

Mumbai Education Trust's

INSTITUTE OF ENGINEERING, BKC, NASHIK.**T.E (Computer Engineering)****WEB TECHNOLOGY (2019 Pattern)****INSEM APR - 2023***Time : 1 Hour**[Max. Marks : 30]**Instructions to the candidates:*

- 1) *Solve Que. 1 or 2, Que.3 or 4 .*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Assume suitable data if necessary.*
- 4) *Figures to the right indicate full marks.*

Date : 05/04/2023**WT INSEM MODEL ANSWER APR - 2023****Q 1. a) Explain the following.****5-Marks****1) WWW Vs Internet****2) HTML Heading tags with syntax****Ans :- 1) WWW Vs Internet**

S.No.	INTERNET	WWW
1	Internet is a global network of networks.	WWW stands for World wide Web.
2	Internet is a means of connecting a computer to any other computer anywhere in the world.	World Wide Web which is a collection of information which is accessed via the Internet.
3	Internet is infrastructure.	WWW is service on top of that infrastructure.
4	Internet uses IP address.	WWW uses HTTP.
5	The first version of the Internet was known as ARPANET.	In the beginning WWW was known as NSFNET.
6	Internet is primarily hardware-based.	WWW is more software-oriented as compared to the Internet.
7	It is originated sometimes in late 1960s.	English scientist Tim Berners-Lee invented the WWW in 1989.

2) HTML Heading Tags with syntax :

A HTML heading or HTML h tag can be defined as a title or a subtitle which you want to display on the webpage. When you place the text within the heading tags `<h1>.....</h1>`, it is displayed on the browser in the bold format and size of the text depends on the number of heading.

There are six different HTML headings which are defined with the <h1> to <h6> tags, from highest level h1 (main heading) to the least level h6 (least important heading).

h1 is the largest heading tag and h6 is the smallest one. So h1 is used for most important heading and h6 is used for least important.

Example :

1. <h1>Heading no. 1</h1>
2. <h2>Heading no. 2</h2>
3. <h3>Heading no. 3</h3>
4. <h4>Heading no. 4</h4>
5. <h5>Heading no. 5</h5>
6. <h6>Heading no. 6</h6>

Output:

Heading no. 1

Heading no. 2

Heading no. 3

Heading no. 4

Heading no. 5

Heading no. 6

b) Write HTML Code for GATE Examination registration page. Web page should have elements such as textbox, password field, checkbox, radio button, Select box, Submit and Reset button etc **5-Marks**

Ans : Code :

```
<Html>
<head>
<title>
Registration Page
</title>
</head>
<body bgcolor="yellow">
<br>
<br>
<form>

<h1> GATE Examination Registration Form </h1>
<label> Firstname </label>
```

```
<input type="text" name="firstname" size="15"/> <br> <br>
<label> Middlename: </label>
<input type="text" name="middlename" size="15"/> <br> <br>
<label> Lastname: </label>
<input type="text" name="lastname" size="15"/> <br> <br>
<label> Password: </label>
<input type="password" name="password" size="15"/> <br> <br>
<label>
```

Course :

```
</label>
```

```
<select>
```

```
<option value="Course">Course</option>
```

```
<option >Computer Engineering</option>
```

```
<option >Information Technology</option>
```

```
<option >Mechanical Engineering</option>
```

```
<option >Civil Engineering</option>
```

```
</select>
```

```
<br>
```

```
<br>
```

```
<label>
```

Choice of City :

```
</label><br><br>
```

```
<input type="checkbox" /> Nashik
```

```
<input type="checkbox" /> Pune
```

```
<input type="checkbox" /> Mumbai
```

```
<br>
```

```
<br>
```

```
<label>
```

Gender :

```
</label><br>
```

```
<input type="radio" name="male"/> Male <br>
```

```
<input type="radio" name="female"/> Female <br>
```

```
<input type="radio" name="other"/> Other
```

```
<br>
```

```
<br>
```

```
<input type="Submit">
```

```
<input type="Reset">
```

OUTPUT :

GATE Examination Registration Form

Firstname

Middlename:

Lastname:

Password:

Course :

Choice of City :

Nashik Pune Mumbai

Gender :

Male

Female

Other

c) What is CSS? Explain CSS Inheritance with example.

5-Marks

Ans : CSS stands for Cascading Style Sheets.

- CSS saves a lot of work. It can control the layout of multiple web pages all at once.
- Cascading Style Sheets (CSS) is used to format the layout of a webpage.
- With CSS, you can control the color, font, the size of text, the spacing between elements, how elements are positioned and laid out, what background images or background colors are to be used, different displays for different devices and screen sizes, and much more.
- CSS can be added to HTML documents in 3 ways:
 - Inline - by using the style attribute inside HTML elements
 - Internal - by using a <style> element in the <head> section
 - External - by using a <link> element to link to an external CSS file

CSS inheritance describes how certain styles are initialized or computed depending on the CSS property and whether a value was set. Some properties are inherited with an initial, default value. Other properties are non-inherited and set to the computed value of its containing element by default.

Example :

```
<!DOCTYPE html>
<html>

<head>
  <style>
    #parentclass {
      color: black;
```



```
    }

    #child1 {
        color: green;
    }

    #childchild1 {
        color: red;
    }
</style>
</head>

<body>
    <div id="div1">
        Parent
        <div id="child1">
            Child 1
            <div id="childchild1">
                Child Child 1
                <div id="childchildchild1">
                    Child Child Child
                </div>
            </div>
            <div id="childchild2">
                Child Child 2
            </div>
        </div>
        <div id="child2">
            Child 2
        </div>
    </div>
</body>
</html>
```

OUTPUT :

```
Parent
Child 1
Child Child 1
Child Child Child
Child Child 2
Child 2
```

OR

Q 2. a) Difference HTML Vs HTML5.**5-Marks**

Ans :

HTML	HTML5
<ul style="list-style-type: none"> Doctype declaration in Html is too longer <code><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd"></code> 	<ul style="list-style-type: none"> DOCTYPE declaration in Html5 is very simple <code><!DOCTYPE html></code>
<ul style="list-style-type: none"> character encoding in Html is also longer <code><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN"></code> 	<ul style="list-style-type: none"> character encoding (charset) declaration is also very simple <code><meta charset="UTF -8"></code>
<ul style="list-style-type: none"> Navigation, Audio and Video are not part of HTML4 	<ul style="list-style-type: none"> Navigation, Audio and Videos are integral part of HTML5 e.g. <code><nav></code>, <code><audio></code> and <code><video></code> tags.
<ul style="list-style-type: none"> Vector Graphics is possible with the help of technologies such as VML, Silverlight, Flash etc 	<ul style="list-style-type: none"> Vector graphics is integral part of HTML5 e.g. SVG and canvas
<ul style="list-style-type: none"> It is almost impossible to get true GeoLocation of user browsing any website especially if it comes to mobile devices 	<ul style="list-style-type: none"> JS GeoLocation API in HTML5 helps identify location of user browsing any website (provided user allows it)
<ul style="list-style-type: none"> Html use cookies. 	<ul style="list-style-type: none"> It provides local storage in place of cookies.
<ul style="list-style-type: none"> Not possible to draw shapes like circle, rectangle, triangle 	<ul style="list-style-type: none"> Using Html5 you can draw shapes like Circle, rectangle, triangle.
<ul style="list-style-type: none"> Does not allow JavaScript to run in browser. JS runs in same thread as browser interface. 	<ul style="list-style-type: none"> Allows JavaScript to run in background. This is possible due to JS Web worker API in HTML5
<ul style="list-style-type: none"> Works with all old browsers 	<ul style="list-style-type: none"> Supported by all new browser.

b) Write HTML Code with example to explain internal and External CSS.**5-Marks**

Ans :-

1. External CSS :

- With an external style sheet, you can change the look of an entire website by changing just one file!
- Each page must include a reference to the external style sheet file inside the `<link>` element. The `<link>` element goes inside the `<head>` section:
- Example**
- `<head>`

```
<link rel="stylesheet" type="text/css" href="mystyle.css">
</head>
```

Example :

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" href="mystyle.css">
```

```
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

"mystyle.css"

```
body {
  background-color: lightblue;
}

h1 {
  color: navy;
  margin-left: 20px;
}
```

2. Internal CSS :

- An internal style sheet may be used if one single page has a unique style.
- Internal styles are defined within the <style> element, inside the <head> section of an HTML page:

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
  background-color: linen;
}

h1 {
  color: maroon;
  margin-left: 40px;
}
</style>
```

```
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

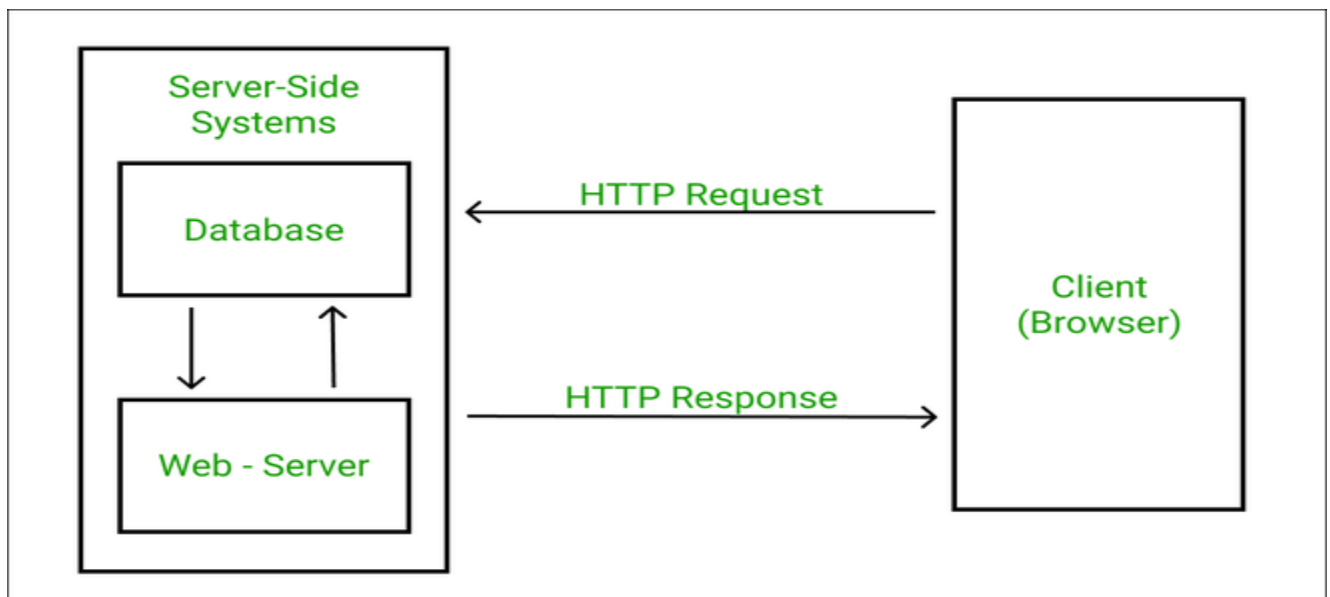
c) Explain the HTTP request and HTTP response model in brief.

5-Mark

Ans :

The HTTP Request/Response Model

HTTP and all extended protocols based on HTTP are based on a very simple communications model. Here's how it works: a client, typically a web browser, sends a request for a resource to a server, and the server sends back a response corresponding to the resource (or a response with an error message if it can't process the request for some reason). A resource can be a number of things, such as a simple HTML file returned verbatim to the browser or a program that generates the response dynamically. This request/response model is illustrated in Figure



HTTP Request :

HTTP Requests are messages which are sent by the client or user to initiate an action on the server.

The first line of the message includes the request message from the client to the server, the method which is applied to the resource, identifier of the resource, and the protocol version.

Syntax

Request = Request-Line
*((general-header
| request-header
| entity-header) CRLF)
CRLF
[message-body]

HTTP Response :

HTTP Response sent by a server to the client. The response is used to provide the client with the resource it requested. It is also used to inform the client that the action requested has been carried out. It can also inform the client that an error occurred in processing its request.

An HTTP response contains the following things:

1. Status Line
2. Response Header Fields or a series of HTTP headers
3. Message Body

In the request message, each HTTP header is followed by a carriage returns line feed (CRLF). After the last of the HTTP headers, an additional CRLF is used and then begins the message body.

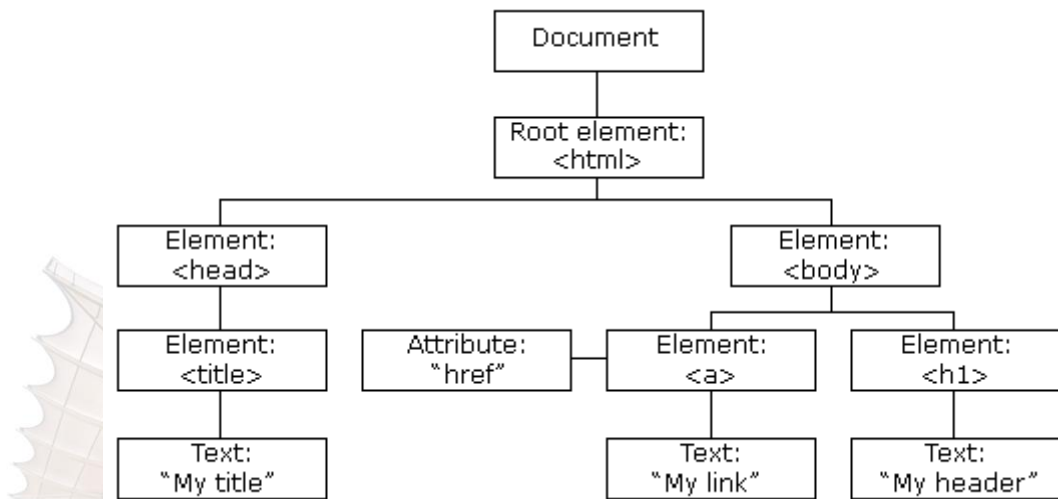
Q 3. a) Explain Document Tree in DOM**5-Marks**

Ans :-

The HTML DOM (Document Object Model)

When a web page is loaded, the browser creates a Document Object Model of the page.

The HTML DOM model is constructed as a tree of Objects:

The HTML DOM Tree of Objects

With the object model, JavaScript gets all the power it needs to create dynamic HTML:

- JavaScript can change all the HTML elements in the page
- JavaScript can change all the HTML attributes in the page
- JavaScript can change all the CSS styles in the page
- JavaScript can remove existing HTML elements and attributes
- JavaScript can add new HTML elements and attributes
- JavaScript can react to all existing HTML events in the page
- JavaScript can create new HTML events in the page

The DOM is a W3C (World Wide Web Consortium) standard.

The DOM defines a standard for accessing documents:

"The W3C Document Object Model (DOM) is a platform and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure, and style of a document."

The W3C DOM standard is separated into 3 different parts:

Core DOM - standard model for all document types

XML DOM - standard model for XML documents

HTML DOM - standard model for HTML documents

b) Write Javascript function for generating Fibonacci Series.**5-Marks****Ans :-**

```
// program to display fibonacci sequence using function

function fibonacci(num) {
  if(num < 2) {
    return num;
  }
  else {
    return fibonacci(num-1) + fibonacci(num - 2);
  }
}

// take nth term input from the user
const nTerms = prompt('Enter the number of terms: ');

if(nTerms <=0) {
  console.log('Enter a positive integer.');
```

c) What is Angular JS? Explain Angular JS directives for data binding with example. 5-Marks**Ans :-**

AngularJS is a JavaScript framework. It can be added to an HTML page with a <script> tag.

AngularJS extends HTML attributes with Directives, and binds data to HTML with Expressions.

AngularJS is a JavaScript Framework

AngularJS is a JavaScript framework written in JavaScript.

AngularJS is distributed as a JavaScript file, and can be added to a web page with a script tag:

```
<script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
```

AngularJS Directives :

AngularJS directives are extended HTML attributes with the prefix ng-.

The ng-app directive initializes an AngularJS application.

The ng-init directive initializes application data.

The ng-model directive binds the value of HTML controls (input, select, textarea) to application data.

Example

```
<div ng-app="" ng-init="firstName='John'">
  <p>Name: <input type="text" ng-model="firstName"></p>
  <p>You wrote: {{ firstName }}</p>
</div>
```

Data binding in AngularJS is the synchronization between the model and the view.

Data Model

AngularJS applications usually have a data model. The data model is a collection of data available for the application.

Example

```
var app = angular.module('myApp', []);
app.controller('myCtrl', function($scope) {
  $scope.firstname = "John";
  $scope.lastname = "Doe";
});
```

HTML View

The HTML container where the AngularJS application is displayed, is called the view.

The view has access to the model, and there are several ways of displaying model data in the view.

You can use the `ng-bind` directive, which will bind the innerHTML of the element to the specified model property:

Example

```
<p ng-bind="firstname"></p>
```

You can also use double braces `{{ }}` to display content from the model:

Example

```
<p>First name: {{firstname}}</p>
```

Or you can use the `ng-model` directive on HTML controls to bind the model to the view.

OR

Q 4. a) Write the Javascript code for name, email and mobile number validation in registration form. 5-Marks

Ans :-

```

<!DOCTYPE html>
<html>
  <head>
    <title>Javascript Form Validation</title>
    <style type="text/css">
      input{
        width: 250px !important;
      }
    </style>
  </head>

  <body bgcolor = "yellow">
<h1> VALIDATION OF REGISTRATION FORM </h1>
    <form action="" method="post" onsubmit="return on_form_sbmt()">

      <input type="text" name="full_name" id="id_full_name" placeholder="Full
Name" required /><br/><br/>
      <input type="tel" name="phone_no" id="id_phone_no" placeholder="Phone No
with country code or 0" required /><br/><br/>
      <input type="email" name="email" id="id_email" placeholder="Email
Address" required /><br/><br/>
      <div id="txtHint" style="color: orange;"></div>
      <br/><br/>
      <input type="submit" name="form_submit" value="Submit" />
    </form>

    <script type="text/javascript">
      function on_form_sbmt() {

        var full_name = document.getElementById("id_full_name");
        var phone_no = document.getElementById("id_phone_no");
        var email = document.getElementById("id_email");

        var textHint = document.getElementById("txtHint");

        if (full_name.value.length < 2 || !/^[A-Za-z\s]+$/i.test(full_name.value)) {
          textHint.innerHTML = "<p style='color:red;font-size: 18px;'>Please Fill Your Name
Properly</p>";
          full_name.focus()
        }
      }
    </script>
  </body>
</html>

```



```

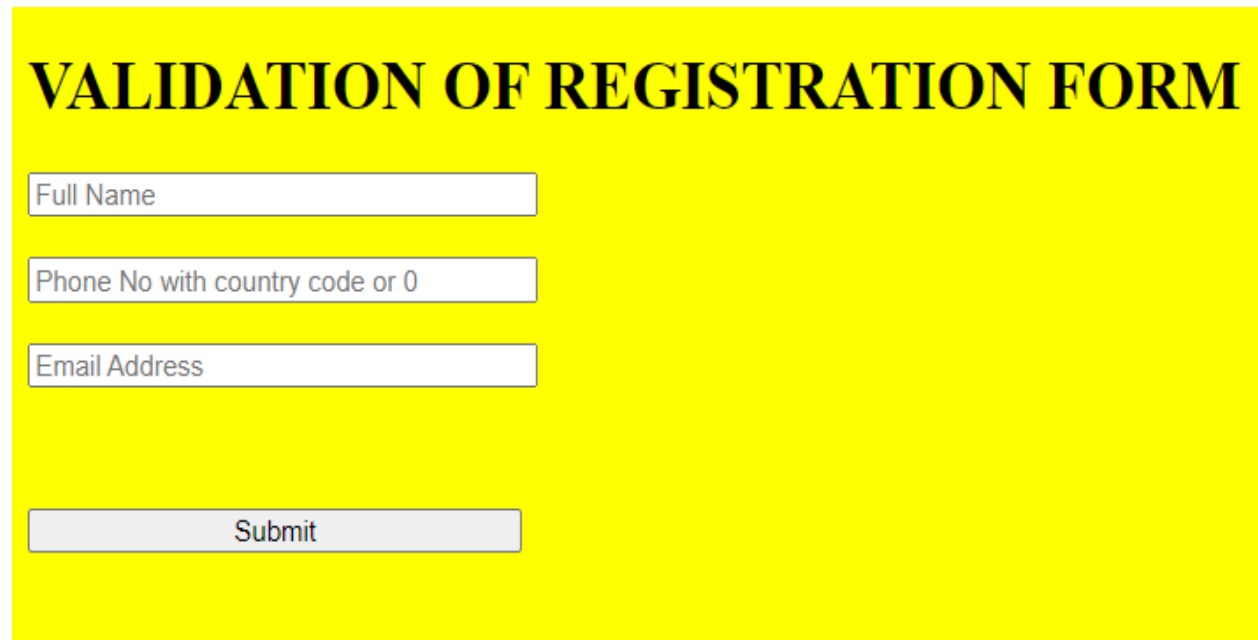
        full_name.required=true;
        full_name.setCustomValidity("Please Fill Your Name Properly");
        return false;
    }else{
        textHint.innerHTML = "";
        full_name.required=false;
        full_name.setCustomValidity("");
    }

    if (!/^\+?([0]{1})\)?([0-9]{9,10})$/ .test(phone_no.value) && !/^\+?([91]{2})\)?([0-9]{9,10})$/ .test(phone_no.value) ) {
        textHint.innerHTML = "<p style='color:red;font-size: 18px;'>Please Fill Your Ph No With +91 Or 0</p>";
        phone_no.focus()
        phone_no.required=true;
        phone_no.setCustomValidity("Please Fill Your Ph No With +91 Or 0");
        return false;
    }else{
        textHint.innerHTML = "";
        phone_no.focus()
        phone_no.required=false;
        phone_no.setCustomValidity("");
    }

    if (!/^\w+([\.-]?\w+)*@\w+([\.-]?\w+)*(\.\w{2,3})+$/ .test(email.value)) {
        textHint.innerHTML = "<p style='color:red;font-size: 18px;'>Please Fill Your Email Id Properly</p>";
        email.focus()
        email.required=true;
        email.setCustomValidity("Please Fill Your Email Id Properly");
        return false;
    }else{
        textHint.innerHTML = "";
        email.focus()
        email.required=true;
        email.setCustomValidity("");
    }

    return true;
}
</script>
</body>
</html>

```

OUTPUT :

VALIDATION OF REGISTRATION FORM

Full Name

Phone No with country code or 0

Email Address

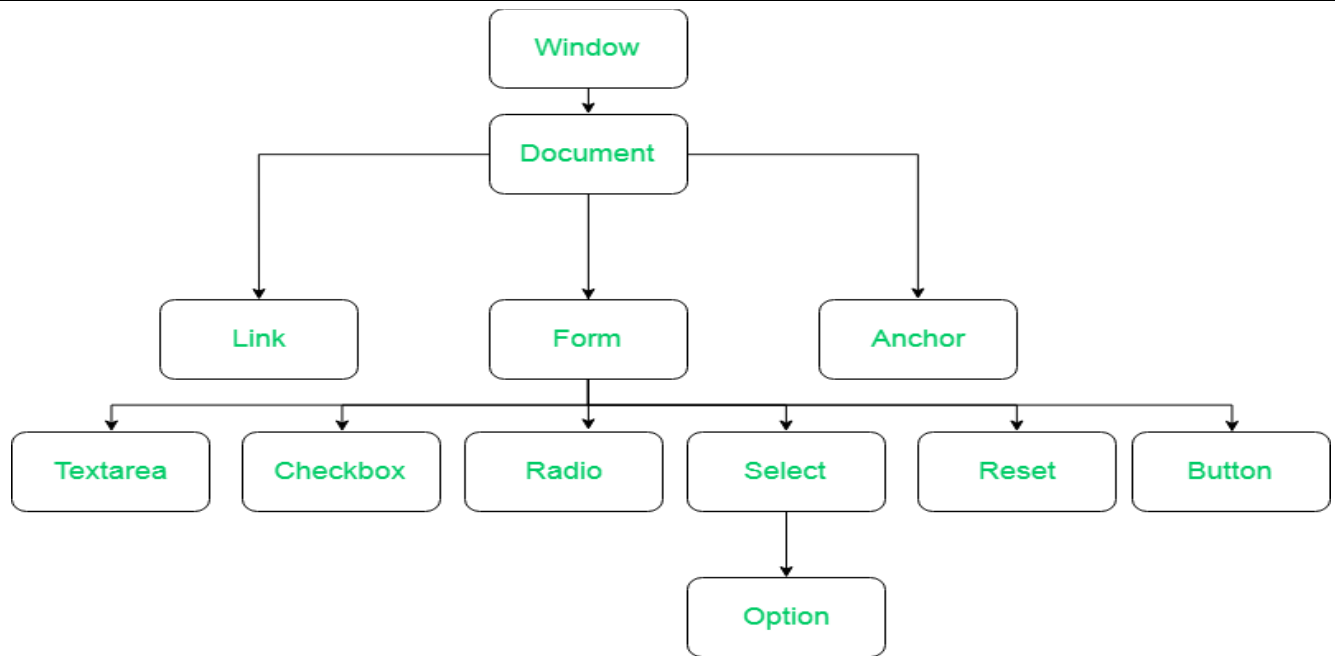
Submit

b) Explain the Concept of DOM.**5-Marks****Ans :**

The Document Object Model (DOM) is a programming interface for HTML(HyperText Markup Language) and XML(Extensible markup language) documents. It defines the logical structure of documents and the way a document is accessed and manipulated.

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. With DOM, we can easily access and manipulate tags, IDs, classes, Attributes, or Elements of HTML using commands or methods provided by the Document object. Using DOM, the JavaScript gets access to HTML as well as CSS of the webpage and can also add behavior to the HTML elements. so basically Document Object Model is an API that represents and interacts with HTML or XML documents.

Properties of DOM: Let's see the properties of the document object that can be accessed and modified by the document object.



Representation of DOM

Window Object: Window Object is object of the browser which is always at top of the hierarchy. It is like an API that is used to set and access all the properties and methods of the browser. It is automatically created by the browser.

Document object: When an HTML document is loaded into a window, it becomes a document object. The 'document' object has various properties that refer to other objects which allow access to and modification of the content of the web page. If there is a need to access any element in an HTML page, we always start with accessing the 'document' object. Document object is property of window object.

Form Object: It is represented by form tags.

Link Object: It is represented by link tags.

Anchor Object: It is represented by a href tags.

Form Control Elements:: Form can have many control elements such as text fields, buttons, radio buttons, checkboxes, etc.

Methods of Document Object:

write("string"): Writes the given string on the document.

getElementById(): returns the element having the given id value.

getElementsByName(): returns all the elements having the given name value.

getElementsByTagName(): returns all the elements having the given tag name.

getElementsByClassName(): returns all the elements having the given class name.

c) Explain the advantages of JQuery. Explain JQuery syntax with example.**5-Marks****Ans :**

jQuery is a fast, small, cross-platform and feature-rich JavaScript library. It is designed to simplify the client-side scripting of HTML. It makes things like HTML document traversal and manipulation, animation, event handling, and AJAX very simple with an easy-to-use API that works on a lot of different type of browsers.

The main purpose of jQuery is to provide an easy way to use JavaScript on your website to make it more interactive and attractive. It is also used to add animation.

- 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.

jQuery Features :

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

Advantages of JQuery :

1. It is very fast and extensible.
2. It facilitates the users to write UI related function codes in minimum possible lines.
3. It improves the performance of an application.
4. Browser's compatible web applications can be developed.
5. It uses mostly new features of new browsers.

There are several ways to start using jQuery on your web site. You can:

Download the jQuery library from jQuery.com

Include jQuery from a CDN, like Google

Syntax (Example):

Downloading jQuery

The jQuery library is a single JavaScript file, and you reference it with the HTML `<script>` tag (notice that the `<script>` tag should be inside the `<head>` section):

```
<head>
<script src="jquery-3.6.3.min.js"></script>
</head>
```

If you don't want to download and host jQuery yourself, you can include it from a CDN (Content Delivery Network).

Google is an example of someone who host jQuery:

Google CDN:

```
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.3/jquery.min.js"
></script>
</head>
```

Example :

```
<!DOCTYPE html>

<html>

<head>

  <title>First jQuery Example</title>

  <script type="text/javascript"
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js">

  </script>

  <script type="text/javascript" language="javascript">

  $(document).ready(function() {
```



```
$("#p").css("background-color", "cyan");  
});  
</script>  
</head>  
<body>  
<p>The first paragraph is selected.</p>  
<p>The second paragraph is selected.</p>  
<p>The third paragraph is selected.</p>  
</body>  
</html>
```

OUTPUT :

The first paragraph is selected.

The second paragraph is selected.

The third paragraph is selected.

***** **THE END** *****