8 CHAPTER

WEB DEVELOPMENT WITH HTML, CSS AND JAVA SCRIPT

8.1 WEB DEVELOPMENT
8.2 BASIC COMPONENTS FOR WEB DEVELOPMENT

LONG QUESTION

Q.1 Explain the importance of learning web development and how it benefits individuals in various ways.

1. Introduction to Web Development

Web development refers to the process of creating websites and web applications using programming languages and tools. It encompasses designing, building, and maintaining websites, making it an essential skill in today's digital age.

Importance of Learning Web Development

Digital Literacy

- Learning web development helps individuals understand how websites are created and function.
- **HTML**: Acts as the skeleton of a web page, structuring its content.
- **CSS**: Enhances the web page's appearance with styling like colors, fonts, and layouts.
- **JavaScript**: Makes the web page interactive and dynamic by adding features like forms and animations.
- Understanding these technologies deepens knowledge of how the internet works.

Career Opportunities

- Web development skills open doors to a variety of job roles, such as web developer, web designer, and more.
- Many companies require web developers to create and maintain websites, leading to high demand in the IT industry.
- These skills provide global job opportunities, offering stability and growth.

Problem-Solving Skills

- Building websites often involves identifying and resolving issues, such as improving website speed.
- This fosters logical thinking and enhances problem-solving abilities, skills valuable in all industries.

Creativity

- Web development enables individuals to create visually appealing and interactive websites.
- Examples include designing personal blogs, online portfolios, or unique layouts with innovative features.
- This creativity allows individuals to express themselves through digital platforms.

Entrepreneurship

- With web development knowledge, individuals can launch their own online businesses.
- Example: Building an e-commerce website to sell crafts or creating a new web service to share globally.

Q.2 Discuss the three main components of web development and their respective roles in creating websites and web applications.

Ans: 1. Introduction to Web Development Components

Web development involves creating websites and web applications, comprising three main components: front-end development, back-end development, and full-stack development. Each plays a crucial role in delivering a functional and user-friendly web experience.

Components of Web Development

Front-End Development

- Focuses on what users see and interact with on a website.
- **HTML**: Structures the content, such as headings, paragraphs, images, and links.
- **CSS**: Styles the content, enhancing the appearance with colors, fonts, and layouts.
- **JavaScript**: Adds interactivity, enabling features like forms, animations, and games.
- **Example**: Designing an attractive and functional user interface (UI).

Back-End Development

- Manages the behind-the-scenes functionality of a website, including servers, databases, and application logic.
- **Web Servers**: Store and deliver web pages to users when a URL is entered.
- **Databases**: Store and manage data, such as user information and website content.
- **Back-End Programming Languages**: Examples include PHP, Python, and Ruby, used for tasks like processing forms and managing logins.
- **Example**: Developing a login system to authenticate users and manage accounts.

Full-Stack Development

- Combines front-end and back-end development to deliver a complete web solution.
- Example: In a login system, a full-stack developer creates the user interface and handles back-end tasks like user authentication and database interaction.

Example: Login System

A login system illustrates how the components work together:

1. **Front-End Development**: Designs the login page with fields for username and password.
2. **Back-End Development**: Processes the login details, verifies user credentials in the database, and grants access.
3. **Full-Stack Development**: Integrates both aspects to provide a seamless user experience.

SHORT QUESTIONS

Q.43 What is web development?

Ans: **WEB DEVELOPMENT**

Web development is the process of creating websites and web applications using programming languages and tools to design, build, and maintain them.

Q.44 Why should you learn web development?

Ans: **LEARN WEB DEVELOPMENT**

Learning web development enhances digital literacy, opens career opportunities, develops problem-solving skills, fosters creativity, and supports entrepreneurship.

Q.45 What are the main components of web development?

Ans: **MAIN COMPONENTS OF WEB DEVELOPMENT**

The main components are front-end development, back-end development, and full-stack development.

Q.46 What is the role of HTML in front-end development?

Ans: **ROLE OF HTML IN FRONT-END DEVELOPMENT**

HTML structures the content of web pages, such as headings, paragraphs, images, and links.

Q.47 What does CSS do in web development?

Ans: **CSS DO IN WEB DEVELOPMENT**

CSS styles web pages, altering colors, fonts, and layouts to enhance their appearance.

Q.48 How does JavaScript make web pages dynamic?

Ans: **javascript make web pages dynamic**

JavaScript adds interactivity and features such as animations, forms, and games.

Q.49 What is the role of a web server?

Ans: **THE ROLE OF A WEB SERVER**

A web server stores and delivers web pages to users when they enter a URL.

Q.50 What are databases used for in web development?

Ans: **DATABASES USED FOR IN WEB DEVELOPMENT**

Databases store and manage data, such as user information, product details, and website content.

Q.51 What is full-stack development?

Ans: **FULL-STACK DEVELOPMENT**

Full-stack development involves handling both the front-end (user interface) and back-end (server and database) of a web application.

Q.52 Why are full-stack developers valuable?

Ans: **FULL-STACK DEVELOPERS VALUABLE**

Full-stack developers are versatile and manage all aspects of web applications, making them highly in demand.

Q.53 Explain the importance of problem-solving in web development.

Ans: **IMPORTANCE OF PROBLEM-SOLVING IN WEB DEVELOPMENT**

Problem-solving helps developers identify and resolve issues, such as slow websites, by analyzing and fixing logical or technical problems.

Q.54 How can web development skills support entrepreneurship?

Ans: **DEVELOPMENT SKILLS SUPPORT ENTREPRENEURSHIP**

Developers can create websites to sell products or services, develop unique web applications, and establish online businesses.

Q.55 What is an example of front-end development?

Ans: **FRONT-END DEVELOPMENT**

Designing interactive forms and animations for a web page using HTML, CSS, and JavaScript.

Q.56 Why is digital literacy important in web development?

Ans: **DIGITAL LITERACY IMPORTANT IN WEB DEVELOPMENT**

Digital literacy helps individuals understand how websites are made and how the internet works.

Q.57 What is the significance of the first website?

Ans: **SIGNIFICANCE OF THE FIRST WEBSITE**

Created by Tim Berners-Lee in 1991, it marked the beginning of the World Wide Web and is still accessible online.

MULTIPLE CHOICE QUESTIONS

Introduction and Web Development Basics

49. What does web development involve?

(A) Writing emails (B) Creating websites and web applications
(C) Playing online games (D) Building desktop software

50. Which language is considered the skeleton of a web page?

(A) JavaScript (B) CSS
(C) HTML (D) Python

51. Why is web development a valuable skill?

(A) It's easy to learn
(B) It offers career opportunities and fosters creativity
(C) It replaces traditional IT skills
(D) It requires no technical knowledge

52. Who created the first website?

(A) Sabeer Bhatia (B) Jack Smith
(C) Tim Berners-Lee (D) Bill Gates

53. What does CSS primarily handle?

(A) Back-end logic (B) Styling and layout of web pages
(C) User authentication (D) Managing databases

54. What does JavaScript add to web pages?

(A) Static content (B) Visual design
(C) Interactivity and dynamic features (D) Server communication

55. Which is a common example of a web development feature?
(A) Login system (B) Image editing
(C) Audio mixing (D) Hardware testing

Front-End Development

56. Which of the following is NOT part of front-end development?
(A) HTML (B) CSS
(C) JavaScript (D) Databases

57. Front-end development focuses on:
(A) Web servers (B) What users see and interact with
(C) Back-end processes (D) Database management

58. What is an example of a front-end feature?
(A) User authentication (B) Server management
(C) Animations on a web page (D) Storing user data

Back-End Development

59. Which back-end language is commonly used for processing forms?
(A) HTML (B) PHP
(C) CSS (D) JavaScript

60. What is the primary purpose of a database in web development?
(A) Styling web pages (B) Storing and managing data
(C) Hosting websites (D) Displaying animations

61. A web server's function is to:
(A) Host front-end content (B) Deliver web pages to users
(C) Manage animations (D) Authenticate users

Full-Stack Development

62. What does a full-stack developer do?
(A) Only designs the UI
(B) Only manages databases
(C) Handles both front-end and back-end development
(D) Focuses solely on coding

63. Why are full-stack developers in high demand?
(A) They specialize in one area (B) They manage all aspects of web applications
(C) They work without coding (D) They rely on pre-built tools

64. A login system involves:
(A) Front-end only (B) Back-end only
(C) Both front-end and back-end (D) Database management only

Career and Creativity in Web Development

65. What can web development skills help you achieve in entrepreneurship?
(A) Build a website for selling products (B) Manage online payments
(C) Create interactive features (D) All of the above

66. Why is creativity important in web development?
(A) To create visually appealing websites (B) To reduce website loading time
(C) To manage databases effectively (D) To enhance server performance

67. What did Sabeer Bhatia and Jack Smith create?
(A) The first website (B) Hotmail
(C) A login system (D) A new programming language

68. Which is an example of using creativity in web development?
(A) Designing a personal blog with unique layouts (B) Writing a Python program
(C) Setting up a server (D) Debugging code

8.3 GETTING STARTED WITH HTML

LONG QUESTION

Q.1 Describe the steps to create and view a basic HTML web page. Provide a detailed explanation along with an example.

Ans:

1. Writing the HTML Code:

Open a text editor (e.g., Notepad).
Write the HTML code using proper syntax. For example:

```
<!DOCTYPE html>
<html>
<head>
  <title>My First Web Page</title>
</head>
<body>
  <h1>Welcome to My Website</h1>
  <p>This is my first web page. I am learning HTML in the 9th class!</p>
</body>
</html>
```

2. Saving the File:

Save the file with a .html extension, e.g., My_first_website.html.
In Notepad, select "All Files" from the "Save as type" dropdown.

3. Viewing the File in a Browser:

Open a web browser (e.g., Chrome).
Double-click the saved file to display the content. The text "Welcome to My Website" will appear as a heading, followed by a paragraph.

4. Making Changes:

Edit the file as needed and refresh the browser to view updates.

Example Output:

When the above HTML code is saved and viewed, the web page displays a title in the browser tab ("My First Web Page") and the heading "Welcome to My Website" with a paragraph below it.

SHORT QUESTIONS

Q.1 What is HTML and why is it important?

Ans: **HTML AND WHY IS IT IMPORTANT**

HTML stands for Hyper Text Markup Language. It is the standard language for creating web pages, serving as the building blocks of websites. Without HTML, web pages cannot be structured or displayed properly.

Q.2 Who created HTML and when?

Ans: **CREATED HTML AND WHEN**

HTML was created by Tim Berners-Lee in 1991 to make sharing information on the internet easier.

Q.3 List the key features introduced in HTML 5.

Ans: **KEY FEATURES INTRODUCED IN HTML**

HTML5 introduced better multimedia support, new elements for graphics, and enhanced features for creating interactive web pages.

Q.4 What tools are needed to start writing HTML code?

Ans: **NEEDED TO START WRITING HTML CODE**

A text editor (e.g., Notepad++, Sublime Text) and a web browser (e.g., Google Chrome, Mozilla Firefox) are required.

Q.5 Why is the .html extension necessary?

Ans: **HTML EXTENSION NECESSARY**

The .html extension identifies a file as an HTML document, allowing browsers to open it as a web page.

Q.6 Explain the process of viewing an HTML file.

Ans: **PROCESS OF VIEWING AN HTML FILE**

Save the HTML file with a .html extension. Double-click the file to open it in a web browser and see the output.

Q.7 What improvements were made in HTML 4.0?

Ans: **IMPROVEMENTS WERE MADE IN HTML 4.0**

HTML 4.0 added support for multimedia elements like images and videos, making web pages more dynamic.

Q.8 Why is it recommended to start with simple tools for HTML development?

Ans: **RECOMMENDED TO START WITH SIMPLE TOOLS FOR HTML DEVELOPMENT**

Simple tools like Notepad and basic browsers help beginners focus on learning the language without distractions from advanced features.

Q.9 What is the purpose of refreshing the web browser after modifying an HTML file?

Ans: Refreshing ensures the browser displays the latest changes made to the HTML file.

Q.10 What does the <!DOCTYPE html> declaration do in an HTML document?

Ans: It specifies the HTML version being used, ensuring browsers interpret the document correctly.

MULTIPLE CHOICE QUESTIONS

1. What does HTML stand for?
(A) Hyper Transfer Markup Language (B) Hyper Text Markup Language
(C) High Transfer Markup Language (D) Hyper Text Making Language

2. Who created HTML?
(A) Bill Gates (B) Tim Berners-Lee
(C) Steve Jobs (D) Larry Page

3. Which version of HTML introduced support for multimedia elements like images and videos?
(A) HTML 1.0 (B) HTML 2.0
(C) HTML 4.0 (D) HTML 5.0

4. Which file extension should be used to save an HTML file?
(A) .txt (B) .doc
(C) .html (D) .exe

5. Which tool is required to write HTML code?
(A) Text Editor (B) Compiler
(C) Spreadsheet (D) Presentation Software

6. What should you do to view your HTML file in a browser?
(A) Drag it into a browser (B) Double-click the file
(C) Compile the file (D) Save it as a PDF first

7. Which text editor is not mentioned in the text?
(A) Sublime Text (B) Notepad++
(C) Visual Studio Code (D) MS Word

8. What is the main purpose of HTML?
(A) To create web applications (B) To share information on the internet
(C) To edit videos (D) To manage databases

9. What happens if you forget to add the .html extension when saving your file?
(A) It becomes a PDF file
(B) The computer won't recognize it as a web page
(C) It will not open
(D) It will automatically convert to a webpage

10. Which version of HTML introduced tables and scripts?
(A) HTML 2.0 (B) HTML 3.2
(C) HTML 4.01 (D) HTML 5

8.4 HTML BASIC STRUCTURE
8.5 CREATING CONTENT WITH HTML

LONG QUESTION

Q.1 Explain the importance of headings in HTML with examples.

Ans: Importance of Headings:

Organizing Content:

Headings, ranging from <h1> to <h6>, structure web page content into sections and subsections, enhancing readability.

Example:

```
<h1>Main Title</h1>
<h2>Subheading 1</h2>
<h3>Subheading 2</h3>
```

Search Engine Optimization (SEO):

Search engines use headings to understand a web page's structure and main topics. Properly implemented headings improve the page's ranking in search results.

Consistent Formatting:

Headings ensure uniform appearance across different browsers and devices.

Example Usage:

```
<!DOCTYPE html>
<html>
<head>
<title>Importance of Headings</title>
</head>
<body>
<h1>Main Title</h1>
<p>This is the primary title of the page.</p>
<h2>Subheading 1</h2>
<p>This section elaborates on the main topic.</p>
<h3>Subheading 2</h3>
<p>Details under the subheading.</p>
</body>
</html>
```

2. Discuss the purpose and structure of HTML tables with an example.

Purpose of HTML Tables:

Tables are used to display data in a grid format, making it easier to compare and organize information. For example, they can be used for schedules, product comparisons, or data presentation.

Structure of HTML Tables:

<table>: Defines the table.
<tr>: Represents a table row.
<th>: Represents a table header cell, typically bold and centered.
<td>: Represents a standard table cell.

Example Table Code:

```
<!DOCTYPE html>
<html>
<head>
<title>HTML Table Example</title>
</head>
<body>
```

```
<table>
  <tr>
    <th>Name</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Alice</td>
    <td>14</td>
  </tr>
  <tr>
    <td>Bob</td>
    <td>15</td>
  </tr>
</table>
</body>
</html>
```

Key Points:

Tables enhance readability by presenting data in a clear format.
Using <th> tags for headers helps users understand the data.
Proper formatting ensures cross-device compatibility.

SHORT QUESTIONS

Q.1 What is the purpose of <!DOCTYPE html> in an HTML document?

Ans: **PURPOSE OF <!DOCTYPE HTML> IN AN HTML DOCUMENT**

<!DOCTYPE html> declares that the document type is HTML5, helping browsers render the page correctly.

Q.2 What is the root element in an HTML document?

Ans: **ROOT ELEMENT IN AN HTML DOCUMENT**

The <html> tag is the root element and encapsulates the entire HTML document.

Q.3 What information is contained in the <head> section of an HTML document?

Ans: **CONTAINED IN THE <HEAD> SECTION OF AN HTML DOCUMENT**

The <head> section contains meta-information, such as the title of the page, character encoding, and links to external stylesheets or scripts.

Q.4 What is the function of the <title> tag in an HTML document?

Ans: **FUNCTION OF THE <TITLE> TAG IN AN HTML DOCUMENT**

The <title> tag defines the title of the web page, which appears in the browser tab and is also used by search engines for indexing.

Q.5 What does the <body> tag contain in an HTML document?

Ans: **<BODY> TAG CONTAIN IN AN HTML DOCUMENT**

The <body> tag contains all the visible content of the web page, such as text, images, and videos.

Q.6 What are paired tags in HTML? Provide an example.

An: **PAIRED TAGS IN HTML? PROVIDE AN EXAMPLE**

Paired tags come in opening and closing pairs, such as ... . They define the beginning and end of content.

Q.7 What are unpaired tags in HTML? Provide an example.

Ans: **UNPAIRED TAGS IN HTML? PROVIDE AN EXAMPLE**

Unpaired tags are self-closing and do not require an ending tag. For example, <img> and <br>.

Q.8 Why are headings important in HTML?

Ans: **HEADINGS IMPORTANT IN HTML**

Organizing Content: Headings organize web page content into sections and subsections for better readability.
SEO: Proper heading usage improves search engine rankings.
Consistent Formatting: Ensures uniform formatting across devices.

Q.9 What is the difference between <h1> and <h6> tags?

Ans: **BETWEEN <H1> AND <H6> TAGS**

<h1> is used for the main title and is the largest heading, while <h6> is used for the least important subheading and is the smallest.

Q.10 How are paragraphs created in HTML, and what is their purpose?

Ans: **PARAGRAPHS CREATED IN HTML, AND WHAT IS THEIR PURPOSE**

Paragraphs are created using the tag. They organize text into readable blocks, with space above and below each block.

Q.11 What is the syntax for creating a hyperlink in HTML?

Ans: **SYNTAX FOR CREATING A HYPERLINK IN HTML**

Hyperlinks are created using the <a> tag with the href attribute. For example:
Visit Example

Q.12 What is the purpose of alternate text in images?

Ans: **PURPOSE OF ALTERNATE TEXT IN IMAGES**

Alternate text in images helps visually impaired users understand the content and provides context if the image fails to load.

Q.13 What are the two types of lists in HTML? Provide examples.

Ans: **TWO TYPES OF LISTS IN HTML? PROVIDE EXAMPLES**

Unordered List: Created using <ul> and <li> tags. Example:
Item 1
Item 2
Ordered List: Created using <ol> and <li> tags. Example:
First Item
Second Item

Q.14 What is the purpose of a table in HTML?

Ans: **PURPOSE OF A TABLE IN HTML**

Tables are used to display data in a structured format, making it easier to compare and organize information.

Q.15 How are comments written in HTML, and why are they used?

Ans: **COMMENTS WRITTEN IN HTML, AND WHY ARE THEY USED**

HTML comments are written between <!-- and -->. They are used to explain code, leave reminders, or temporarily disable code for testing.

MULTIPLE CHOICE QUESTIONS

1. What does <!DOCTYPE html> declare in an HTML document?

(A) The language of the document (B) That it's an HTML5 document
(C) The encoding type (D) The browser type

2. Which tag is the root element of an HTML page?

(A) <head> (B) <html>
(C) <body> (D) <title>

3. What does the <head> section of an HTML document contain?

(A) Main content (B) Links to other pages
(C) Meta-information (D) Comments

4. What is the main purpose of the <title> tag?

(A) Define a heading (B) Display text on the page
(C) Set the web page title in the browser tab (D) Create a hyperlink

5. What is the primary function of the <body> tag?

(A) Hold metadata (B) Define the web page's title
(C) Display the page's visible content (D) Define comments

6. What is an example of a paired tag?

(A)
 (B) <img>
(C) ... (D) <hr>

7. Which tag is used for creating headings?
(A) <title> (B) <p>
(C) <h1> (D) <a>

8. What tag is used for creating paragraphs?
(A) <para> (B) <p>
(C) <h1> (D) <text>

9. What does the <a> tag create in HTML?
(A) Images (B) Tables
(C) Hyperlinks (D) Headings

10. What is the correct syntax for an image tag in HTML?
(A) <image src="..."> (B) <img src="..." alt="...">
(C) <pic src="..." alt="..."> (D) <img href="...">

11. Which tag is used to create unordered lists?
(A) (B)
(C) (D) <list>

12. What does <th> represent in a table?
(A) Table Header (B) Table Data
(C) Table Row (D) Table Style

13. What is the purpose of HTML comments?
(A) Add visible notes (B) Temporarily disable code
(C) Explain sections of code (D) Both B and C

14. Which heading level is the largest?
(A) <h6> (B) <h1>
(C) <h3> (D) <h4>

15. What does SEO stand for in HTML content structuring?
(A) Simple Encoding Object (B) Structured Editing Option
(C) Search Engine Optimization (D) Semantic Editing Order

16. What is a self-closing tag?
(A) A paired tag (B) A tag that doesn't require a closing tag
(C) A comment tag (D) A heading tag

17. What does <ol> stand for?
(A) Ordered List (B) Object List
(C) Organized List (D) Optimized List

18. What attribute is essential for links in HTML?
(A) src (B) href
(C) alt (D) type

19. Why are headings important for SEO?
(A) Make the page visually appealing (B) Organize the text
(C) Help search engines understand structure (D) Increase load speed

20. What is the correct syntax for a comment in HTML?
(A) <!-- This is a comment --> (B) <comment>This is a comment</comment>
(C) // This is a comment (D) /* This is a comment */

8.6 STYLING WITH CSS

LONG QUESTION

Q.1 Explain the Three Methods of Integrating CSS into HTML with Examples

Ans: CSS can be integrated into HTML in three main ways:

Inline Styles: CSS is added directly to an HTML element using the style attribute.

Example: <h1 style="color: red;">Hello World</h1> changes the heading color to red.

Internal Styles: CSS is written in the <style> tag within the <head> section of the HTML document.

Example:

```
<style>
 h1 {
   color: blue;
 }
</style>
```

External Styles: CSS is stored in a separate file and linked to the HTML using the <link> tag.

Example:

```
<link rel="stylesheet" href="styles.css">
```

External CSS is preferred for large projects as it separates content and styling for better maintainability.

Q.2 Discuss Key CSS Properties for Styling Backgrounds with Examples

Ans: CSS provides several properties for styling backgrounds:

Background Color: Sets the background color of an element.

Example: body { background-color: lightblue; } sets a light blue background.

Background Image: Adds an image as the background.

Example: body { background-image: url('image.jpg'); } displays the specified image.

Background Repeat: Controls whether the background image repeats.

Example: background-repeat: no-repeat; prevents the image from repeating.

Background Position: Specifies the position of the background image.

Example: background-position: center; centers the image.

Background Size: Determines the size of the background image.

Example: background-size: cover; makes the image cover the entire element.

These properties enhance the visual appeal of web pages by allowing creative background designs.

SHORT QUESTIONS

Q.1 What is the primary purpose of CSS?

Ans:

PRIMARY PURPOSE OF CSS

CSS (Cascading Style Sheets) is used to control the visual appearance of web pages. It separates content from presentation, allowing developers to style HTML elements by specifying fonts, colors, layouts, and more. This improves the user experience and ensures a visually appealing design.

Q.2 What are selectors in CSS?

Ans:

SELECTORS IN CSS

Selectors in CSS are used to specify which HTML elements the styles should apply to. For example, the selector h1 targets all <h1> elements in an HTML document.

Q.3 What is a CSS declaration?

Ans:

CSS DECLARATION

A CSS declaration consists of a property and its corresponding value that define the style to be applied. For example, color: red; is a declaration that changes the text color to red.

Q.4 What are the three main methods to integrate CSS into an HTML document?

Ans: **THREE MAIN METHODS TO INTEGRATE CSS INTO AN HTML DOCUMENT**

Inline Styles: CSS is directly added to HTML elements using the style attribute, e.g., <h1 style="color: blue;">Hello</h1>.

Internal Styles: CSS is defined in the <style> tag within the <head> section of the HTML document.

External Styles: CSS is written in a separate file (e.g., styles.css) and linked to the HTML document using the <link> tag.

Q.5 What is the purpose of the font-family property in CSS?

Ans: **PURPOSE OF THE FONT-FAMILY PROPERTY IN CSS**

The font-family property specifies the font of the text. For example, font-family: Arial, sans-serif; applies the Arial font to the text, with a fallback to a generic sans-serif font if Arial is unavailable.

Q.6 How can you change the background color of an element using CSS?

Ans: **CHANGE THE BACKGROUND COLOR OF AN ELEMENT USING CSS**

You can use the background-color property. For example, body { background-color: blue; } changes the background color of the body to blue.

Q.7 What is the use of the background-image property?

Ans: **BACKGROUND-IMAGE PROPERTY**

The background-image property sets an image as the background of an element. For example, body { background-image: url('image.jpg'); } displays the specified image as the background.

Q.8 What does the position property in CSS do?

Ans: **POSITION PROPERTY IN CSS DO**

The position property specifies the positioning method of an element. Values include static (default), relative, absolute, and fixed. For instance, position: absolute; positions the element relative to its nearest positioned ancestor.

Q.9 How does CSS Flexbox help in web design?

Ans: **CSS FLEXBOX HELP IN WEB DESIGN**

CSS Flexbox allows developers to align and distribute items within a container efficiently. For example, display: flex; justify-content: space-between; positions items evenly with space between them.

Q.10 What is the purpose of keyframes in CSS animations?

Ans: **PURPOSE OF KEYFRAMES IN CSS ANIMATIONS**

Keyframes define the start, intermediate, and end points of an animation. For instance, @keyframes example { from {background-color: red;} to {background-color: yellow;} } changes the background color from red to yellow.

Q.11 How can transitions be added to an element in CSS?

Ans: **TRANSITIONS BE ADDED TO AN ELEMENT IN CSS**

Transitions are added using the transition property. For example, transition: background-color 2s; makes the background color change gradually over 2 seconds.

Q.12 What are margins and paddings in CSS?

Ans: **MARGINS AND PADDINGS IN CSS**

Margins create space outside an element, while padding creates space inside an element between its content and border. For example, margin: 20px; padding: 10px; adds a 20px margin outside and 10px padding inside the element.

Q.13 What is the purpose of the grid-template-columns property in CSS Grid?

Ans: **PURPOSE OF THE GRID-TEMPLATE-COLUMNS PROPERTY IN CSS GRID**

It defines the size of grid columns. For example, grid-template-columns: auto auto; creates two columns with equal width.

Q.14 What is an external CSS file, and how is it linked?

Ans: **EXTERNAL CSS FILE, AND HOW IS IT LINKED**

An external CSS file contains all styles for a project and is linked to HTML using <link rel="stylesheet" href="styles.css">. This approach keeps HTML clean and ensures easy updates.

Q.15 How can you style fonts in CSS?

Ans: **STYLE FONTS IN CSS**

CSS provides properties like font-family, font-size, font-weight, and font-style. For example:

```
p {
font-family: Arial;
font-size: 16px;
font-weight: bold;
font-style: italic;
}
```

Q.16 What does the justify-content property in Flexbox do?

Ans: **JUSTIFY-CONTENT PROPERTY IN FLEXBOX DO**

The justify-content property aligns items horizontally within a flex container. For example, justify-content: center; centers items horizontally.

Q.17 What is the role of the animation-duration property?

Ans: **ROLE OF THE ANIMATION-DURATION PROPERTY**

The animation-duration property specifies how long an animation should run. For example, animation-duration: 4s; makes the animation last 4 seconds.

Q.18 What does background-repeat control?

Ans: **BACKGROUND-REPEAT CONTROL**

The background-repeat property specifies whether a background image repeats. For instance, background-repeat: no-repeat; ensures the image does not repeat.

Q.19 How can you center a background image in CSS?

Ans: **CENTER A BACKGROUND IMAGE IN CSS**

Use the background-position property. For example, background-position: center; centers the background image.

Q.20 What are CSS transitions used for?

Ans: **CSS TRANSITIONS USED FOR**

Transitions create smooth changes between styles over a specified duration. For example, transition: all 1s ease; applies a 1-second transition to all style changes.

MULTIPLE CHOICE QUESTIONS

1. What does CSS stand for?

(A) Cascading Style Sheets (B) Computer Style Sheets
(C) Creative Style Sheets (D) Colorful Style Sheets

2. What is the primary purpose of CSS?

(A) To add interactivity to webpages (B) To style and design HTML elements
(C) To structure content on webpages (D) To debug web applications

3. What is the correct syntax for a CSS rule?

(A) selector {property: value;} (B) {selector: property = value;}
(C) selector (property = value;) (D) {selector; property: value;}

4. What does the color property in CSS do?

(A) Changes the background color (B) Changes the border color
(C) Changes the text color (D) Changes the link color

5. Which CSS method allows styles to be applied directly within an HTML element?

(A) Inline styles (B) Internal styles
(C) External styles (D) Embedded styles

6. How do you link an external CSS file to an HTML document?

(A) <link rel="stylesheet" href="styles.css"> (B) <style src="styles.css">
(C) <script href="styles.css"> (D) <css file="styles.css">

7. Which CSS property sets the background color of an element?
(A) background-image (B) background-repeat
(C) background-position (D) background-color

8. Which property adjusts the spacing inside an element?
(A) Margin (B) Padding
(C) Border (D) Width

9. What is the default value of position in CSS?
(A) Fixed (B) Relative
(C) Absolute (D) Static

10. What is the purpose of keyframes in CSS animations?
(A) To define HTML structure (B) To specify animation steps
(C) To loop animations (D) To define transitions

11. Which property defines the time for a transition?
(A) transition-time (B) transition-duration
(C) animation-timing (D) timing-function

12. What is the purpose of the flex display property?
(A) Align items in a flexible way (B) Create grid-based layouts
(C) Style text elements (D) Position elements statically

13. Which CSS property controls the transparency of an element?
(A) visibility (B) opacity
(C) display (D) alpha

14. What does the grid-template-columns property do?
(A) Defines grid row size (B) Aligns items in rows
(C) Defines grid column size (D) Adjusts grid spacing

15. Which CSS property is used to make text italic?
(A) font-style (B) font-weight
(C) text-style (D) text-italic

16. Which property sets how many times an animation repeats?
(A) animation-duration (B) animation-repeat
(C) animation-iteration-count (D) animation-loop

17. What does the justify-content property do in Flexbox?
(A) Aligns items vertically (B) Adjusts space between items horizontally
(C) Changes item order (D) Sets the background color

18. Which property resizes the background image to fit the container?
(A) background-position (B) background-repeat
(C) background-size (D) background-clip

19. What does the hover pseudo-class do?
(A) Applies styles to inactive elements
(B) Applies styles when the element is clicked
(C) Applies styles when the mouse is over an element
(D) Applies styles to disabled elements

20. Which layout property is used for complex row and column arrangements?
(A) Flexbox (B) CSS Grid
(C) Float (D) Table

8.7 INTRODUCTION TO JAVASCRIPT

Q.1 Explain Variables and Data Types in JavaScript with Examples.

Ans: Introduction

Variables in JavaScript act as containers that store data. These variables allow developers to manipulate and use data throughout the code. JavaScript also supports multiple data types to handle different kinds of information.

Declaring Variables

Variables can be declared using var, let, or const.
var: Used for variables with a function scope.
let: Used for block-scoped variables.
const: Used for constants that cannot be reassigned.

Example:

```
var name = "Athar"; // Declaring a variable using var
let age = 15;       // Declaring a variable using let
const country = "Pakistan"; // Declaring a constant
```

Data Types in JavaScript

JavaScript supports multiple data types to store and manipulate various forms of information.

1. String

Represents text enclosed in quotes.

Example:

```
var name = "Athar"; // A string data type
```

2. Number

Represents numeric values, including integers and floating-point numbers.

Example:

```
var age = 15; // A number data type
```

3. Boolean

Represents logical values: true or false.

Example:

```
var isStudent = true; // A boolean data type
```

4. Array

A collection of multiple values stored in a single variable.

Example:

```
var scores = [90, 85, 88]; // An array
```

Example Program

The following program demonstrates the use of variables and data types:

```
var name = "Athar"; // String
var age = 15;       // Number
var isStudent = true; // Boolean
var scores = [90, 85, 88]; // Array
alert("Name: " + name + ", Age: " + age + ", Is Student: " + isStudent);
alert("Scores: " + scores);
```

Conclusion

Understanding variables and data types is fundamental to JavaScript programming. Using them effectively helps manage data and build functional applications.

Q.2 Explain Functions in JavaScript with Examples.

Ans: Introduction

Functions are reusable blocks of code in JavaScript designed to perform specific tasks. They make programming efficient by avoiding repetitive code. Functions can take inputs (parameters) and return outputs.

Types of Functions

1. Simple Function

A simple function performs a task without taking input values.

Example:

```
function greet() {
  alert("Hello, Student!");
}
greet(); // Calling the function
```

2. Function with Parameters

Functions can accept inputs (parameters) to process data.

Example:

```
function greet(name) {
   alert("Hello, " + name + "!");
}
greet("Athar"); // Passing "Athar" as a parameter
```

3. Function with Multiple Parameters

Functions can take multiple parameters and perform calculations or tasks.

Example:

```
function addNumbers(a, b) {
var sum = a + b;
alert("The sum is: " + sum);
}
addNumbers(5, 3); // Passing 5 and 3 as parameters
```

Benefits of Functions

Code Reusability: Functions can be called multiple times to perform the same task.

Modularity: Breaking code into smaller functions makes it easier to manage.

Improved Readability: Functions provide clarity and structure to the code.

Example Program

The following program demonstrates the use of functions with multiple parameters:

```
function calculateArea(length, width) {
var area = length * width;
alert("The area of the rectangle is: " + area);
}
calculateArea(5, 10); // Passing 5 and 10 as parameters
```

SHORT QUESTIONS

Q.1 What is JavaScript and its primary purpose?

Ans: **JAVASCRIPT AND ITS PRIMARY PURPOSE**

JavaScript is a programming language primarily used to make websites interactive. It enables developers to create features like animations, games, and responsive designs. For example, when a pop-up appears after clicking a button, it is achieved through JavaScript.

Q.3 Who created JavaScript, and how long did it take?

Ans: **CREATED JAVASCRIPT, AND HOW LONG DID IT TAKE**

JavaScript was created by Brendan Eich in just 10 days in 1995. Initially named Mocha, it was later renamed LiveScript and finally JavaScript.

Q.4 What is the significance of variables in JavaScript?

Ans: **SIGNIFICANCE OF VARIABLES IN JAVASCRIPT**

Variables act as containers to store data that can be used and manipulated in a program. For example,

```
var name = "Athar";
var age = 15;
alert("Name: " + name + ", Age: " + age);
```

This code declares variables and displays their values.

Q.5 How do you declare variables in JavaScript?

Ans: **YOU DECLARE VARIABLES IN JAVASCRIPT**

Variables in JavaScript can be declared using var, let, or const. For example,

```
var name = "Athar";
let age = 15;
const country = "Pakistan";
```

Q.6 What is a dry run in programming?

Ans: **DRY RUN IN PROGRAMMING**

A dry run involves manually walking through the code to understand its behavior step by step. For instance, in the script:

```
var name = "Athar";
var age = 15;
alert("Name: " + name + ", Age: " + age);
```

The dry run would first declare variables and then display an alert with their values.

Q.7 What are the main data types in JavaScript?

Ans: **MAIN DATA TYPES IN JAVASCRIPT**

JavaScript supports several data types:
String: Text data, e.g., var name = "Athar";
Number: Numeric values, e.g., var age = 15;
Boolean: True/False values, e.g., var isStudent = true;
Array: A collection of values, e.g., var scores = [90, 85, 88];

Q.8 What is a function in JavaScript?

Ans: **FUNCTION IN JAVASCRIPT**

A function is a reusable block of code that performs specific tasks. For example,

```
function greet() {
  alert("Hello, Student!");
}
greet();
```

This function displays a greeting message when called.

Q.9 How can you pass parameters to a function?

Ans: **PASS PARAMETERS TO A FUNCTION**

Parameters allow you to pass input values to a function. For example,

```
function greet(name) {
alert("Hello, " + name + "!");
}
greet("Athar");
```

Here, "Athar" is passed as a parameter.

Q.10 Explain the concept of events in JavaScript.

Ans: **CONCEPT OF EVENTS IN JAVASCRIPT**

Events are actions triggered by user interactions, such as clicking a button or pressing a key. For example, the onclick event runs a function when a button is clicked.

Q.11 What is an event handler in JavaScript?

Ans: **EVENT HANDLER IN JAVASCRIPT**

An event handler is a function that executes when an event occurs. For example:

```
function showMessage() {
  alert("Button was clicked!");
}
<button onclick="showMessage()">Click Me!</button>
```

Q.12 What does the alert() function do?

Ans: **ALERT() FUNCTION DO**

The alert() function displays a pop-up message. For example:

```
alert("Welcome to JavaScript!");
```

This will show a pop-up with the message.

Q.13 What is the getElementById method used for?

Ans: **GETELEMENTBYID METHOD USED FOR**

The getElementById method retrieves an HTML element by its ID. For example:

```
var name = document.getElementById("name").value;
alert("Hello, " + name);
```

Q.14 How can JavaScript change HTML content?

Ans: **JAVASCRIPT CHANGE HTML CONTENT**

JavaScript can change HTML content dynamically. For example,

```
document.getElementById("demo").innerHTML = "New Content";
```

This changes the text inside the element with the ID demo.

Q.15 What are placeholders in functions?

Ans: **PLACEHOLDERS IN FUNCTIONS**

Placeholders, called parameters, are variables in a function's declaration used to accept input values. For example:

```
function add(a, b) {
  return a + b;
}
add(5, 3);
```

Q.16 What is an array, and how is it used in JavaScript?

Ans: **ARRAY, AND HOW IS IT USED IN JAVASCRIPT**

An array is a collection of values stored in a single variable. For example:

```
var colors = [“red”, “green”, “blue”];
alert(colors[0]); // Displays “red”
```

Q.17 How does the onclick event work?

Ans: **ONCLICK EVENT WORK**

The onclick event runs JavaScript code when a user clicks an element. For example:

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

Q.18 What is the purpose of changing the background color with JavaScript?

Ans: **PURPOSE OF CHANGING THE BACKGROUND COLOR WITH JAVASCRIPT**

Changing the background color enhances interactivity. For example:

```
function changeColor() {
  document.body.style.backgroundColor = "lightblue";
}
```

Q.19 How are forms processed in JavaScript?

Ans: **FORMS PROCESSED IN JAVASCRIPT**

Forms collect user input, which can be processed using JavaScript. For example:

```
function greetUser() {
  var name = document.getElementById("name").value;
  alert("Hello, " + name);
}
```

Q.20 What is the role of innerHTML in JavaScript?

Ans: **ROLE OF INNERHTML IN JAVASCRIPT**

The innerHTML property changes the content of an HTML element. For example:

```
document.getElementById("output").innerHTML = "Welcome!";
```

Q.21 How does JavaScript integrate with HTML for interactivity?

Ans: **JAVASCRIPT INTEGRATE WITH HTML FOR INTERACTIVITY**

JavaScript adds interactivity by manipulating HTML elements. For example, creating a button to change the background color:

```
<button onclick="changeColor()">Change Color</button>
function changeColor() {
document.body.style.backgroundColor = "yellow";
}
```

MULTIPLE CHOICE QUESTIONS

1. What is JavaScript mainly used for?
(A) Database management (B) Making websites interactive
(C) Writing server-side code (D) Styling web pages

2. Who created JavaScript?
(A) Tim Berners-Lee (B) Brendan Eich
(C) Dennis Ritchie (D) Guido van Rossum

3. In how many days was JavaScript created?
(A) 30 days (B) 10 days
(C) 15 days (D) 25 days

4. Which keyword is NOT used to declare variables in JavaScript?
(A) var (B) let
(C) const (D) def

5. What will be displayed by the code alert("Hello, 9th Class Students!");?
(A) A message on the console (B) A webpage title
(C) A pop-up alert (D) An error message

6. Which data type represents true/false values in JavaScript?
(A) String (B) Boolean
(C) Number (D) Array

7. What does the onclick event do?
(A) Executes a script when the page loads
(B) Executes a script when an element is clicked
(C) Executes a script when an image is hovered over
(D) Executes a script when a key is pressed

8. What is the correct syntax to declare a function in JavaScript?
(A) function greet[] {} (B) function greet() {}
(C) greet function() {} (D) function : greet() {}

9. What is an event in JavaScript?
(A) A special data type
(B) A function that runs repeatedly
(C) An action that occurs when a user interacts with a webpage
(D) A tool for debugging JavaScript code

10. What is the purpose of the getElementById function?
(A) To change the style of all elements (B) To find an element by its ID
(C) To define an ID for an element (D) To add a new ID to an element

11. Which property changes the background color of a webpage?
(A) backgroundImage (B) backgroundColor
(C) backgroundStyle (D) bgColor

12. What will addNumbers(5, 3); do in a function with two parameters?
(A) Add the numbers and display 8 (B) Multiply the numbers and display 15
(C) Concatenate the numbers as a string (D) Generate an error

13. **What does the alert() function do?**
(A) Displays a pop-up message (B) Logs a message to the console
(C) Adds an element to the DOM (D) Redirects the webpage

14. **What is the default value of a declared but uninitialized variable in JavaScript?**
(A) null (B) undefined
(C) 0 (D) ""

15. **What is an array in JavaScript?**
(A) A function that stores multiple arguments
(B) A collection of values stored in a single variable
(C) A type of Boolean value
(D) A single value stored in multiple variables

16. **What does the onmouseover event do?**
(A) Executes a script when a user clicks an element
(B) Executes a script when a user hovers over an element
(C) Executes a script when the page loads
(D) Executes a script when the mouse moves out of an element

17. **What type of value does the Boolean data type hold?**
(A) Numbers (B) Text strings
(C) True or false values (D) Collections of data

18. **What will the function changeColor() do in the example?**
(A) Create a new element (B) Change the background color of the page
(C) Delete all elements on the page (D) Change the text color of the body

19. **How can JavaScript be added to a webpage?**
(A) Inline, internal, or external (B) Only inline
(C) Only internal (D) Only external

20. **Which of these is a valid JavaScript data type?**
(A) Integer (B) Decimal
(C) String (D) Complex

8.8 DEVELOPING AND DEBUGGING

LONG QUESTION

Q.1 Explain the steps involved in testing and debugging a web page. Provide examples where necessary.

Ans: Steps in Testing and Debugging a Web Page

1. **Debugging Techniques**

Debugging involves finding and fixing errors in your code. Common techniques include:

Using Browser Developer Tools:

Developers can inspect elements, set breakpoints, and view console logs for error messages.

Example:

```
console.log("Debugging variable x: " + x);
```

Reading Error Messages:

Browsers display detailed error messages that point to the problematic line of code.

Checking Code:

Go through the code line-by-line to find syntax errors like missing semicolons or unmatched braces.

2. **Identifying and Fixing Common Issues**

Broken Links:

Verify that all file paths and URLs are correct.

Incorrect HTML Structure:

Ensure all tags are properly nested and closed.

Example of proper structure:

```
<div>
  <p>Valid content</p>
</div>
```

CSS Issues:

Check for typos or incorrect property names in CSS.

3. **Strategies for Testing Web Pages**

Cross-Browser Testing:

Test your web page on multiple browsers like Chrome, Firefox, and Edge to ensure consistent behavior.

Responsive Design Testing:

Use browser tools to simulate different screen sizes and confirm that the page looks good on desktops, tablets, and smartphones.

User Testing:

Ask others to use the web page and report usability issues or bugs.

By following these steps, developers can ensure their web pages function correctly and provide a seamless user experience.

SHORT QUESTIONS

Q.1 What is debugging, and why is it important?

Ans: **DEBUGGING, AND WHY IS IT IMPORTANT**

Debugging is the process of finding and fixing errors in your code. It ensures that web pages function correctly and provide a smooth user experience.

Q.2 How can browser developer tools assist in debugging?

Ans: **BROWSER DEVELOPER TOOLS ASSIST IN DEBUGGING**

Browser developer tools allow developers to view error messages in the console, inspect elements, and set breakpoints to pause and analyze the code's behavior.

Q.3 Explain the purpose of the console.log method with an example.

Ans: **PURPOSE OF THE CONSOLE.LOG METHOD WITH AN EXAMPLE**

The console.log method outputs messages or variable values to the console for debugging.

Example:

```
var x = 10;
console.log("The value of x is: " + x);
```

Q.4 What is the significance of reading error messages in a browser?

Ans: **SIGNIFICANCE OF READING ERROR MESSAGES IN A BROWSER**

Error messages provide insights into what went wrong in the code, helping developers identify and resolve issues efficiently.

Q.5 How can you ensure correct HTML structure in your web page?

Ans: **ENSURE CORRECT HTML STRUCTURE IN YOUR WEB PAGE**

Properly nest and close all HTML tags to avoid structural errors. For example:

```
<div>
  <p>Content</p>
</div>
```

Q.6 What are some common causes of CSS issues?

Ans: **COMMON CAUSES OF CSS ISSUES**

CSS issues often arise from incorrect selectors, typos in property names, or missing semicolons.

Q.7 Describe cross-browser testing and its importance.

Ans: **CROSS-BROWSER TESTING AND ITS IMPORTANCE**

Cross-browser testing ensures that a web page looks and functions consistently across multiple browsers like Chrome and Firefox.

Q.8 What is the purpose of responsive design testing?

Ans: **PURPOSE OF RESPONSIVE DESIGN TESTING**

Responsive design testing ensures that web pages adapt well to different screen sizes, such as desktops, tablets, and smartphones.

Q.9 How can user testing help improve a webpage?

Ans: **USER TESTING HELP IMPROVE A WEBPAGE**

User testing involves asking others to use the webpage and provide feedback, helping identify usability issues or bugs that the developer might have missed.

Q.10 What are some strategies for fixing broken links?

Ans: **SOME STRATEGIES FOR FIXING BROKEN LINKS**

Double-check the file paths and ensure that all URLs in the HTML are correct.

MULTIPLE CHOICE QUESTIONS

1. What is the primary purpose of debugging in web development?
(A) To enhance webpage design
(B) To find and fix errors in code
(C) To deploy web pages online
(D) To optimize loading speed

2. Which tool is commonly used to debug code in a web browser?
(A) HTML Editor
(B) Developer Tools
(C) Color Picker
(D) Style Checker

3. What does the console.log method do in debugging?
(A) Edits the code directly
(B) Displays messages or values in the console
(C) Fixes syntax errors automatically
(D) Highlights incorrect lines

4. What does a missing semicolon in JavaScript typically cause?
(A) A runtime error
(B) No errors at all
(C) Style changes
(D) File deletion

5. How do you identify broken links in your web page?
(A) Check file sizes
(B) Double-check the paths to the files
(C) Use the color contrast tool
(D) Remove all links

6. What should you verify to fix incorrect HTML structure?
(A) The file size
(B) Proper nesting and closing of tags
(C) Variable declarations
(D) Code indentation

7. What is a common cause of CSS issues?
(A) Missing semicolons
(B) Typos in styles or selectors
(C) Incorrect variable usage
(D) Unmatched braces

8. Which of the following is NOT a common issue in web development?
(A) Broken links
(B) Syntax highlighting
(C) Incorrect HTML structure
(D) CSS issues

9. What is the goal of cross-browser testing?
(A) To make a webpage load faster
(B) To ensure the webpage works consistently in different browsers
(C) To reduce code size
(D) To improve CSS styles

10. What is the purpose of responsive design testing?
(A) To fix JavaScript bugs
(B) To optimize web page speed
(C) To ensure the webpage looks good on all devices
(D) To minimize image sizes

11. Which tool can simulate different screen sizes during testing?
(A) Developer Tools' responsive mode (B) CSS validator
(C) HTML beautifier (D) JavaScript debugger

12. What should you do if a browser displays an error message?
(A) Ignore it (B) Use console.log to analyze it
(C) Rewrite the entire code (D) Update your browser

13. What is one way to test your webpage's usability?
(A) Perform user testing with others (B) Add more CSS styles
(C) Enable caching (D) Minimize images

14. What is a common symptom of a broken link?
(A) CSS styles not applying (B) A 404 error when clicking the link
(C) The page loads slowly (D) The link changes color

15. Which browser is NOT mentioned as part of cross-browser testing?
(A) Chrome (B) Firefox
(C) Safari (D) Edge

SUMMARY

- Web development is the process of creating websites and web applications. It involves using various programming languages and tools to design, build, and maintain websites.
- Front-end Development focuses on what users see and interact with on a website.
- Back-end Development manages the behind-the-scenes part of a website, like servers, databases, and application logic.
- HTML stands for HyperText Markup Language. It's the standard language used to create web pages. Think of HTML as the building blocks of a website.
- Content in HTML is the main information on a web page that users read and interact with.
- Headings in HTML, ranging from <h1> to <h6>, are used to define the structure and hierarchy of content on a web page.
- Paragraphs in HTML are used to organize and separate text into readable sections.
- Links in HTML are used to connect one web page to another. They allow you click on words or images to go to different parts of the same page or to other
- pages on the internet.
- In HTML, comments are used to insert notes or explanations within the code.
- Styling with CSS (Cascading Style Sheets) is essential for enhancing the visual appearance of web pages and improving user experience.
- JavaScript is a programming language that is used to make websites
- interactive and engaging. Debugging is the process of finding and fixing issues in your code.

EXERCISE

MULTIPLE CHOICE QUESTIONS

55. Which of the following tag is not a correct HTML tag?
(D) (B)
(C) <head> (D) <footer>

56. What does CSS stand for?
(D) Cascading Style Sheets (C) Creative Style Sheets
(B) Computer Style Sheets (D) Colorful Style Sheets

57. Which of the following tag is used to create a hyperlink in HTML?
(D) <link> (B) <a>
(C) <href> (D) <nav>

58. Which property is used to change the background color in CSS?
(D) color (B) background-color
(C) bgcolor (D) background

59. Which HTML attribute is used to define inline styles?

(D) class (B) style

(C) font (D) styles

60. Which of the following is the correct syntax for a CSS rule?

(D) selector (property: value;} (B) selector: (property=value;)

(C) selector (property=value) (D) selector: (property: value;}

61. In JavaScript, which markup is used for comments?

(D) /**/ (B) //

(C) HTML document? (D) /**/

62. How do you include JavaScript in an

(D) <script src="script.js"></script> (B) <java src="script.js"> </java>

(C) <js src="script.js"></js> (D) <code src="script.js"></code>

63. Which HTML tag is used to create an unordered list?

(D) (B)

(C) (D) <list>

64. Which tag is used to display a horizontal line in HTML?

(D)
 (B) <hr>

(C) <line> (D) <hline>

SHORT QUESTIONS:

Q. 36 What is the purpose of the <head> tag in HTML?

Ans: The <head> tag in HTML contains meta-information about the document, such as its title, character set, styles, and scripts. This information is not displayed directly on the web page but helps browsers interpret and render the page correctly.

Q. 37 Explain the difference between an ordered list and an unordered list in HTML.

Ans: An ordered list (<ol>) is used to display items in a specific sequence, typically numbered. An unordered list (<ul>) displays items without any particular order, usually marked with bullets. Both improve readability by organizing content into lists.

Q. 38 How do you add a comment in CSS?

Ans: CSS comments are added using /* to start and */ to close. These comments are ignored by browsers and can be used to explain code or disable styles temporarily:
/* This is a CSS comment */

Q. 39 What are the different ways to apply CSS to an HTML document?

Ans: CSS can be applied in three ways:
1. Inline CSS: Directly within the HTML element using the style attribute.
2. Internal CSS: Within a <style> tag in the <head> section.
3. External CSS: Using an external .css file linked via <link> in the <head> section.

Q. 40 How can you include JavaScript in an HTML file?

Ans: JavaScript is included in an HTML file using the <script> tag. The script can be embedded directly within the tag or linked externally using the src attribute:
<script src="script.js"></script>

Q. 41 Describe the syntax for creating a hyperlink in HTML.

Ans: A hyperlink is created using the <a> tag with the href attribute specifying the URL. Example:
Visit Example
This displays a clickable link.

Q. 42 What is the function of the tag in HTML?

Ans: The tag is a container element used to group content for styling or layout purposes. It helps organize and structure content and can be styled with CSS.

Q. 43 How do you link an external CSS file to an HTML document?

Ans: An external CSS file is linked using the <link> tag in the <head> section of the HTML file:
<link rel="stylesheet" href="styles.css">

This keeps the HTML clean and allows for centralized style management.

Q. 44 What is the use of the <table> tag in HTML?

Ans: The <table> tag is used to create tables for displaying data in a structured format. Rows are defined using <tr>, headers with <th>, and cells with <td>:

```
<table>
  <tr>
    <th>Header 1</th><th>Header 2</th>
  </tr>
  <tr>
    <td>Data 1</td><td>Data 2</td>
  </tr>
</table>
```

Q. 45 Explain the box model in CSS.

Ans: The box model in CSS describes how elements are displayed on a web page, including:

1. Content: The actual content of the element.
2. Padding: Space between the content and the border.
3. Border: Surrounds the padding and content.
4. Margin: Space outside the border separating elements.

Understanding the box model helps in managing layout and spacing.

LONG QUESTIONS

1. Discuss the fundamental differences between HTML, CSS, and JavaScript in the context of web development.

1. HTML (HyperText Markup Language)

Purpose:

HTML is the backbone of any webpage. It is used to structure the content of a webpage by defining elements like headings, paragraphs, images, links, tables, and other components. Essentially, HTML provides the skeleton of a webpage.

Role in Web Development:

HTML describes the structure and content of the webpage, using various tags and attributes. It doesn't style or add functionality to the page, it only tells the browser what elements are present and their basic structure.

Example:

```
<h1>Welcome to my Website</h1>
<p>This is a paragraph.</p>
<img src="image.jpg" alt="An image">
```

2. CSS (Cascading Style Sheets)

Purpose:

CSS is used to control the visual appearance and layout of the webpage. While HTML provides the content structure, CSS defines how it should look. It allows you to style elements such as fonts, colors, margins, paddings, alignment, and positioning.

Role in Web Development:

CSS brings life to HTML by controlling the design, layout, and responsiveness of the webpage. It can be applied internally within the HTML file, externally in a separate CSS file, or inline within individual HTML elements.

Example:

```
h1 {
   color: blue;
   font-size: 36px;
}
p {
```

```
  font-family: Arial, sans-serif;
}
```

3. JavaScript

Purpose:

JavaScript is a programming language that adds interactivity and dynamic behavior to web pages. It allows you to manipulate the content, handle events (like clicks), and control elements on the page, enabling real-time updates without needing to reload the page.

Role in Web Development:

JavaScript is responsible for client-side functionality such as form validation, animations, interactive maps, and dynamic updates. It allows for communication with a web server using AJAX, updating parts of a page without requiring a full reload.

Example:

```
document.getElementById("myButton").addEventListener("click", function() {
  alert("Button clicked!");
});
```

Summary of Differences

- **HTML**: Structures the content on the page.
- **CSS**: Styles the content and defines the layout and appearance.
- **JavaScript**: Adds interactivity and dynamic behavior to the webpage.

Together, these three technologies form the foundation of modern web development, each handling a specific aspect of creating and managing a website.

2. Explain the process of setting up a development environment for web development. By discussing the necessary softwares and tools.

3. Create a basic HTML page that includes a header, a paragraph, an image, and a hyperlink.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Basic HTML Page</title>
</head>
<body>
  <header>
    <h1>Welcome to My Website</h1>
  </header>
  <section>
    <p>This is a simple HTML page with a header, a paragraph, an image, and a
hyperlink.</p>
    <img src="https://via.placeholder.com/300" alt="Sample Image">
  </section>
<footer>
        <p>For more information, visit <a href="https://www.example.com"
target="_blank">this link</a>.</p>
 </footer>
</body>
</html>
```

Explanation:

1. **<header>**: Contains the main heading (<h1>).
2. **<section>**: Includes a paragraph (<p>) and an image (<img>). The image source is a placeholder, which can be replaced with an actual image URL.

3. **<footer>**: Contains a hyperlink (<a>) to an external site, which opens in a new tab with the target="_blank" attribute.

4. How do you style a table using CSS? Create a sample table and apply styles to it.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Basic HTML Page</title>
</head>
<body>
  <header>
    <h1>Welcome to My Website</h1>
  </header>
  <section>
      <p>This is a simple HTML page with a header, a paragraph, an image, and a
      hyperlink.</p>
  <img src="https://via.placeholder.com/300" alt="Sample Image">
 </section>
 <footer>
       <p>For more information, visit <a href="https://www.example.com"
target="_blank">this link</a>.</p>
  </footer>
</body>
</html>
```

5. Describe the different CSS selectors and provide examples of each.

See Topic 8.6

6. Explain the process of creating a responsive web page using CSS with the help of examples and explanations.

See Topic 8.6

7. Write a JavaScript function that changes the background color of a web page when a button is clicked. Provide the complete code and explain how it works.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Change Background Color</title>
  <style>

    button {
      padding: 10px 20px;
      font-size: 16px;
      cursor: pointer;
      margin-top: 20px;
      background-color: #4CAF50;
      color: white;
      border: none;
      border-radius: 5px;
}
```

```
            body {
                font-family: Arial, sans-serif;
                text-align: center;
                padding: 50px;
            }
        </style>
        </head>
        <body>

        <h1>Click the Button to Change Background Color</h1>
        <!-- Button to trigger background color change -->
        <button onclick="changeBackgroundColor()">Change Color</button>
        <script>
    function changeBackgroundColor() {
        const colors = ['#FF5733', '#33FF57', '#3357FF', '#FF33A1', '#F0E68C'];
        const randomColor = colors[Math.floor(Math.random() colors.length)];
        document.body.style.backgroundColor = randomColor;
    }
  </script>
</body>
</html>
```

Explanation:

1. **HTML Structure**:
   - A button (<button>) is added with the text "Change Color". The button is given an onclick attribute that calls the JavaScript function changeBackgroundColor() when clicked.
2. **CSS Styling**:
   - The button has some basic styling for padding, font size, background color, and rounded corners.
   - The body is styled with centered text and some padding.
3. **JavaScript Function**:
   - The function changeBackgroundColor() is triggered when the user clicks the button.

- Inside the function:
  - An array colors is defined, containing a list of color codes.
  - The Math.random() function generates a random index to pick a color from the array. Math.floor() is used to ensure the index is an integer.
  - The document.body.style.backgroundColor is updated with the randomly selected color, changing the background color of the web page.

How it Works:

- When the page is loaded, the button appears.
- When the user clicks the button, the changeBackgroundColor() function is executed.
- A random color is selected from the list, and the background color of the page (body) is updated with that color.

8. How do you add animations and transitions using CSS? Provide examples and explain the properties involved.

See Topic 8.6

ANSWER KEYS

TOPIC 8.1 WEB DEVELOPMENT 8.2 BASICS OF WEB DEVELOPMENT

1	B	**2**	C	**3**	B	**4**	C	**5**	B
6	C	**7**	A	**8**	D	**9**	B	**10**	C
11	B	**12**	B	**13**	B	**14**	C	**15**	B
16	C	**17**	D	**18**	A	**19**	B	**20**	A

TOPIC 8.3 GETTING STARTED WITH HTML

1	B	**2**	B	**3**	D	**4**	C	**5**	A
6	B	**7**	D	**8**	B	**9**	B	**10**	B

TOPIC 8.4 HTML BASIC STRUCTURE 8.5 CREATING CONTENT WITH HTML

1	B	**2**	B	**3**	C	**4**	C	**5**	C
6	C	**7**	C	**8**	B	**9**	C	**10**	B
11	B	**12**	A	**13**	D	**14**	B	**15**	C
16	A	**17**	B	**18**	B	**19**	C	**20**	A

TOPIC 8.6 STYLING WITH CSS

1	A	**2**	B	**3**	A	**4**	C	**5**	A
6	A	**7**	D	**8**	B	**9**	D	**10**	B
11	B	**12**	A	**13**	B	**14**	C	**15**	A
16	C	**17**	B	**18**	C	**19**	C	**20**	B

TOPIC 8.7 INTRODUCTION TO JAVASCRIPT

1	B	**2**	B	**3**	B	**4**	D	**5**	C
6	B	**7**	B	**8**	B	**9**	C	**10**	B
11	B	**12**	A	**13**	A	**14**	B	**15**	B
16	B	**17**	C	**18**	B	**19**	A	**20**	C

TOPIC 8.8 DEVELOPING AND DEBUGGING

1	B	**2**	B	**3**	B	**4**	A	**5**	B
6	B	**7**	B	**8**	B	**9**	B	**10**	C
11	A	**12**	B	**13**	A	**14**	B	**15**	D

TEXTBOOK EXERCISE MCQs

1	D	**2**	A	**3**	B	**4**	B	**5**	B
6	A	**7**	B	**8**	A	**9**	B	**10**	B