

**Group B****Attempt any SIX questions.****2. Explain the concept structure and importance of DOM.**

**Ans:** The Document Object Model (DOM) is an application programming interface (API) for manipulating HTML and XML documents. The DOM represents a document as a tree of nodes. It defines the logical structure of documents and the way a document is accessed and manipulated. DOM is cross-platform and language-independent ways of manipulating HTML and XML documents.

**Importance of DOM**

As a W3C specification, one important objective for the Document Object Model is to provide a standard programming interface that can be used in a wide variety of environments and applications.

We can create and build documents, navigate their structure, and add, modify, or delete elements and content. Anything found in an HTML or XML document can be accessed, changed, deleted, or added using the Document Object Model

**DOM Structure**

When you open any web page in the browser, the HTML of the page is loaded and presented to the screen. JavaScript can be used to dynamically add a page's DOM to add, delete, and modify elements. The DOM represents a document as a tree structure of simple HTML Document.

**DOM Nodes**

All HTML Elements are treated as nodes or objects. The nodes are attributes, elements, text, link, document, etc....

Document - Document node

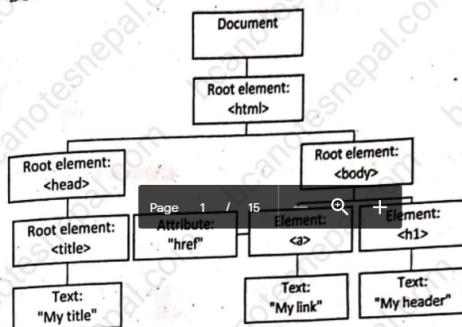
HTML element - Element node

HTML attribute - Attribute Nodes

Text inside HTML elements = Text nodes

Simple example Page 1 of 15 of following code

```
<!DOCTYPE html>
<html>
<head>
<title>My title</title>
</head>
<body>
<h1>My header</h1>
<a href="mylink.html">My link</a>
</body>
</html>
```

**DOM tree of above HTML code.****3. What is JavaScript? Write JavaScript code to print smallest and largest numbers among 10 elements of an array.**

**Ans:** JavaScript is a programming language used primarily by web browsers to create a dynamic and interactive experience for the user. Most of the functions and applications that make the Internet indispensable to modern life are coded in some form of JavaScript.

JavaScript is a scripting or programming language that allows you to implement complex features on web pages – every time a web page does more than just sit there and display static information for you to look at – displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc.

Program to find largest and smallest number among array of 10 numbers:

```
<!DOCTYPE html>
<html>
<body>
<head>
<title>
    JavaScript largest and smallest in array

```

```
</title>
</head>
<h2>JavaScript largest and smallest in array</h2>
<script>
var numbers = [78, 89, 14, 85, 12, 66, 65, 25, 34, 79];
function myFunction() {
    numbers.sort(function(a, b){return a - b});
}

```

```
document.write('largest number is' + numbers[9]);
document.write('smallest number is' + numbers[0]);
}
myFunction();
</script>
</body>
</html>
```

4. What is dialog box? Explain different dialog boxes with suitable example in JavaScript.

Ans: In JavaScript you can create dialog boxes or popups to interact with the user. You can either use them to notify a user or to receive some kind of user input before proceeding.

The appearance of these dialog boxes is determined by the operating system and/or browser settings, they cannot be modified with the CSS. Also, dialog boxes are modal windows; when a dialog box is displayed the code execution stops, and resumes only after it has been dismissed.

JavaScript has three kind of dialog boxes:

1. Alert box
2. Confirm box
3. Prompt box.

These dialog boxes can be used to raise and alert, or to get confirmation on any input from the users.

Alert box :

An alert dialog box is mostly used to give a warning message to the users.

```
<html>
<head>
<title>Javascript Alert Box</title>
<script type="text/javascript">
function Alert() {
    alert ("This is a Sample alert message!");
}

```

**Confirm box:** Page 3 / 15 - Q +  
A confirmation dialog box is mostly used to take user's consent on any option. It displays a dialog box with two buttons: Ok Button and Cancel Button.

If the user clicks on the OK button, the window method confirm() will return true. If the user clicks on the Cancel button, then confirm() returns false.

```
<html>
<head>
<title>Javascript Confirm Box</title>
<script type="text/javascript">
function getConfirmation(){
    var conf_box = confirm("Are you sure to leave this website?");
}

```

**Prompt box:**  
a prompt box pops up, the user will have to click either "OK" or "Cancel" to proceed after entering an input value. If the user clicks "OK" the box returns the input value. If the user clicks "Cancel" the box returns null.

```
<html>
<head>
<title>Javascript Prompt Box</title>
<script type="text/javascript">
function getBook(){
var book = prompt("Enter Book Name :","");
document.write("Your book name is :" + book);
}
</script>
</head>
<body>
<form>
<input type="button" value="Click Here" onclick="getBook()" />
</form>
</body>
</html>
```

5. Explain the two HTTP functions to accept the user values from interface with suitable PHP program.

Ans: Program can collect user data using get and post http method in PHP.

GET method is used to appends form data to the URL in name or value pair. If you use GET, the length of URL will remain limited. It helps users to submit the bookmark the result. GET is better for the data which does not require any security or having images or word documents.

POST is a method that is supported by HTTP and depicts that a web server accepts the data included in the body of the message. POST is often used by World Wide Web to send user generated data to the web server or when you upload file.

#### Features of GET

It is very easy to bookmark data using GET method.

The length restriction of GET method is limited.

You can use this method only to retrieve data from the address bar in the browser.

This method enables you to easily store the data.

#### Features of POST

POST method request gets input from the request body and query string.

Data passed using the POST method will not visible in query parameters in browser URL.

parameters of POST methods are not saved in browser history.

There is no restriction in sending the length of data.

It helps you to securely pass sensitive and confidential information like login details to server.

User can get from data using following code for get an post.

```
<!DOCTYPE html>
<html>
<head>
<title>Form GET</title>
</head>
<body>
<?php
if (isset($_GET['btnGET'])) {
$full_name = $_GET['full_name'];
$username = $_GET['username'];
}
if (isset($_POST['btnPOST'])) {
```

```
$full_name = $_POST['full_name'];
$username = $_POST['username'];
}
?>
<form action="#" method="get">
<label>Full Name * </label><br>
<input type="text" name="full_name">
<br>
<input type="text" name="username">
<br>
```

```
<label>Username</label>
<input type="text" name="username">
<br>
<input type="submit" name="btnGET">
</form>
<br>
<br>
<form action="" method="post">
<label>Full Name * </label><br>
<input type="text" name="name" value="Page_n6me7_15" /> - Q + <br>
<label>Username</label><br>
<input type="text" name="username">
<br>
<input type="submit" name="btnPOST">
</form>
</body>
</html>
```

6. What is the use of jQuery? Write the sample program to show and hide the certain div with the use of jQuery.

Ans: jQuery is a fast, small JavaScript library included in a single .js file. It provides many built-in functions using which you can accomplish various tasks easily and quickly. jQuery is a framework built using JavaScript capabilities. Hence, you can use all the functions and other capabilities available in JavaScript.

Major uses of jQuery.

- jQuery can be used to develop Ajax based applications.
- It can be used to make code simple, concise and reusable.
- It simplifies the process of traversal of HTML DOM tree.
- It can also handle events, perform animation and add ajax support in web applications.

Code to hide show div using jQuery.

```
<!DOCTYPE html> Page 6 / 15 - Q + 
<html>
<head>
<title>Hide Show Example</title>
</head>
<body>
<button id="hide">Hide Paragraph</button>
<button id="show">Show Paragraph</button>
<div>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod
tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim
veniam,
quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo
consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse
cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non
proident, sunt in culpa qui officia deserunt mollit anim id est
laborum.</div>
<script type="text/javascript" src="../unit3/js/jquery.min.js"></script>
<script type="text/javascript">
/*
$selector.method();
*/
$(document).ready(function(){
  $('#hide').click(function(){
    $('div').hide()
  });
  $('#show').click(function(){
    $('div').show()
  });
});
</script>
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</body>
</html>
```

7. Why Ajax is required in web development? Write a sample program to synchronize data between JavaScript and PHP.

Ans: AJAX stands for Asynchronous JavaScript and XML. Ajax is not a programming language or a tool, but a concept. Ajax is a client-side script that communicates to and from a server/database without the need for a postback (process of submitting web page to the server for processing) or a complete page refresh. Ajax is "the method of exchanging data with a server, and updating parts of a web page – without reloading the entire page."

### Importance of Ajax in Web Development

Ajax is a technique for creating better, faster and smarter web application with the use of XML, HTML, CSS, JavaScript.

**Auto-Reload page:** In early 90's, web pages were containing only page information. But now, the developer uses the AJAX technique which helps to auto reload the page with current updates. So that the user can easily update with the current information.

**Secured Connection:** Ajax provides one-one interface between client and server. So that it helps to secure the data of user and pass that data to the server in a secure way. So, we can say that, Ajax is not only securing the data but also increasing efficiency.

**Open Source:** Ajax is open source web development program. Anyone can modify the code of Ajax or implement it to their application. The developer can update the Ajax Software for updating the latest functionality of flexibility for their application and use.

### Program to synchronize data between JavaScript and PHP

```
checkUser.php
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>JavaScript Ajax Phone Demo</title>
<script>
function checkUsername() {
    // Creating the XMLHttpRequest object
    var request = new XMLHttpRequest();
    // Instantiating the request object
    request.open("POST", "test_username.php");
    // Defining event listener for readystatechange event
    request.onreadystatechange = function() {
        // Check if the request is complete and was successful
        if(this.readyState === 4 && this.status === 200) {
            // Inserting the response from server into an HTML element
            document.getElementById("result").innerHTML = this.responseText;
        }
    };
    // Retrieving the form data
    var myForm = document.getElementById("regForm");
    var formData = new FormData(myForm);
    // Sending the request to the server
    request.send(formData);
}
</script>
</head>
<body>
<form id="regForm">
<label>Username:</label>
<div>
```

```
<input type="text" name="username" id="username"
onchange="checkUsername()">
<span id="result"></span>
</div>
<br>
</form>
</body>
</html>
test_username.php
<?php
$username = $_POST['username'];
$connection = new mysqli('localhost', 'root', '', 'db_bca');
$sql = "select * from tbl_users where username='$username'";
$result = $connection->query($sql);
if ($result->num_rows == 1) {
    echo 'username already taken';
} else {
    echo 'username available';
}
?>
```

#### 8. What is CMS, Write the steps to create submenu in WordPress or Joomla?

**Ans:** The Content Management System (CMS) is a software which stores all the data such as text, photos, music, documents, etc. and is made available on your website. It helps in editing, publishing and modifying the content of the website.

#### Features of CMS

User Management: It allows managing the user information such as changing the role of the users to (subscriber, contributor, author, editor or administrator), create or delete the user, change the password and user information. The main role of the user manager is Authentication.

Media Management: It is the tool for managing the media files and folder, in which you can easily upload, organize and manage the media files on your website.

Theme System: It allows modifying the site view and functionality. It includes images, stylesheet, template files and custom pages.

Extend with Plugins: Several plugins are available which provides custom functions and features according to the users need.

Search Engine Optimization: It provides several search engine optimization (SEO) tools which makes on-site SEO simple.

Multilingual: It allows translating the entire content into the language preferred by the user.

Importers: It allows importing data in the form of posts. It imports custom

ties, comments, post pages and tags.

If you want to add a submenu on a page from your menu you need to do just two steps:

1. Go at "Appearance" -> "Menus"
2. Add the new page under the main page.

### Group C

Attempt any TWO questions.

[2x10 = 20]

9. Design following Page 1x9 HTML 15 and display  + in the result box after calculating basic arithmetic operation based on the use input with the use of JavaScript.

Ans:

```
<!DOCTYPE html>
<html>
<head>
    <title>Basic Arithmetic</title>
</head>
<body>
<form action="" method="">
    <fieldset>
        <h1>Basic Arithmetic Operation</h1>
        <input type="number" name="operand1" id="operand1"><br>
        <br>
        <input type="number" name="operand2" id="operand2"><br>
        <br>
        <button id="add">Add</button>
        <button id="sub">Sub</button>
        <button id="mul">Mul</button>
        <br>
        <br>
        <button id="div">Div</button>
        <button id="mod">Mod</button>
        <br>
        <br>
        <input type="number" name="result" id="result"><br>
    </fieldset>
    <script type="text/javascript">
        document.querySelector("#add").addEventListener("click",
            function(event) {
                operand1 = document.getElementById('operand1').value;
                operand2 = document.getElementById('operand2').value;
                document.getElementById('result').value = parseInt(operand1) +
                    parseInt(operand2);
                event.preventDefault();
            }, false);
        document.querySelector("#sub").addEventListener("click",
            function(event) {
                operand1 = document.getElementById('operand1').value;
                operand2 = document.getElementById('operand2').value;
                document.getElementById('result').value = parseInt(operand1) -
                    parseInt(operand2);
                event.preventDefault();
            }, false);
        document.querySelector("#mul").addEventListener("click",
            function(event) {
```

```
        operand1 = document.getElementById('operand1').value;
        operand2 = document.getElementById('operand2').value;
        document.getElementById('result').value = parseInt(operand1) *
            parseInt(operand2);
        event.preventDefault();
    }, false);
    document.querySelector("#div").addEventListener("click",
        function(event) {
            operand1 = document.getElementById('operand1').value;
            operand2 = document.getElementById('operand2').value;
            document.getElementById('result').value = parseInt(operand1) /
                parseInt(operand2);
            event.preventDefault();
        }, false);
    document.querySelector("#mod").addEventListener("click",
        function(event) {
            operand1 = document.getElementById('operand1').value;
            operand2 = document.getElementById('operand2').value;
            document.getElementById('result').value = parseInt(operand1) %
                parseInt(operand2);
            event.preventDefault();
        }, false);
    </script>
</form>
</body>
</html>
```

10. Write an object oriented PHP program to implement the concept of inheritance in considering with following class diagram with the use of

Ans:

```
<?php
class Employee{
    private $name,$address;
    public function setName($name){
        $this->name = $name;
    }
    public function setAddress($address){
        $this->address = $address;
    }
}
class Permanent{
    private $post,$salary;
    function __construct($name,$address,$salary,$post){
        $this->name= $name;
        $this->address= $address;
        $this->salary= $salary;
        $this->post= $post;
    }
    public function displayAll(){
        echo 'Name: ' . $this->name;
        echo 'Address: ' . $this->address;
        echo 'Post: ' . $this->post;
        echo 'Salary: ' . $this->salary;
    }
}
$emp1 = new Permanent('Rajesh Thapa','KTM','MD',65255);
$emp1 = new Permanent('Hari Thapa','KTM','MD',65255);
$emp12 = new Permanent('Razz Thapa','KTM','MD',65255);
$emp13 = new Permanent('Sita Thapa','KTM','MD',65255);
$emp14 = new Permanent('Gita Thapa','KTM','MD',65255);
$emp15 = new Permanent('Nita Thapa','KTM','MD',65255);
$emp16 = new Permanent('Geeta Thapa','KTM','MD',65255);
$emp17 = new Permanent('Neeta Thapa','KTM','MD',65255);
$emp18 = new Permanent('Preeti Thapa','KTM','MD',65255);
$emp19 = new Permanent('Ritu Thapa','KTM','MD',65255);
$emp4 = new Permanent('Situ Thapa','KTM','MD',65255);
$emp41 = new Permanent('Situ Thapa','KTM','MD',65255);
$emp51 = new Permanent('emp1 Thapa','KTM','MD',65255);
$emp61 = new Permanent('Preety Thapa','KTM','MD',65255);
$emp71 = new Permanent('Priti Thapa','KTM','MD',65255);
$emp81 = new Permanent('Saru Thapa','KTM','MD',65255);
$emp91 = new Permanent('Paru Thapa','KTM','MD',65255);
$emp121 = new Permanent('Nera Thapa','KTM','MD',65255);
$emp19 = new Permanent('Seru Thapa','KTM','MD',65255);
$emp17 = new Permanent('Joru Thapa','KTM','MD',65255);
?>
```

11. Design following forms in HTML and write corresponding PHP and MySQL code to store the user's values after satisfying following validation rules.

- Length of Full name up to 40 character
- Email address must be valid email address
- Username must be start with string and followed by number.
- Password length must be more than 8 character.

Ans:

```
<!DOCTYPE html>
```

```
<html>
<head>
<title>Basic Form Validation</title>
</head>
<body>
<?php
if (isset($_POST['btnSubmit'])) {
    $err = [];
    if (!isset($_POST['full_name']) && !empty($_POST['full_name']) && trim($_POST['full_name']) != '') {
```

```
$full_name = trim($_POST['full_name']);
if (strlen($full_name) > 40) {
    $err['full_name'] = 'Full name must be less than 40 characters';
} else {
    $err['full_name'] = 'Enter your full name';
}

if (isset($_POST['email']) && !empty($_POST['email']) &&
trim($_POST['email'])) {
    $email = trim($_POST['email']);
    if (!filter_var($email,FILTER_VALIDATE_EMAIL)) {
        $err['email'] = 'Enter valid email';
    } else {
        $err['email'] = 'Enter your email address';
    }

    if (isset($_POST['username']) && !empty($_POST['username']) &&
trim($_POST['username'])) {
        $username = trim($_POST['username']);
        if (!preg_match('%^([a-zA-Z]+[0-9])?%i', $username)) {
            $err['username'] = 'Enter valid username';
        } else {
            $err['username'] = 'Enter your username';
        }

        if (isset($_POST['password']) && !empty($_POST['password']) &&
trim($_POST['password'])) {
            $password = trim($_POST['password']);
            if (strlen($password) < 8) {
                $err['password'] = 'Password must be greater than 8 characters';
            }
        }
    }
}
else {
    $err['password'] = 'Enter your Password';
}
if (count($err) == 0) {
    $server = 'localhost';
    $username = 'root';
    $password = '';
    $database = 'db_bca_2075';

    //create connection
    $connection = new mysqli($server,$username,$password,$database);
    //check connection
    if ($connection->connect_errno != 0) {
        die('Connection error');
    }

    //query to select data from category table
    $sql = "INSERT INTO tbl_users(full_name,email,username,password)
VALUES ('$full_name','$email','$username','$password')";
    //execute query and get result object
    $connection->query($sql);

    if ($connection->affected_rows == 1 && $connection->insert_id == 1) {
        echo "User created successfully";
    } else {
        echo "User creation failed";
    }
}

?>
<form action="" method="post">
<fieldset style="width:20%">

<legend>Register</legend>
<p>* is required field</p>
<label>Full Name * </label><br>
<input type="text" name="full_name">
<br>
<?php
if (isset($err['full_name'])) {
    echo $err['full_name'];
}
?>
<br>
```

```
Page: 13 / 15 - Q +
```

```
<?php
if (isset($err['full_name'])) {
    echo $err['full_name'];
}
?>
<br>
```

```
<label>Email address * </label><br>
<input type="text" name="email">
<br>
<?php
if (isset($err['email'])) {
echo $err['email'];
}
?>
<br>

<label>Username * </label><br>
<input type="text" name="username">
<br>
<?php
if (isset($err['username'])) {
echo $err['username'];
}
?>
<br>
<label>Password * </label><br>
<input type="password" name="password">
<br>
<?php
if (isset($err['password'])) {
echo $err['password'];
}
?>
<br>
<br>
<input type="submit" name="btnSubmit">
</fieldset>
</form>
</body>
</html>
```