Topic/Chapter wise Test

Subject: Computer Science	**Chapter/Topic:** Unit 03
Class: 9th	**Test Uploaded By:** Javaid Iqbal
Institution: Innovative Higher Secondary School	

Multiple Choice Questions (MCQs)

Note: Please tick/encircle the best/correct option.

1. Which feature distinguishes a web application from a website?
   a. Interactivity
   b. Static content
   c. No database connection
   d. One-time publishing
2. HTML is used for?
   a. Styling
   b. Structure of webpages
   c. Database
   d. Server-side scripting
3. CSS is mainly used for?
   a. Database handling
   b. Webpage styling
   c. Programming logic
   d. Server security
4. Which protocol is used for web browsing?
   a. HTTP
   b. FTP
   c. SMTP
   d. SNMP
5. Which tag is used for inserting images in HTML?
   a. <a>
   b. <p>
   c. <img>
   d. <div>
6. Which property in CSS is used to change text color?
   a. color
   b. font-style
   c. background-color
   d. text-align
7. Which one is a dynamic website?
   a. Online banking
   b. Static blog
   c. MS Word file
   d. Textbook PDF
8. Which one is a client-side scripting language?
   a. PHP
   b. Python
   c. JavaScript
   d. C#
9. Which one is a server-side scripting language?
   a. JavaScript
   b. HTML
   c. PHP
   d. CSS
10. Which tag is used for largest heading in HTML?
    a. <h_1>
    b. <h_6>
    c. <p>
    d. <title>
11. Which attribute is used to provide link in <a> tag?
    a. src
    b. alt
    c. href
    d. link
12. Which input type is used for passwords?
    a. text
    b. password
    c. hidden
    d. checkbox
13. Which HTML tag is used to create a table?
    a. <table>
    b. <div>
    c. <form>
    d. <span>
14. Which HTML tag is used to break a line?
    a.
    b. <p>
    c. <hr>
    d. <div>
15. Which CSS property controls text size?
    a. font-size
    b. text-size

c. font-style
d. size

16. Which is NOT a search engine?
a. Google
b. Yahoo
c. Facebook
d. Bing

17. Which tag is used to insert a line horizontally?
a. <p>
b. <hr>
c. <div>
d.

18. In HTML, <ul> is used for?
a. Ordered list
b. Unordered list
c. Paragraph
d. Heading

19. Which HTML attribute specifies an image alternative text?
a. alt
b. src
c. title
d. href

20. Which symbol is used for ID selector in CSS?
a. . (dot)
b. (hash)
c. @
d. *

21. Which symbol is used for class selector in CSS?
a. .
b. *
c. %
d. #

22. Which CSS property is used to set background color?
a. font-color
b. color
c. background-color
d. bgcolor

23. Which is not a programming language?
a. Python
b. HTML
c. Java
d. C++

24. Which HTML element is used to insert video?
a. <audio>
b. <video>
c. <movie>
d. <media>

25. Which HTML tag is used to create hyperlink?
a. <a>
b. <p>
c. <link>
d. <href>

26. Which HTML element is used for inserting JavaScript?
a. <script>
b. <js>
c. <javascript>
d. <code>

27. Which attribute is used in form for multiple choices?
a. radio
b. checkbox
c. select
d. textarea

28. Which tag is used for inserting styles in HTML?
a. <style>
b. <script>
c. <css>
d. <link>

29. Which HTML tag is used to display numbered list?
a.
b.
c.
d. <list>

30. Which HTML element is used for inserting audio?
a. <audio>
b. <sound>
c. <music>
d. <media>

31. Which is not a web browser?
a. Chrome
b. Firefox
c. Opera
d. MS Word

32. Which protocol is secure version of HTTP?
a. FTP
b. HTTPS
c. SMTP
d. SNMP

33. Which tag is used to create a dropdown list?

a. <select>
b. <input>
c. <option>
d. <list>

34. Which HTML tag is used to insert row in table?
a. <tr>
b. <td>
c. <th>
d. <row>

35. Which CSS property is used to change font?
a. font-family
b. font-size
c. font-style
d. font-weight

36. Which HTML element is used for line break?
a.
b. <p>
c. <hr>
d. <lb>

37. Which HTML tag is used to insert cell in table?
a. <tr>
b. <td>
c. <th>
d. <table>

38. Which CSS property controls bold text?
a. font-weight
b. font-size
c. font-style
d. text-align

39. Which tag is used to define an input form?
a. <form>
b. <input>
c. <fieldset>
d. <label>

40. Which one is a static website?
a. Facebook
b. Gmail
c. Wikipedia
d. School homepage

41. Which feature distinguishes a web application from a website?
a. Text only
b. Hyperlinks
c. Interactivity and dynamic data
d. Static content

42. Front-end development mainly deals with:
a. User interface
b. Server database
c. Network protocols
d. Debugging tools

43. Back-end development is concerned with:
a. CSS styling
b. Server-side logic
c. Colors and fonts
d. Page titles

44. Which tag is used to define a hyperlink?
a. <h_1>
b. <body>
c. <a>
d. <script>

45. JavaScript is classified as:
a. Front-end scripting language
b. Database language
c. Server OS
d. None

46. Which JavaScript variable declaration is correct?
a. int x=5
b. string x="Ali"
c. var x=5
d. data x=5

47. Which symbol is used for array indexing in JavaScript?
a. {}
b. []
c. ()
d. <>

48. In HTML, CSS is mainly used for:
a. Structure
b. Logic
c. Design/styling
d. Data storage

49. Which property of CSS changes text color?
a. background-color
b. Color
c. Border
d. font-style

50. Which loop is used in JavaScript to iterate arrays?

a. for loop
b. Switch
c. if-else
d. try-catch

51. Which operation represents Selection in programming?
a. if-else
b. for loop
c. sequence
d. array

52. Which tag defines JavaScript code inside HTML?
a. <css>
b. <js>
c. <script>
d. <java>

53. A debugger allows:
a. Editing HTML
b. Pausing execution and checking variables
c. Adding CSS
d. Changing database

54. Which of these is NOT a website feature?
a. Informational content
b. Navigation menus
c. Contact forms
d. Real-time chat authentication

55. Gmail is best categorized as:
a. Website
b. Web application
c. Text editor
d. Static portal

56. Which tag contains visible content of a webpage?
a. <head>
b. <body>
c. <title>
d. <meta>

57. JavaScript arrays are enclosed in:
a. {}
b. []
c. <>
d. “.”

58. A web application always requires:
a. Notepad
b. Server-side processing
c. PowerPoint
d. Paint

59. The repetition structure in JavaScript is:
a. if-else
b. Function
c. Loop
d. variable

60. External CSS is linked with which tag?
a. <html>
b. <link>
c. <head>
d. <body>

61. Algorithm is:
a. Step-by-step instructions
b. Graphical map
c. CSS template
d. Debugging tool

62. Which is NOT a JavaScript data type?
a. String
b. Number
c. Boolean
d. Table

63. Which function is used to print output in JavaScript?
a. print()
b. printf()
c. document.write()
d. echo()

64. JavaScript can modify:
a. Only text
b. Only CSS
c. Only HTML
d. Both HTML & CSS

65. A static website:
a. Always shows same content
b. Changes data automatically
c. Uses database
d. Provides chat

66. Which event executes JS code when a button is clicked?
a. onload
b. Onclick
c. onchange
d. submit

67. In CSS, font size is changed by:
a. background
b. font-size

c. size
d. style

68. Sequence in programming means:
a. Executing statements in order
b. Choosing between two
c. Repeating loops
d. Debugging code

69. Which of the following is used for real-time interaction?
a. HTML
b. CSS
c. JavaScript
d. PNG

70. The process of locating and fixing errors in code is:
a. Debugging
b. Compiling
c. Designing
d. Hosting

71. Which JavaScript keyword defines a function?
a. func
b. Define
c. Function
d. declare

72. A breakpoint is used in debugging to:
a. Delete code
b. Pause program at specific line
c. Save code
d. Start browser

73. Which one is a back-end language?
a. HTML
b. PHP
c. CSS
d. Bootstrap

74. Which HTML tag defines largest heading?
a. <h$_6$>
b. <h$_1$>
c. <h$_3$>
d. <head>

75. In JavaScript, arrays start with index:
a. 1
b. 0
c. -1
d. 10

76. The CSS property to set background image is:
a. image-url
b. background-image
c. set-bg
d. bgsrc

77. The role of DOM is:
a. Server storage
b. Represent HTML elements as objects
c. Debugging tool
d. Compiler

78. JavaScript repetition example is:
a. if(x>y)
b. for(i=0;i<10;i++)
c. var x=5
d. function test()

79. Which one is dynamic web technology?
a. HTML
b. CSS
c. JavaScript
d. XML

80. Everything in HTML is identified on the basis of
a. Brackets
b. Title
c. Tags
d. Image

81. The output of HTML code is visible in
a. Notepad
b. File
c. Browser
d. Spreadsheet

82. Name of a web page can be given using tag.
a. Body
b. Title
c. Head
d. Footer

83. Main parts of a document are arranged in tag.
a. Head Head
b. Title
c. Body
d. Line Break

84. The heading tag-pair for 5th level heading is
a. <h$_5$ .. h$_5$>
b. <h$_5$ ../h$_5$>
c. h$_5$>..</h$_5$
d. <h$_5$>..</h$_5$>

85. Span is used to provide ____ to a line.
    a. Font
    b. Border
    c. Style
    d. Color
86. First row of table in HTML is called:
    a. Title row
    b. Top Row
    c. Header Row
    d. Upper Row
87. p tag pair is used for:
    a. Print
    b. Page align
    c. Page break
    d. Paragraph
88. A variable cannot start with a:
    a. Alphabet
    b. Number
    c. Character
    d. String
89. The first value assigned to a variable after declaration is called
    a. Beginning value
    b. Starting value
    c. Initialization
    d. Substitution

Short Response Questions

Note: Please attempt any _____ short response questions.

1. Differentiate between a website and a web application.
2. What is meant by front-end development?
3. What is back-end development?
4. Define a static website with an example.
5. Define a dynamic website with an example.
6. What is the purpose of the <a href> attribute in HTML?
7. List four optional parameters to open a webpage in a new window.
8. Write names of four common text formatting tags in HTML.
9. Explain the role of the <body> tag in an HTML document.
10. What is event-based code in JavaScript?
11. Define external CSS.
12. Write one advantage of external CSS.
13. What is a JavaScript variable?
14. List three JavaScript data types.
15. What is an array in JavaScript?
16. Define algorithm in the context of programming.
17. What does sequence mean in programming?
18. What is meant by selection in programming?
19. What is repetition in programming?
20. How can JavaScript change CSS properties?
21. How can JavaScript modify HTML content?
22. Write an example of array initialization in JavaScript.
23. Why is debugging important in programming?
24. What is a breakpoint in debugging?
25. Differentiate between client-side and server-side scripting.
26. What is DOM in web development?
27. Define inline CSS with an example.
28. Name two debugging tools available in browsers.
29. What is meant by function testing in JavaScript?
30. Write syntax to declare a function in JavaScript.

Detailed Response Questions

Note: Please attempt any _____ detailed response questions.

1. What is Document Object Model (DOM)? Explain with example.
2. Write code to differentiate between different types of headings in HTML.
3. Explain steps to load a background image in a webpage.
4. Explain methods to add CSS in HTML with code.
5. Write steps and code to apply border and color to a table.
6. Discuss functionality of JavaScript in webpages with example.
7. Write steps and code to create scrolling text.
8. Write steps to add a video that plays automatically.
9. Write steps to compile examination result in tabular form in webpage.
10. Add a button named
11. Differentiate between website and web application with examples.
12. Explain front-end vs back-end development.
13. Write an algorithm using sequence, selection, and repetition.
14. Explain arrays in JavaScript with example.
15. What are debugging techniques in JavaScript?
16. Explain difference between inline, internal, and external CSS.

17. Explain importance of debugging with example.
18. Write steps and code to change background color on button click.
19. Write code to create login form with HTML and CSS.
20. Write steps and code to create an array and populate values using loop.

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MCQs Answer Key							
No.	**Answer**	**No.**	**Answer**	**No.**	**Answer**	**No.**	**Answer**
1	Interactivity	23	<video>	45	[]	67	Onclick
2	Structure of webpages	24	<a>	46	Design/styling	68	font-size
3	Webpage styling	25	<script>	47	color	69	Executing statements in order
4	HTTP	26	checkbox	48	for loop	70	JavaScript
5	<img>	27	<style>	49	if-else	71	Debugging
6	color	28		50	<script>	72	function
7	Online banking	29	<audio>	51	Pausing execution and checking variables	73	Pause program at specific line
8	JavaScript	30	MS Word	52	Real-time chat authentication	74	PHP
9	PHP	31	HTTPS	53	Web application	75	<h1>
10	<h1>	32	<select>	54	<body>	76	0
11	href	33	<tr>	55	[]	77	background-image
12	password	34	font-family	56	Server-side processing	78	Represent HTML elements as objects
13	<table>	35		57	Loop	79	for(i=0;i<10;i++)
14		36	<td>	58	<link>	80	JavaScript
15	font-size	37	font-weight	59	Step-by-step instructions	81	Tags
16	Facebook	38	<form>	60	Table	82	Browser
17	<hr>	39	School homepage	61	document.write()	83	Title
18	Unordered list	40	Interactivity and dynamic data	62	Both HTML & CSS	84	Body
19	alt	41	User interface	63	Always shows same content	85	..
20	# (hash)	42	Server-side logic	64	Onclick	86	Style
21	.	43	<a>	65	font-size	87	Header Row
22	background-color	44	Front-end scripting language	66	Executing statements in order	88	Paragraph
89	Initialization						

Short Questions (2 Marks Each)

Q1) Differentiate between a website and a web application.
Ans: A website mainly provides static information such as text, images, and navigation links that remain the same for all users. A web application, on the other hand, is dynamic and interactive, allowing users to log in, submit input, process data, and get customized results (e.g., Gmail, Facebook).

Q2) What is meant by front-end development?
Ans: Front-end development deals with the visible part of a website that users directly interact with. It uses technologies like HTML for structure, CSS for design, and JavaScript for interactivity, ensuring an attractive and functional user interface.

Q3) What is back-end development?
Ans: Back-end development refers to the server-side part of web development where data is processed and stored. It involves databases, authentication, and server programming languages like PHP, Python, or Node.js to ensure proper functioning of web applications.

Q4) Define a static website with an example.
Ans: A static website is one where the content does not change automatically and remains the same for all visitors. For example, a school homepage or a company profile page where only fixed information is displayed without user interaction.

Q5) Define a dynamic website with an example.
Ans: A dynamic website updates and changes content based on user input or server data. For instance, an e-commerce site where product availability, prices, or shopping cart items update in real-time for each customer.

Q6) What is the purpose of the `<a href>` attribute in HTML?
Ans: The `href` attribute in the `<a>` tag specifies the link destination, allowing users to navigate to another webpage or resource. For example, `<a href="about.html">About Us</a>` creates a clickable link to the About page.

Q7) List four optional parameters to open a webpage in a new window.
Ans: Optional parameters include setting the width of the window, the height of the window, enabling or disabling the toolbar, and making the window resizable. These allow developers to control how the new page appears on the screen.

Q8) Write names of four common text formatting tags in HTML.
Ans: Common formatting tags include `<b>` for bold text, `<i>` for italic, `<u>` for underline, and `<p>` for defining paragraphs. These tags improve the readability and presentation of webpage content.

Q9) Explain the role of the `<body>` tag in an HTML document.
Ans: The `<body>` tag contains all the visible content of a webpage such as text, images, videos, tables, and links. Whatever is written inside `<body>` appears on the browser window when the page is loaded.

Q10) What is event-based code in JavaScript?
Ans: Event-based code executes when a user performs a specific action such as clicking a button, hovering the mouse, or typing in a textbox. For example, `onclick` can be used to trigger JavaScript when a button is clicked.

Q11) Define external CSS.
Ans: External CSS is written in a separate file with a `.css` extension and linked to an HTML page using the

<link> tag. It allows developers to apply the same styling to multiple webpages for consistency and easy updates.

Q12) Write one advantage of external CSS.
Ans: The main advantage is centralized control; by editing one .css file, changes can be applied to hundreds of webpages instantly. This saves time and ensures a uniform design throughout the website.

Q13) What is a JavaScript variable?
Ans: A JavaScript variable is a container used to store data values like numbers, text, or objects. Variables can be declared using var, let, or const, and their values can be changed during execution.

Q14) List three JavaScript data types.
Ans: The three basic data types are: String (text values, e.g., "Hello"), Number (numeric values, e.g., 25), and Boolean (true/false values used in decisions).

Q15) What is an array in JavaScript?
Ans: An array is a special variable used to store multiple values in a single container. For example, var fruits = ["Apple", "Mango", "Orange"] creates an array of fruits accessible by index numbers.

Q16) Define algorithm in the context of programming.
Ans: An algorithm is a step-by-step procedure designed to solve a specific problem. It defines the logic and sequence of operations, such as finding the average of three numbers or searching an item in a list.

Q17) What does sequence mean in programming?
Ans: Sequence means executing instructions one after another in the exact order they are written. It ensures that the program runs smoothly without skipping steps, just like following a recipe.

Q18) What is meant by selection in programming?
Ans: Selection refers to decision-making in programming, where a condition determines which block of code will execute. Statements like if, else if, or switch are used for selection.

Q19) What is repetition in programming?
Ans: Repetition is executing a block of code multiple times until a condition is met. JavaScript supports repetition using loops such as for, while, and do-while.

Q20) How can JavaScript change CSS properties?
Ans: JavaScript can access HTML elements using DOM and modify their style properties. For example, document.getElementById("box").style.color = "red"; changes the text color of an element with ID box.

Q21) How can JavaScript modify HTML content?
Ans: JavaScript uses DOM properties like innerHTML to change the content inside HTML tags. For example, document.getElementById("para").innerHTML="Welcome!"; updates the text of a paragraph.

Q22) Write an example of array initialization in JavaScript.
Ans: An array can be created as var numbers = [10, 20, 30, 40];. Each value is stored at an index, and elements can be accessed using square brackets such as numbers[2] which gives 30.

Q23) Why is debugging important in programming?
Ans: Debugging is essential because it helps locate and correct errors in the code, ensuring that the program produces accurate results. Without debugging, even small mistakes can cause unexpected behavior.

Q24) What is a breakpoint in debugging?
Ans: A breakpoint is a marker set in the code that stops execution at a specific line. This allows the programmer to inspect the values of variables and program flow to detect errors.

Q25) Differentiate between client-side and server-side scripting.
Ans: Client-side scripting (e.g., JavaScript) runs in the user's browser and handles interactivity. Server-side scripting (e.g., PHP, ASP) runs on the server, processes data, and returns results to the client.

Q26) What is DOM in web development?
Ans: The Document Object Model (DOM) is a structured representation of HTML documents as a tree of objects. It allows JavaScript to dynamically access, add, delete, or modify webpage elements.

Q27) Define inline CSS with an example.
Ans: Inline CSS is applied directly within an HTML element using the `style` attribute. For example: `<h1 style="color:blue;">Hello</h1>` applies blue color only to that heading.

Q28) Name two debugging tools available in browsers.
Ans: Two common debugging tools are Chrome Developer Tools and Firefox Developer Tools. They allow developers to check HTML, CSS, JavaScript, and set breakpoints during execution.

Q29) What is meant by function testing in JavaScript?
Ans: Function testing means writing small functions and then invoking them with different inputs to check if they return the expected results. This ensures each piece of code works correctly before combining them.

Q30) Write syntax to declare a function in JavaScript.
Ans: The basic syntax is:

```
function myFunction() {
   // code to execute
}
```

Here `function` is the keyword, `myFunction` is the name, and `{}` encloses the statements.

Long Questions (5–6 Marks Each)

Q1) What is Document Object Model (DOM)? Explain with example.
Ans: The Document Object Model (DOM) is a structured, tree-like representation of an HTML or XML document where every tag is treated as an object. The DOM allows programming languages like JavaScript to access and manipulate the structure, style, and content of webpages dynamically. With DOM, developers can change text, add or delete elements, and modify CSS at runtime. For example:

```
<html>
 <body>
   <p id="demo">Hello</p>
   <script>
     document.getElementById("demo").innerHTML = "Welcome!";
   </script>
 </body>
</html>
```

Here, JavaScript accesses the `<p>` element using DOM and changes its text. This shows how DOM provides interaction between webpage structure and scripts.

Q2) Write code to differentiate between different types of headings in HTML.
Ans: HTML provides six levels of headings `<h1>` to `<h6>`, which represent different levels of importance. `<h1>` is the largest and is used for main titles, while `<h6>` is the smallest and used for minor notes or details. Using headings ensures that webpage content is properly structured and easy to read, also helping in SEO and accessibility. Example code:

```
<h1>Main Title</h1>
<h2>Chapter Heading</h2>
<h3>Section</h3>
<h4>Sub Section</h4>
<h5>Note</h5>
<h6>Smallest Heading</h6>
```

This hierarchy helps organize information in a clear, logical manner.

Q3) Explain steps to load a background image in a webpage.
Ans: To apply a background image in a webpage, CSS is used. The steps are: (1) Select the HTML element (usually `<body>`), (2) Apply `background-image` property with the image URL, (3) Use `background-size` for covering area. Developers can also repeat or position the image. Example:

```
<style>
 body {
   background-image: url("bg.jpg");
   background-size: cover;
   background-repeat: no-repeat;
 }
</style>
```

This code applies an image as the full-page background. Such designs are used in school websites, company pages, and creative portfolios.

Q4) Explain methods to add CSS in HTML with code.
Ans: CSS can be added in three ways:

1. **Inline CSS** – written inside an element's `style` attribute, affecting only that element.
2. **Internal CSS** – written inside `<style>` tags in the `<head>` section, affecting only that page.
3. **External CSS** – written in a separate `.css` file and linked with `<link>` tag, allowing uniform styling across multiple pages.
   Example:

```
<h1 style="color:red">Inline CSS</h1>
<style> h1 { color: blue; } </style>
<link rel="stylesheet" href="style.css">
```

External CSS is most efficient for large projects.

Q5) Write steps and code to apply border and color to a table.
Ans: To style a table, CSS properties like `border`, `border-collapse`, and `background-color` are used. Steps: (1) Select table, rows, and cells, (2) Add border and collapse property, (3) Apply background color and padding. Example:

```
<style>
table, th, td { border: 2px solid black; border-collapse: collapse; }
th, td { background-color: lightblue; padding: 8px; }
</style>
```

```
<table>
 <tr><th>Name</th><th>Marks</th></tr>
 <tr><td>Ali</td><td>85</td></tr>
</table>
```

This makes tables more readable and visually attractive.

Q6) Discuss functionality of JavaScript in webpages with example.
Ans: JavaScript adds interactivity and dynamic behavior to otherwise static HTML webpages. It can validate forms, handle user events, update content, change styles, and create animations. For example, it can display alerts, hide/show elements, or fetch data from servers (AJAX). Example:

```
<button onclick="alert('Hello!')">Click Me</button>
```

Here, clicking the button executes JavaScript that shows a popup message. This demonstrates JavaScript's role in improving user experience.

Q7) Write steps and code to create scrolling text.
Ans: Scrolling text can be created in two ways: (1) Using the old `<marquee>` tag (not recommended in modern HTML), or (2) CSS animations for more control. Example with `<marquee>`:

```
<marquee behavior="scroll" direction="left">Welcome to my Website!</marquee>
```

This scrolls text from right to left continuously. In modern practice, CSS animations are used for better flexibility and design.

Q8) Write steps to add a video that plays automatically.
Ans: HTML5 introduced the `<video>` element for embedding videos. Steps: (1) Use `<video>` tag, (2) Specify width/height, (3) Add `autoplay` attribute for automatic play, (4) Use `<source>` tag with video file path. Example:

```
<video width="400" autoplay controls>
 <source src="movie.mp4" type="video/mp4">
</video>
```

This video starts playing when the webpage loads. The `controls` attribute allows pause, play, and volume adjustment.

Q9) Write steps to compile examination result in tabular form in webpage.
Ans: To display examination results, HTML `<table>` is used. Steps: (1) Use `<table>` with `<tr>` for rows and `<th>/<td>` for headers and data, (2) Apply borders and colors using CSS, (3) Fill subjects and marks. Example:

```
<table border="1">
 <tr><th>Subject</th><th>Marks</th></tr>
 <tr><td>Math</td><td>85</td></tr>
 <tr><td>CS</td><td>90</td></tr>
</table>
```

This provides clear subject-wise marks for easy reading.

Q10) Add a button named "Revert" that reverses color and index.
Ans: Buttons in HTML can call JavaScript functions. A "Revert" button can change page background or reset index values to previous state. Example:

```
<button onclick="revert()">Revert</button>
<script>
 function revert(){
   document.body.style.backgroundColor = "white";
   // additional logic can reset index values here
 }
</script>
```

This shows how user actions trigger JavaScript functions dynamically.

Q11) Differentiate between website and web application with examples.
Ans: A website is mainly informational and static, containing text, images, and links (e.g., Wikipedia, school websites). It cannot process or store user input. A web application is dynamic and interactive, processing user data, providing login systems, and executing tasks (e.g., Facebook, Gmail). Hence, websites inform, while web applications perform actions.

Q12) Explain front-end vs back-end development.
Ans: Front-end development deals with the design and user interface of webpages, using HTML, CSS, and JavaScript. It is what users see and interact with. Back-end development works behind the scenes, using programming languages (PHP, Python, Node.js) and databases (MySQL, MongoDB) to store and process data. Together, they make a complete web system.

Q13) Write an algorithm using sequence, selection, and repetition.
Ans: Algorithms combine sequence (step-by-step flow), selection (decision-making), and repetition (loops). Example: finding the largest of three numbers.
Steps:

1. Input numbers A, B, and C. (sequence)
2. If A > B then largest = A else largest = B. (selection)
3. If C > largest then largest = C.
4. Print largest.
   If this process is repeated for multiple sets using a loop, repetition is applied.

Q14) Explain arrays in JavaScript with example.
Ans: Arrays are special variables used to store multiple values under one name. They allow easy storage and retrieval of related data. Example:

```
<script>
 var fruits = ["Apple","Banana","Mango"];
 for(var i=0;i<fruits.length;i++){
   document.write(fruits[i]+"<br>");
 }
</script>
```

This displays all fruits using a loop. Arrays are essential in handling lists, tables, and large datasets.

Q15) What are debugging techniques in JavaScript?
Ans: Debugging is the process of finding and fixing errors in code. Common techniques include:

1. Using `console.log()` to print variable values.
2. Setting breakpoints in browser developer tools.
3. Function testing to check small code parts.
4. Step-by-step execution to trace logic.
   These techniques ensure error-free and efficient programs.

Q16) Explain difference between inline, internal, and external CSS.
Ans: **Inline CSS** is applied directly within an HTML element's `style` attribute, affecting only that element. **Internal CSS** is written inside `<style>` tags within the `<head>`, affecting only that single page. **External CSS** is placed in a `.css` file and linked with `<link>`, applying styles across multiple pages. External CSS is most efficient for large projects, while inline is used for quick testing.

Q17) Explain importance of debugging with example.
Ans: Debugging is important because errors can stop code from working correctly or produce wrong outputs. Debugging allows programmers to inspect values and correct mistakes. For example, if a student's marks calculation shows wrong average, setting a breakpoint in the loop will show if total or divisor is wrong. This saves time and ensures accurate results.

Q18) Write steps and code to change background color on button click.
Ans: Steps: (1) Create a button, (2) Attach an event `onclick`, (3) Write a JavaScript function to change background. Example:

```
<button onclick="document.body.style.backgroundColor='yellow'">
Change Background
</button>
```

When the button is clicked, the background color of the page changes to yellow. This shows dynamic styling with JavaScript.

Q19) Write code to create login form with HTML and CSS.
Ans: A simple login form includes username and password fields with a button. CSS styles the form. Example:

```
<form>
 Username: <input type="text"><br><br>
 Password: <input type="password"><br><br>
 <button>Login</button>
</form>
```

Such forms are the basis of authentication in web applications. CSS can enhance layout, alignment, and colors.

Q20) Write steps and code to create an array and populate values using loop.
Ans: Steps: (1) Declare an empty array, (2) Use a `for` loop, (3) Assign values to each index, (4) Display them. Example:

```
<script>
 var numbers = [];
 for(var i=0;i<5;i++){
   numbers[i] = i+1;
 }
 document.write(numbers);
</script>
```

This creates an array `[1,2,3,4,5]` dynamically. Arrays with loops are widely used in programming tasks.