and ends with a </tr> tag.
tr stands for table row.

Table Headers
Sometimes we want our cells to be table header cells. In those cases use the <th> tag instead of the <td> tag:
th stands for table header.

```
<table>
  <tr>
    <th>Company</th>
```

```html
        <th>Contact</th>
        <th>Country</th>
    </tr>
    <tr>
        <td>Alfreds Futterkiste</td>
        <td>Maria Anders</td>
        <td>Germany</td>
    </tr>
    <tr>
        <td>Centro comercial Moctezuma</td>
        <td>Francisco Chang</td>
        <td>Mexico</td>
    </tr>
</table>
```

Company	Contact	Country
Alfreds Futterkiste	Maria Anders	Germany
Centro comercial Moctezuma	Francisco Chang	Mexico

2. Write HTML code to draw table given below

Faculty of Engineering & Technology

Table with Colspan

Name		Class
Mahima	Gupta	1
Sri	Krishn	3
Shivika	Goyal	5

```html
<!DOCTYPE html>
<html lang="en">

<head>
```

```html
<meta charset="UTF-8">
<title>HTML Table with Colspan</title>
<meta name="viewport" content="width=device-width,
                    initial-scale=1.0">
<title>HTML Table</title>
<style>
    h1,
    h3 {
        text-align: center;
        color: green;
    }

    table {
        width: 100%;
        border: 1px solid #100808;
        border-collapse: collapse;
    }

    th,
    td {
        padding: 10px;
        border: 2px solid black;

    }
</style>
</head>

<body>
    <h1> Faculty of Engineering & Technology </h1>
    <h3>Table with Colspan
    </h3>

    <table>
        <thead>
            <tr>
                <th colspan="2">Name</th>
                <th>Class</th>
            </tr>
        </thead>
        <tbody>
            <tr>
                <td>Mahima</td>
                <td>Gupta</td>
```

```
            <td>1</td>
        </tr>
        <tr>
          <td>Sri</td>
          <td>Krishn</td>
          <td>3</td>
        </tr>
        <tr>
          <td>Shivika</td>
          <td>Goyal</td>
          <td>5</td>
        </tr>
      </tbody>
    </table>
</body>
</html>
```

3. Write a short note on <iframe> in HTML

The <iframe> tag in HTML is used to embed another HTML document (or other content like videos, maps, etc.) within the current HTML document, creating a frame within the webpage. This allows you to display content from other sources without directly embedding it.

Ex:
<iframe src="/default.asp" width="200" height="200"></iframe>

The src attribute specifies the URL of the document we want to embed.
width and height: Defines the size of the iframe on our page.

```
<iframe
  id="inlineFrameExample"
  title="Inline Frame Example"
  width="300"
  height="200"
```

src="https://www.openstreetmap.org/export/embed.html?bbox=-0.004017949104309083%2C51.47612752641776%2C0.00030577182769775396%2C51.478569861898606&layer=mapnik">
</iframe>

Iframes are used for various purposes like:
  a. Embedding Multimedia: Easily integrate videos, audio, or animations from platforms like YouTube, etc.
  b. Including Maps: Embed maps from services like Google Maps directly into your site.
  c. Loading Forms and Widgets: Incorporate forms or widgets from other sources without writing complex code.

10Marks

1. **Explain border collapse with example**

In CSS, border-collapse determines whether borders between table cells are merged into a single border or displayed separately. When set to collapse, adjacent cell borders are combined into a single border, creating a cleaner, more compact look. The default value is separate, which shows each cell with its own distinct border.

```
<table border="1" style="border-collapse: collapse;">
  <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
  </tr>
  <tr>
    <td>Cell 3</td>
    <td>Cell 4</td>
  </tr>
</table>
```

  a. border-collapse: collapse;:

   This CSS property tells the browser to merge adjacent cell borders, resulting in a single, combined border.

  b. border-collapse: separate;:

This property (the default) would result in separate borders around each cell.

c. <table>, <tr>, <td>:

These HTML elements are used to create a basic table structure with rows (<tr>) and cells (<td>).

d. border="1":

This HTML attribute is used to add a basic border to the table for demonstration purposes. It can be combined with the border-collapse property to control how the borders are displayed.

2. Give an HTML document to display the table cells in box format

HTML tables can adjust the padding inside the cells, and also the space between the cells this displays cells in box format

```html
<!DOCTYPE html>
<html lang="en">

<head>
  <style>
    table {
      border: 2px solid black;
      border-spacing: 25px;
      width: 100%;
    }

    th,
    td {
      border: 2px solid #7a3f3f;
      padding: 10px;
      text-align: center;
    }

    h1,
    h3 {
      text-align: center;
      color: green;
    }
  </style>
</head>
```

```html
<body>
    <h1>HTML Cell Spacing</h1>
    <h3>
            The HTML table defines the
        space between cells uding CSS
        border-spacing property .
    </h3>

    <table>
        <thead>
            <tr>
                <th>Name</th>
                <th>Class</th>
                <th>Roll No</th>
            </tr>
        </thead>
        <tbody>
            <tr>
                <td>Mahima</td>
                <td>10</td>
                <td>1</td>
            </tr>
            <tr>
                <td>Ravi</td>
                <td>11</td>
                <td>2</td>
            </tr>
            <tr>
                <td>Krishna</td>
                <td>8</td>
                <td>3</td>
            </tr>
        </tbody>
    </table>
</body>

</html>
```

HTML Cell Spacing

The HTML table defines the space between cells uding CSS border-spacing property .

Name	Class	Roll No
Mahima	10	1
Ravi	11	2
Krishn	8	3

Module-5
Introduction to JavaScript

1. **Define JavaScript**
   - JavaScript is a scripting language
   - A scripting language is a lightweight programming language
   - JavaScript is usually embedded directly into HTML pages
   - JavaScript is an interpreted language (means that scripts execute without preliminary compilation)
   - Everyone can use JavaScript without purchasing a license

2. **What are the different layers of JavaScript**
   a. Presentation layer
   b. Validation layer
   c. Asynchronous layer

3. **List out the different ways to include JavaScript in the HTML document**
   a. Inline JavaScript
   b. Embedded JavaScript
   c. External JavaScript

4. **What are the reserved words**
   A reserved word or a reserved identifier is a word that cannot be used as an identifier, such as the name of a variable, function, or label. Thus, it is reserved and cannot be used for defining any of these. This is a syntactic definition, and a reserved word may have no meaning.

5. **What is the use of string concatenation operator**
   The concatenation operators combine two strings to form one string by appending the second string to the right-hand end of the first string. The concatenation might occur with or without an intervening blank.

6. **List out the different looping statements in JavaScript**
   a. For loop
   b. While loop
   c. Do-while loop

8Marks

1. Explain the use of presentation, validation and asynchronous layers

1) Presentation Layer :
- This layer is responsible for **display of information.**
- These presentation layer applications include common things like creating, hiding, and showing divs, using tabs to show multiple views, or having arrows to page through result sets.
- This layer is most closely related to the **user experience.**
- It is generally most visible to the **end user.**

2) Validation Layer :
- The JavaScript is used to **validate logical aspects of users' experience.**
- For example - it takes care of validating the form, before submitting.
- It is normally used in **conjunction with** the presentation layer.

3) Asynchronous Layer :
- Normally, JavaScript operates in a **synchronous** manner where a request sent to the server requires a response before the next lines of code can be executed. During the wait between request and response the browser sits in a loading state and only updates upon receiving the response.
- In contrast, an **asynchronous layer** can **route** requests to the server in the **background.** In this model, as certain events are triggered, the JavaScript sends the HTTP requests to the server, but while waiting for the response, the rest of the application functions normally, and the browser **isn't in a loading state.**

2. Define Identifier. Mention the rules to declare a valid identifier

1. Identifiers
- Identifiers are the names given to the variables. These variables hold the data value. Following are some conventions used in JavaScript for handling the identifiers -
  1. Identifiers must begin with either letter or underscore or dollar sign. It is then followed by any number of letters, underscores, dollars or digits.
  2. There is no limit on the length of identifiers.
  3. The letters in the identifiers are case-sensitive. That means the identifier INDEX, Index, index, inDex are considered to be distinct.
  4. Programmer defined variable names must not have upper case letters.

3. Explain string concatenation operator with example

String Concatenation Operator

- Two string can be concatenated using the + operator. A variable can be concatenated with the string using + operator also.

JavaScript[StrOper.html]

```html
<!DOCTYPE html >
<html >
    <head>
     <title>String Concatenation Demo</title>
    </head>
    <body>
     <center>
      <script type="text/javascript">
      var first_string;
      first_string="Programming";
      document.write("<h3>"+first_string+" the web'+'</h3>");
      </script>
     </center>
    </body>
    </html>
```

Output

String Concatenation Demo - Windows Internet Explorer

D:\JavaScript_Ex\StrOper.html

Favorites   Get More Add-ons

String Concatenation Demo   Page   Safety

Programming the web

Computer | Protected Mode: Off   100%

10Marks

1. Explain

   a. Inline JavaScript

   1. Inline JavaScript :

      - Concept : Inline JavaScript refers to the practice of including JavaScript code directly within certain HTML attributes.
      - Example Code

      ```
      <!DOCTYPE html>
      <html>
      <body>
          <a href="JavaScript:OpenWindow()">more info</a>
          <input type="button" value="Click Me" onclick="alert('Good Morning');" />
      </body>
      </html>
      ```

      - Drawback : Maintenance is complex activity for this type of JavaScript, because it requires to scan through almost every line of HTML looking for inline JavaScript.

   b. Embedded JavaScript

   2. Embedded JavaScript :

      - Concept : Embedded JavaScript refers to the practice of placing JavaScript code within a <script> element.
      - Example Code

      ```
      <!DOCTYPE html>
      <html>
      <head>
          <script type="text/javascript">
              alert('Good Morning');
          </script>
      </head>
      </html>
      ```


   c. External JavaScript

3. **External JavaScript :**

   o **Concept :** The JavaScript is written in separate file, having the file extension .js. These external file typically contain function definitions, data definitions, and other blocks of JavaScript code.

   o **Example Code :**

   Step 1 : Create a separate file in which the JavaScript code is written. Save this file using .js extension

   myscript.js
   ```
   document.write("Welcome!!!");
   ```

   Step 2 : Create an HTML document that is embedding the external JavaScipt file

   Test.HTML
   ```
   <!DOCTYPE html>
   <html>
   <head>
       <script type="text/javascript" src="myscript.js">
       </script>
   </head>
   </html>
   ```
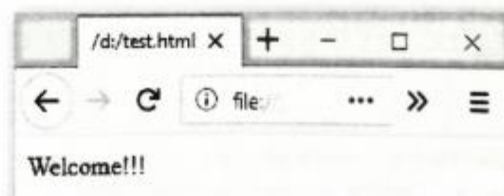
   Step 3 : Open suitable Web browser, and get the output as follows -

   Output

   Welcome!!!

2. Write a script that reads an integer and display whether it is prim number or not

Sol. :

```
<html>
 <head>
  <title>PRIME NUMBER DEMO</title>
 </head>
<body>
  <script type="text/javascript">
```
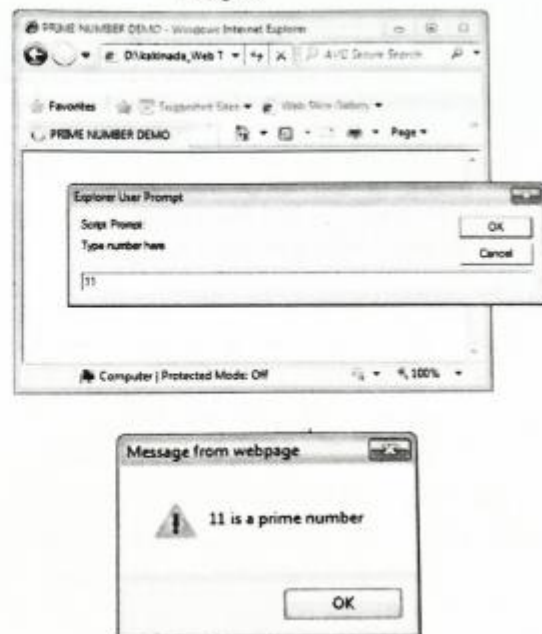
```
var num=prompt("Type number here.","");
var b;
var flag=1;
for(i=2;i<num;i++)
{
  b=num%i;
  if(b==0)
  {
    flag=0;

    break;
  }
}
if(flag==0)
    alert(num+" is not a prime number");
else
    alert(num+" is a prime number");
</script>
</body>
</html>
```

Output

3. Write a script to print characters at the odd position

Sol. :

```
<html>
<body>
<script>
var str="India";
var k=str.length;
for(i=0;i<=k;i=i+2)
{
n=str.charAt(i);
document.write(n);
document.write(" ");
}
</script>
</body>
</html>
```

Output

I d a