**JavaScript Basics and DOM**

1. Write a JavaScript function to calculate and display the square of a number entered in an input field.

* Add a button that triggers the function when clicked.

2. Implement a script to dynamically add items to a list:

* Include an input field for entering the item.
* Add a button to append the item to the list when clicked.

3. Create a script to validate a user registration form:

* Check that all fields are filled.
* Ensure the email field contains a valid email address.

4. Write JavaScript to create a toggle button:

* When clicked, it hides or shows an image on the webpage.

5. Develop a script to display the current date and time on the webpage:

* Update the time every second using the setInterval function.

**CODE:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

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

<title>JavaScript Basics and DOM</title>

</head>

<body>

<!-- Question 1 -->

<h1>Square Calculator</h1>

<input type="number" id="number" placeholder="Enter a number">

<button onclick="calculateSquare()">Calculate</button>

<p id="result"></p>

<script>

function calculateSquare() {

const num = document.getElementById('number').value;

document.getElementById('result').innerText = `Square: ${num \* num}`;

}

</script>

<!-- Question 2 -->

<h2>Dynamic List</h2>

<input type="text" id="item" placeholder="Add an item">

<button onclick="addItem()">Add</button>

<ul id="list"></ul>

<script>

function addItem() {

const item = document.getElementById('item').value;

const list = document.getElementById('list');

const li = document.createElement('li');

li.textContent = item;

list.appendChild(li);

}

</script>

<!-- Question 3 -->

<form onsubmit="return validateForm()">

<label>Email: <input type="email" id="email" required></label>

<button type="submit">Submit</button>

</form>

<script>

function validateForm() {

const email = document.getElementById('email').value;

if (!email.includes('@')) {

alert('Invalid Email');

return false;

}

alert('Valid Email');

return true;

}

</script>

<!-- Question 4 -->

<h2>Toggle Image</h2>

<button onclick="toggleImage()">Show/Hide Image</button>

<img id="image" src="image.jpg" alt="Example Image" style="display:none;">

<script>

function toggleImage() {

const img = document.getElementById('image');

img.style.display = img.style.display === 'none' ? 'block' : 'none';

}

</script>

<!-- Question 5 -->

<h2>Current Time</h2>

<p id="time"></p>

<script>

setInterval(() => {

const now = new Date();

document.getElementById('time').innerText = now.toLocaleTimeString();

}, 1000);

</script>

</body>

**</html>**