1. a) Hyperlinks with <a> tag and `href`, `target` attributes

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>Hyperlink Example</title>
</head>
<body>
  <h2>Hyperlink Examples</h2>
  <a href="https://www.google.com" target="_blank">Open Google in new tab</a><br>
  <a href="https://www.wikipedia.org" target="_self">Open Wikipedia in same tab</a>
</body>
</html>
```

---

1. b) Internal and External JavaScript

HTML File (index.html):

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>JavaScript Example</title>
  <script>
    // Internal JavaScript
    function greet() {
      alert("Hello from Internal JavaScript!");
    }
  </script>
  <script src="external.js"></script> <!-- External JS -->
</head>
<body>
  <button onclick="greet()">Internal JS</button>
```

```
  <button onclick="externalGreet()">External JS</button>
</body>
</html>
```

External File (external.js):

javascript
Copy
```
function externalGreet() {
  alert("Hello from External JavaScript!");
}
```

---

2. a) CSS Color Referencing

html
Copy
```
<!DOCTYPE html>
<html>
<head>
  <title>CSS Color References</title>
  <style>
    .nameColor { color: red; }
    .hexColor { color: #00ff00; }
    .rgbColor { color: rgb(0, 0, 255); }
  </style>
</head>
<body>
  <p class="nameColor">This is red using color name.</p>
  <p class="hexColor">This is green using HEX code.</p>
  <p class="rgbColor">This is blue using RGB code.</p>
</body>
</html>
```

---

2. b) Document Object Properties and Methods

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>Document Object Example</title>
</head>
<body>
  <script>
    document.write("Title of the document: " + document.title +
"<br>");
    document.write("URL of the document: " + document.URL + "<br>");
    document.write("Last modified: " + document.lastModified);
  </script>
</body>
</html>
```

---

3. a) HTML Table Example

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>HTML Table</title>
</head>
<body>
  <table border="1">
    <tr>
      <th>Day</th>
      <th colspan="2">Time</th>
    </tr>
    <tr>
      <td rowspan="2">Monday</td>
      <td>10 AM</td>
      <td>11 AM</td>
    </tr>
    <tr>
      <td>12 PM</td>
      <td>1 PM</td>
```

```
    </tr>
  </table>
</body>
</html>
```

---

3. b) Switch Case for Weekdays

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>Weekdays with Switch</title>
</head>
<body>
  <script>
    let day = new Date().getDay();
    let weekday;
    switch(day) {
      case 0: weekday = "Sunday"; break;
      case 1: weekday = "Monday"; break;
      case 2: weekday = "Tuesday"; break;
      case 3: weekday = "Wednesday"; break;
      case 4: weekday = "Thursday"; break;
      case 5: weekday = "Friday"; break;
      case 6: weekday = "Saturday"; break;
      default: weekday = "Invalid day";
    }
    document.write("Today is " + weekday);
  </script>
</body>
</html>
```

---

4. a) CSS Font and Text

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>CSS Font and Text</title>
  <style>
    .style1 {
      font-size: 20px;
      font-weight: bold;
      font-style: italic;
    }
  </style>
</head>
<body>
  <p class="style1">This is styled text using font-size, weight, and
style.</p>
</body>
</html>
```

---

4. b) Window Object Properties and Methods

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>Window Object Example</title>
</head>
<body>
  <script>
    alert("Window width: " + window.innerWidth + "px\nWindow height: "
+ window.innerHeight + "px");
    window.open("https://www.example.com", "_blank");
  </script>
</body>
</html>
```

---

5. a) Thumbnail Image Gallery

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>Image Gallery</title>
</head>
<body>
  <h2>Thumbnail Gallery</h2>
  <a href="full1.jpg" target="_blank">
    <img src="thumb1.jpg" width="100" height="100">
  </a>
  <a href="full2.jpg" target="_blank">
    <img src="thumb2.jpg" width="100" height="100">
  </a>
  <a href="full3.jpg" target="_blank">
    <img src="thumb3.jpg" width="100" height="100">
  </a>
</body>
</html>
```

---

5. b) Print 1 to 10 using Loops

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>Loop Examples</title>
</head>
<body>
  <script>
    document.write("<strong>Using for loop:</strong><br>");
    for (let i = 1; i <= 10; i++) {
      document.write(i + " ");
    }
```

```
    document.write("<br><strong>Using while loop:</strong><br>");
    let j = 1;
    while (j <= 10) {
      document.write(j + " ");
      j++;
    }

    document.write("<br><strong>Using do-while loop:</strong><br>");
    let k = 1;
    do {
      document.write(k + " ");
      k++;
    } while (k <= 10);
  </script>
</body>
</html>
```

6.a) Pseudo-element Selector and Combinator Selector

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>CSS Selectors</title>
  <style>
    /* Pseudo-element */
    p::first-letter {
      font-size: 200%;
      color: red;
    }

    /* Combinator: descendant */
    div p {
      color: blue;
    }

    /* Combinator: child */
    ul > li {
```

```
      font-weight: bold;
    }
  </style>
</head>
<body>
  <div>
    <p>This paragraph is inside a div.</p>
  </div>
  <ul>
    <li>Item 1</li>
    <li>Item 2</li>
  </ul>
</body>
</html>
```

6.b) Math Object Example

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Math Object</title>
</head>
<body>
  <script>
    document.write("Math.PI: " + Math.PI + "<br>");
    document.write("Math.sqrt(25): " + Math.sqrt(25) + "<br>");
    document.write("Math.pow(2, 4): " + Math.pow(2, 4) + "<br>");
    document.write("Math.random(): " + Math.random() + "<br>");
  </script>
</body>
</html>
```

7.a) Images as Links to Profiles

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Profile Images</title>
</head>
<body>
  <h2>Profile Links</h2>
  <a href="https://your-profile.com" target="_blank">
    <img src="your.jpg" width="150" height="150" alt="Your Image">
  </a>
  <a href="https://friends-profile.com" target="_blank">
    <img src="friend.jpg" width="150" height="150" alt="Friend's
Image">
  </a>
</body>
</html>
```

7.b) Armstrong Number Check

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Armstrong Number</title>
</head>
<body>
  <script>
    let num = 153;
    let temp = num, sum = 0;
    while (temp > 0) {
      let digit = temp % 10;
      sum += digit ** 3;
      temp = Math.floor(temp / 10);
    }
```

```
    if (sum === num) {
      document.write(num + " is an Armstrong number.");
    } else {
      document.write(num + " is not an Armstrong number.");
    }
  </script>
</body>
</html>
```

8.a) Semantic Tags Example

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Semantic Tags</title>
</head>
<body>
  <header><h1>Welcome to My Page</h1></header>
  <nav><a href="#">Home</a> | <a href="#">About</a></nav>
  <main>
    <section>
      <article>
        <h2>Article Title</h2>
        <p>This is an article inside a section.</p>
        <figure>
          <img src="img.jpg" width="200">
          <figcaption>Image description</figcaption>
        </figure>
      </article>
    </section>
    <aside>Side content</aside>
  </main>
  <footer>&copy; 2025 My Site</footer>
</body>
```

```
</html>
```

8.b) String Object Example

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>String Object</title>
</head>
<body>
  <script>
    let str = "Hello, JavaScript!";
    document.write("Length: " + str.length + "<br>");
    document.write("Uppercase: " + str.toUpperCase() + "<br>");
    document.write("Substring (0,5): " + str.substring(0, 5) +
"<br>");
    document.write("Index of 'Script': " + str.indexOf("Script"));
  </script>
</body>
</html>
```

9.a) CSS Box Model Example

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>CSS Box Model</title>
  <style>
    .box {
      width: 200px;
      padding: 20px;
      border: 5px solid black;
```

```
      margin: 30px;
      background-color: lightblue;
    }
  </style>
</head>
<body>
  <div class="box">This box demonstrates content, padding, border, and
margin.</div>
</body>
</html>
```

9.b) Bank Denomination Program

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Bank Denomination</title>
</head>
<body>
  <script>
    let amount = 163;
    let notes = [100, 50, 20, 10, 5, 2, 1];
    for (let i = 0; i < notes.length; i++) {
      let count = Math.floor(amount / notes[i]);
      if (count > 0) {
        document.write(count + " - " + notes[i] + "s<br>");
      }
      amount %= notes[i];
    }
  </script>
</body>
</html>
```

10.a) CSS Selector Types

html
Copy

```
<!DOCTYPE html>
<html>
<head>
  <title>CSS Selectors</title>
  <style>
    /* Simple Selectors */
    p { color: blue; }
    #unique { font-weight: bold; }
    .highlight { background: yellow; }
    * { font-family: Arial; }

    /* Grouping */
    h1, h2 { color: green; }

    /* Pseudo-class */
    a:hover { color: red; }

    /* Pseudo-element */
    p::after { content: " 🔍"; }
  </style>
</head>
<body>
  <h1>Heading One</h1>
  <h2>Heading Two</h2>
  <p id="unique" class="highlight">Styled paragraph</p>
  <a href="#">Hover me</a>
</body>
</html>
```

10.b) Date Object Example

html
Copy

```
<!DOCTYPE html>
```

```
<html>
<head>
  <title>Date Object</title>
</head>
<body>
  <script>
    let now = new Date();
    document.write("Current Date: " + now.toDateString() + "<br>");
    document.write("Current Time: " + now.toLocaleTimeString() +
"<br>");
    document.write("Year: " + now.getFullYear() + "<br>");
    document.write("Month: " + (now.getMonth() + 1));
  </script>
</body>
</html>
```

11.a) Working of Lists in HTML

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>HTML Lists</title>
</head>
<body>
  <h2>Ordered List</h2>
  <ol>
    <li>HTML</li>
    <li>CSS</li>
    <li>JavaScript</li>
  </ol>

  <h2>Unordered List</h2>
  <ul>
    <li>Apple</li>
    <li>Banana</li>
    <li>Mango</li>
  </ul>
```

```
  <h2>Description List</h2>
  <dl>
    <dt>HTML</dt>
    <dd>HyperText Markup Language</dd>
    <dt>CSS</dt>
    <dd>Cascading Style Sheets</dd>
  </dl>
</body>
</html>
```

11.b) Fibonacci Series Function

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Fibonacci Series</title>
</head>
<body>
  <script>
    function fibonacci(n) {
      let a = 0, b = 1, next;
      document.write("Fibonacci Series: ");
      for (let i = 1; i <= n; i++) {
        document.write(a + " ");
        next = a + b;
        a = b;
        b = next;
      }
    }

    fibonacci(10); // Change number for more terms
  </script>
</body>
</html>
```

12.a) Time Table using HTML Table

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Time Table</title>
</head>
<body>
  <h2>Weekly Time Table</h2>
  <table border="1">
    <tr>
      <th>Day</th>
      <th>9-10 AM</th>
      <th>10-11 AM</th>
      <th>11-12 PM</th>
    </tr>
    <tr>
      <td>Monday</td>
      <td>Math</td>
      <td>Science</td>
      <td>English</td>
    </tr>
    <tr>
      <td>Tuesday</td>
      <td>History</td>
      <td>Math</td>
      <td>Computer</td>
    </tr>
  </table>
</body>
</html>
```

12.b) Factorial Function in JavaScript

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Factorial</title>
</head>
<body>
  <script>
    function factorial(n) {
      let fact = 1;
      for (let i = 1; i <= n; i++) {
        fact *= i;
      }
      document.write("Factorial of " + n + " is " + fact);
    }

    factorial(5); // Change number to test different values
  </script>
</body>
</html>
```

13.a) Thumbnail Image Gallery

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Thumbnail Gallery</title>
</head>
<body>
  <h2>Thumbnail Image Gallery</h2>
  <a href="full1.jpg" target="_blank"><img src="thumb1.jpg"
width="100" height="100" alt="Image 1"></a>
```

```
  <a href="full2.jpg" target="_blank"><img src="thumb2.jpg"
width="100" height="100" alt="Image 2"></a>
  <a href="full3.jpg" target="_blank"><img src="thumb3.jpg"
width="100" height="100" alt="Image 3"></a>
</body>
</html>
```

13.b) Regex and String Object Methods

```
html
Copy
<!DOCTYPE html>
<html>
<head>
  <title>Regex and String</title>
</head>
<body>
  <script>
    let text = "The rain in Spain stays mainly in the plain.";

    // Using RegEx
    let result = text.match(/ain/g);
    document.write("Matched substrings: " + result + "<br>");

    // Other String methods
    document.write("Length: " + text.length + "<br>");
    document.write("Uppercase: " + text.toUpperCase() + "<br>");
    document.write("Replace: " + text.replace("rain", "sun") +
"<br>");
  </script>
</body>
</html>
```