CHAPTER 8:

Web Development with HTML, CSS, and JavaScript

SOLVED EXERCISE

Tick (✓) the correct answer.

Multiple Choice Questions:

1. Which of the following tag is not a correct HTML tag?

(a) (b) (span> (c) <head> (d) **<footer>**

2. What does CSS stand for?

(a) Cascading Style Sheets (b) Computer Style Sheets
(c) Creative Style Sheets (d) Colorful Style Sheets

3. Which of the following tag is used to create a hyperlink in HTML?

(a)<link> (b) <a> (c) <href> (d) <nav>

4. Which property is used to change the background color in CSS?

(a) color (b) background-color (c) bgcolor (d) background

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

(a) class (b) style (c) font (d) styles

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

(a) selector {property: value;} (b) selector {groperty=value;}
(c) selector {property=value} (d) selector: {property: value;}

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

(a) /**/ (b) /I (c) <- (d) Z*V

8. How do you include JavaScript in an HTML document?

(a) <script src="script.js"></script> (b) <java src="Script.js"></java>
(c) <js src="scriptjs"></js> (d) <code src="scriptjs"></code>

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

(a) (b) (c) (d) <list>/

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

(a)
 (b) <hr> (c) <line> (d) <hline>

1	2	3	4	5	6	7	8	9	10
d	a	b	b	b	a	b	a	b	b

Short Answer Questions

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

Ans: : This section contains meta-information about the HTML document, like the title. The purpose of the <head> tag is to provide information about the document that is not displayed directly in the browser window.

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

Ans: Ordered List: An ordered list keeps each list item with an order number If you change the order, the meaning of the whole list may change. For example, if your teacher makes a list of students with respect to their marks then definitely order will matter. An ordered list starts with <ol> tag and ends with tag.

Unordered List: in an unordered list, order of the list items is not important i.e. shifting of items is an unordered list has no effect. For example, list of cities in Pakistan. An unordered list starts with <ul> tag and ends with tag.

3. How do you add a comment in CSS?

Ans: To comment in CSS, simply place your plain text inside /* */ marks. Comments in CSS are ignored by the browser and have no effect on how styles are rendered on the front end.

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

Ans: Integrating CSS with HTML is essential for styling web pages and it can be done in three primary ways: inline, internal, and external styles.

Inline Styles: This method involves adding CSS directly to individual HTML elements using the style attribute. For example, <h1 style="color: blue;">Hello World</h1> changes the color of the heading to blue.

5. How can you include JavaScript in an HTML file?

Ans: There are three ways to include JavaScript in an HTML file:

- We can write JavaScript code directly in the HTML file using the <script> tag.
- We can write JavaScript code directly in an HTML attribute using the " on " prefix.
- We can write JavaScript code in a separate file with a .js extension and link it to the HTML file using the <script> tag.

6. Describe the syntax for creating a hyperlink in HTML.

Ans: The syntax for creating a hyperlink in HTML is as follows:

[Link Text]

Where:

- <a> is the anchor tag, which is used to create the hyperlink.
- href is the attribute that specifies the URL of the link.

- [URL] is the actual URL of the link.
- [Link Text] is the text that will be displayed as the link.

7. What is the function of the tag in HTML?

Ans: is used to group related elements together, making it easier to apply styles, layouts, and behaviors to a collection of elements. It allows you to organize content logically and apply styles to groups of elements.

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

Ans: The most efficient method for larger projects is to use an external CSS file, which is linked to the HTML document with the tag in the section. This keeps the HTML clean and allows for easy updates across multiple pages.

For example:

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

By integrating CSS in these ways, developers can create visually appealing and well-organized web pages that enhance user experience.

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

Ans: Tables in HTML are used to display data in a structured format, allowing for easy comparison and organization of information. A table is created using the <table> tag, which contains rows defined by <tr> (table row) tags, and each row consists of cells represented by <td> (table data) tags. Additionally, headings for the table can be added using <th> (table header) tags to provide context for the data.

10. Explain the box model in CSS.

Ans: The CSS box model is a fundamental concept in web design that describes how every HTML element is represented as a rectangular box. It defines the structure and layout of elements in terms of content, padding, border, and margin.

Long Questions

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

Ans:

HTML, CSS, and JavaScript are the three fundamental building blocks of web development. While they work together to create a functional and visually appealing website, each language has its own unique purpose, syntax, and functionality.

HTML (Hypertext Markup Language):

- **Purpose:** Structure and content
- **Functionality:** Defines the structure and organization of web page content, including headings, paragraphs, images, links, forms, tables, and more.
- **Syntax:** Uses tags (< >) to wrap around content and define its purpose.

- **Output:** Provides the raw content and structure of a web page.

CSS (Cascading Style Sheets):

- **Purpose:** Layout and visual styling
- **Functionality:** styles the content on web pages, changing colors, fonts, and layout to enhance the appearance.
- **Syntax:** Uses selectors to target HTML elements and apply styles using properties and values.
- **Output:** Enhances the visual appearance and user experience of a web page.

JavaScript:

- **Purpose:** Interactivity and dynamic behavior
- **Functionality:** Adds interactivity to web pages, making them dynamic and engaging. It allows features such as forms, animations, and games.
- **Syntax:** Uses programming language syntax to write scripts that interact with HTML and CSS.
- **Output:** Creates a dynamic and interactive web page that responds to user input and changes over time.

In a nutshell:

- HTML is like the skeleton of a building—it defines the structure.
- CSS is like the interior design of a building—it defines how it looks.
- JavaScript is like the electrical system in a building—it makes it interactive and functional.

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

Ans: Web development involves creating websites and web applications. It has three main components:

1. Front-end Development: This focuses on what users see and interact with on a website. The following fundamentals are used to design interactive Front-ends:

- HTML structures the content on web pages, like headings, paragraphs, images, and links.
- CSS styles the content on web pages, changing colors, fonts, and layout to enhance the appearance.
- JavaScript adds interactivity to web pages, making them dynamic and engaging. It allows features such as forms, animations, and games.

2. Back-end Development: This manages the behind-the-scenes functionality of a website, including servers, databases, and application logic.

Key backend technologies are:

- Web Servers are computers that store and deliver web pages to users when they enter a URL.

• Databases store and manage data, like user information, product details, and website content.
• Back-end Programming Languages like PHP, Python, and Ruby handle tasks such as processing forms, and managing user logins.

Example: Login System A login system is a common feature in web development, allowing users to access their accounts on a website. This example will illustrate the roles of front-end and back-end development, as well as the concept of full-stack development.

3. Full-Stack Development In the case of login system, a full-stack developer will create the User Interface (UI) for front-end and handle user authentication and database interaction for back-end.

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

Ans: Here is a basic HTML page that includes a header, a paragraph, an image, and a hyperlink:

```
<!DOCTYPE html>
<html>
<head>
        <title>Basic HTML Page</title>
</head>
<body>
        <h1>Welcome to My Webpage</h1>
<p>This is a basic HTML page that includes a header, a paragraph, an image, and a hyperlink.</p>
<img src="image.jpg" alt="A beautiful landscape" width="500" height="300">
        <p>Visit <a href="(link unavailable)">Google</a> for more information.</p>
</body>
</html>
```

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

Ans:

```
<link rel="stylesheet" href="index.css">
<body>
  <table>
    <thead>
      <tr>
        <th class="cl1">Firstname</th>
        <th class="cl2">Lastname</th>
```

```
        <th class="cl3">Age</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <td class="cl4">Muhammad</td>
        <td class="cl5">Aayan</td>
        <td class="cl6">15</td>
      </tr>
      <tr>
        <td class="cl7">Ali</td>
        <td class="cl8">Jan</td>
        <td class="cl9">05</td>
      </tr>
      <tr>
        <td class="cl10">Harram</td>
        <td class="cl11">Fatima</td>
        <td class="cl12">12</td>
      </tr>
    </tbody>
  </table>
</body>
```

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

Ans:

1. The CSS element Selector

The element selector selects HTML elements based on the element name.

Example

Here, all <p> elements on the page will be center-aligned, with a red text color:

```
p {
  text-align: center;
  color: red;
}
```

2. The CSS id Selector

The id selector uses the id attribute of an HTML element to select a specific element.

To select an element with a specific id, write a hash (#) character, followed by the id of the element.

Example

The CSS rule below will be applied to the HTML element with id="para1":

```
#para1 {
  text-align: center;
  color: red;
}
```

3. The CSS class Selector

The class selector selects HTML elements with a specific class attribute.

To select elements with a specific class, write a period (.) character, followed by the class name.

Example

In this example all HTML elements with class="center" will be red and center-aligned:

```
.center {
  text-align: center;
  color: red;
}
```

4. The CSS Universal Selector

The universal selector (*) selects all HTML elements on the page.

Example

The CSS rule below will affect every HTML element on the page:

```
* {
  text-align: center;
  color: blue;
}
```

5. The CSS Grouping Selector

The group selector allows you to select multiple elements and apply the same style to all of them.

Example

```
h1, h2, p {
  text-align: center;
  color: red;
}
```

6. Descendant Combinator

The descendant combinator matches all elements that are descendants of a specified element.

The following example selects all <p> elements inside elements:

Example

```
div p {
  background-color: yellow;
}
```

7. Child Combinator (>)

The child combinator selects all elements that are the children of a specified element.

The following example selects all <p> elements that are children of a element:

Example

```
div > p {
  background-color: yellow;
}
```

8. Attribute Selectors

Target HTML elements based on their attributes.

Example:

```
input[type="text"] {
  width: 200px;
}
```

Selects all <input> elements with the attribute type="text" and sets their width.

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

Ans: **Creating Layouts and Organizing Content:**

Creating layouts and organizing content on a web page is an important part of web design. CSS helps you arrange different parts of your web page in an organized way. Here are some basic methods to create layouts and organize content:

• **Divs and Sections:** HTML elements like and <section> are used to group content together. You can then use CSS to style and position them.

For example:

```
<divclass= "container" >
section class = "header" > This is the header</section >
section class="content" > This is the main content</section >
<section class= "footer" > This is the footer</section >
</div>
```

• **CSS Grid:** The CSS Grid Layout is a powerful tool for creating complex layouts. It allows you to arrange items into rows and columns. For example:

```
container {
display: grid;
grid-template-columns: auto auto;
grid-gap: Wpx;
}
item
{       padding: 20px;
```

```
background-color: lightgrey;
}
```

• **CSS Flexbox:** Flexbox is another layout tool that helps in arranging items in a flexible and responsive way. It is useful for aligning items in a row or column.

For example:

```
container
{ display: flex;
justify-content: space-between;
}
.item
{ padding: 20px;
background-color: lightgrey;
}
```

• **Positioning:** CSS positioning properties like position, top, left, right, and bottom allow you to place elements exactly where you want them on the webpage. For example: .box

```
{ position: absolute;
top:50px;
left: 100px;
width: 200px;
height: 100px;
background-color: lightblue;
}
```

• **Margins and Padding:** Margins and padding are used to create space around and inside elements. Margins create space outside the element, while padding creates space inside the element.

For example:

```
box
{ margin: 20px;
padding: 10px;
background-color: lightgrey;
}
```

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.

Ans:

```
<!DOCTYPE HTML>
<html>
<head>
  <title>
```

```
        How to change the background color after clicking the button ?
      </title>
    </head>
    <body style="text-align: center ;">
      <h1 style="color: green ;">
        WELCOME PAKISTAN
      </h1>
      <h3>
        Click on button to change the
        background color
      </h3>
      <button onclick="myFunc()">
        Click here
      </button>
      <h2 id="GFG" style="color: green ;"></h2>
      <script>
        let result = document. getElementById("GFG");
        function changeColor(color) {
          document.body.style.background = color;
        }
        function myFunc() {
          changeColor('yellow');
          result.innerHTML = "Background Color changed";
        }
      </script>
</body>
</html>
```

Explanation:

Here is how the code works:

- We create a simple HTML page with a button element and a script tag that links to our JavaScript file.
- We define a function: changeColor.
- changeColor: This function generates a yellow color and sets it as the background color of the body element.
- When you click the button, the changeColor function is called, which generates yellow color and sets it as the background color of the page.

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

Ans: Adding Animations and Transitions Using CSS

CSS animations and transitions can make your web pages more engaging by adding movement and effects. Let us learn how to use them!

Adding Animations

CSS allows you to add animations to your web page to make it more interactive. Animations can change the way elements look or move over a period of time. Here are some basic steps to create animations with CSS:

Define Keyframes: Keyframes are used to specify the start and end points of an animation, as well as any intermediate steps. For example:

```
@keyframes example {
from {background-color: red;} to {background-Color:yellow;}
}
```

This keyframe animation changes the background color from red to yellow.

Apply the Animation: To apply the animation to an element, use the animation property.

For example:

```
.animated-box
{ width: TOOpx;
height: 100px;
background-color: red;
animation-name: example;;
animation-duration: 4s;
}
```

This will change the background color of the box change from red to yellow for four seconds.

Loop and Timing: You can also set how many times the animation should repeat and its timing function. For example:

```
.animated-box {
animation-iteration-count: infinite; /* Animation will repeat forever */-
animationtiming-function: linear; */Animation will progress at a constant speed
*/
```

Adding Transitions

CSS allows you to add transitions to a web page to make changes between styles smooth and visually appealing. Transitions can change properties like color, size, or position gradually, instead of instantly. Here are some basic steps to create transitions with CSS:

Set the Initial Style: First, define the initial style for the element you want to animate. For example:

```
.box{
width: 100px;
height: 100px;
background-color: red;
transition: background-color 2s, width 2s;
}
```

This sets the initial size and color of the box, and specifies that changes to the background color and width should transition over 2 seconds.

Define the Hover State: Next, define the styles for the element when it is hovered over. For example:

```
.box:hover{
background-color: yellow; width:200px;
}
```

This will change the background color to yellow and double the width of the box when the mouse hovers over it.

Additional Multiple Choice Questions (MCQs)

1. Web development is a process of:

a) creating mobile applications b) creating websites
c) creating video games d) creating operating systems

2. Which of the following is a benefit of learning web development?

a) career opportunities b) digital literacy
c) problem-solving skills d) All

3. Which of the following best describes web development?

a) Writing content for websites b) Promoting websites
c) Uploading websites d) Designing websites

4. What does HTML primarily define in web development?

a) The layout of a web page b) The structure of a web page
c) The interactivity of a web page d) The speed of a web page

5. Which of these technologies is used to make a web page interactive?

a) CSS b) HTML c) JavaScript d) SQL

6. Web development is considered a creative skill because it

a) solves logical problems. b) allows designing websites.
c) is about coding algorithms. d) focuses on databases.

7. What is the main benefit of web development in terms of career opportunities?

a) Limited to specific industries. b) Offers jobs only for designers.
c) Offers job prospects in the IT industry
d) Focuses on backend development roles.

8. Who created Hotmail, one of the first web-based email services?
a) Mark Zuckerberg and Dustin Moskovitz b) Sabeer Bhatia and Jack Smith
c) Larry Page and Sergey Brin d) Bill Gates and Steve Jobs

9. What is a significant advantage of web development for individuals?
a) It requires minimal creativity. b) It enhances digital literacy.
c) It focuses on front-end development. d) It is for non-technical people.

10. What does CSS primarily handle in web development?
a) Functionality of a website b) Content of a web page
c) Appearance of a website d) database connections

11. What is an example of a personal project you can create using web development skills?
a) Server maintenance tool b) Personal blog
c) Search engine algorithm d) Virtual reality application

12. Which of the following is a key technology used in Front-end Development?
a) HTML b) PHP c) Java d) Python

13. What does Back-end Development involve?
a) Managing servers b) Databases c) Application logic d) All

14. What is a Full-Stack Developer responsible for?
a) Front-end development b) Back-end development
c) Both a & b d) None

15. What is the primary focus of front-end development?
a) User interaction b) Website design
c) Data retrieval d) a & b

16. Which technology is used to structure the content on web pages?
a) CSS b) HTML c) JavaScript d) PHP

17. What does CSS do in front-end development?
a) Adds functionality to web pages b) Styles the appearance of content
c) Processes user inputs d) Stores website data

18. Which of the following is a key role of back-end development?
a) Animating web pages b) Designing user interfaces
c) Handling servers and databases d) Adding links to web pages

19. What is an example of a back-end programming language?
a) HTML b) CSS c) JavaScript d) PHP

20. What is an example of a feature that combines front-end and back-end development?
a) A static web page b) A login system
c) A styled HTML form d) A CSS animation

21. Which back-end technology is responsible for storing user data?
a) Database b) Web server c) CSS d) HTML

22 Who created the first website?

a) Larry Page b) Tim Berners-Lee
c) Mark Zuckerberg d) Sabeer Bhatia

23. The primary function of HTML is to create:

a) Styles to web pages b) Interactivity to web pages
c) Content of web pages d) Databases

24. Which of the following is a popular text editor for writing HTML code?

a) Microsoft Word b) Notepad++
c) Adobe Photoshop d) Google Chrome

25. What is the file extension for HTML files?

a) .html b) .css c) .js d) .php

26. Who created HTML?

a) Bill Gates b) Tim Berners-Lee c) Mark Zuckerberg d) Larry Page

27. Which version of HTML introduced support for multimedia elements like images and videos?

a) HTML 2.0 b) HTML 3.2 c) HTML 4.0 d) HTML5

28. What is the latest version of HTML?

a) HTML 4.01 b) HTML 5 c) HTML 3.2 d) HTML 1.0

29. Which of the following tools is NOT a text editor?

a) Notepad++ b) Sublime Text
c) Google Chrome d) Visual Studio Code

30. What is the correct file extension for an HTML file?

a) .txt b) .css c) .htm d) .js

31. Which tag is used to define the main heading of a web page?

a) <p> b) <h1> c) d) <title>

32. The tag used to display content on the web page.

a) <body> b) <title> c) <P> d) <html>

33. How can you view changes made to an HTML file in your browser?

a) Save the file b) Reopen the file in the browser
c) Refresh the web page d) Reopen the browser

34. Tag used to display a message on the browser tab

a) <body> b) <title> c) <P> d) <html>

35. In which year was HTML5 officially released?

a) 1999 b) 1997 c) 2014 d) 1991

36. Which tag is contained on meta-information about the document?

a) <body> b) <title> c) <P> d) <head>

37. Which of the following is an example of a paired tag?

a) <img> b)
 c) <p>. d) <hr>

38. Which tag serves as the root of an HTML document?

a) <body> b) <head> c) <html> d) <title>

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

a) The main content of the page b) Metadata about the document
c) Images and links d) The footer of the page

40. Where does the visible content of an HTML document appear?

a) <html> b) <head> c) <title> d) <body>

41. What type of tag is <p> in HTML?

a) Paired tag b) Unpaired tag c) Self-closing tag d) Inline tag

42. Which of the following is a self-closing tag?

a) <h1> b) <p> c) <img> d)

43 It declares the HTML version being used:

a) <html> b) <head> c) <!DOCTYPE html> d) <href>

44. Which of the following is a benefit of using headings in HTML?

a) Improved readability b) Enhanced security
c) Increased storage capacity d) Faster loading times

45. Which HTML tag is used to create a hyperlink?

a) <link> b) <a> c) <href> d) <p>

46. Which HTML tag is used to create a numbered list?

a) b) c) d) <list>

47. Which tag is used to create a table row in HTML?

a) <tr> b) <td> c) <table> d) <th>

48. How do you start an HTML comment?

a) <!-- b) /* c) // d) <?--

49. What is the correct HTML tag for an unordered list?

a) b) c) d) <list>

50. Which tag is used to define a table header in HTML?

a) <tr> b) <th> c) <td> d) <thead>

51. What type of list does <ul> create?

a) Unordered list b) Ordered list
c) Definition list d) Nested list

52. What is the purpose of the <td> tag in HTML tables?

a) To define a table row b) To define a table column
c) To define table data d) To define table borders

53. What is the primary purpose of using browser developer tools?

a) To write HTML code b) To design CSS layouts
c) To debug JavaScript code d) To create responsive designs

54. Which of the following is a common issue in web development?

a) Broken links b) Incorrect HTML structure
c) CSS issues d) All

55. Which tool can be used to test web pages across different browsers without installing them?

a) Chrome Dev Tools b) Browser Stack
c) Mozilla Firefox d) Google Chrome

Answers:

1	2	3	4	5	6	7	8	9	10	11	12
B	C	D	B	C	B	C	B	B	C	B	A
13	14	15	16	17	18	19	20	21	22	23	24
D	C	D	B	B	C	D	B	A	B	C	B
25	26	27	28	29	30	31	32	33	34	35	36
A	B	C	B	C	C	B	A	C	B	C	D
37	38	39	40	41	42	43	44	45	46	47	48
C	C	B	D	A	C	C	A	B	A	A	A
49	50	51	52	53	54	55					
B	B	A	C	C	D	B					

Topic Wise Additional Short Questions and Answers

8.1- Web Development:

1. What is web development?

Ans: Web development is the process of creating websites and web applications. It means using various programming languages and tools to design, build, and maintain websites

2. Why is learning web development important?

Ans: It provides digital literacy, career opportunities, problem-solving skills, creativity, and entrepreneurship. It helps understand how websites are built, the role of HTML, CSS, and JavaScript, and how the internet works.

3. What are the key technologies involved in web development?

Ans: HTML (structure), CSS (styling), and JavaScript (interactivity).

4. How web development is helpful in digital literacy? OR Why is learning web development important for digital literacy?

Ans: When we learn web development, we find out how websites are made. We learn about HTML, which is like the skeleton of a web page, CSS, which makes the web page look nice, and JavaScript, which makes the web page interactive. This helps to understand how the internet works

5. How web development is helpful to provide career opportunities?

Ans: Opens up a wide range of job prospects in the growing IT industry. we can become a web developer, web designer, and more. Many companies need web

developers to create and maintain their websites. This means we can find good jobs in many places.

6. How does web development enhance problem-solving skills?

Ans: When we build a website, we solve many problems. For example, if a website is slow, we figure out why and fix it. This helps to think logically and solve problems better.

7. What role does creativity play in web development?

Ans: Allow to create visually appealing and interactive websites. We can design websites with cool layouts, colours, and interactive features. For example, we can create a personal blog or a portfolio to show our artwork, making our own unique website

8. How can web development skills help in entrepreneurship?

Ans: With web development skills, we can start our own online business. For example, if we make crafts, we can build a website to sell them. Or, we can create a new web service, like a fun app, and share it with the world.

9 Provide an example of a famous web-based service developed by students. OR

Which is the first web-based email service? OR Who developed the first web-based email services?

Ans: Hotmail, one of the first web-based email services, was created by students Sabeer Bhatia and Jack Smith while they were at Stanford University. It was later acquired by Microsoft for $400 million.

8.2- Basic Components of Web Development:

10. What are the three main components of web development?

Ans: Front-end Development, Back-end Development, and Full-Stack Development.

11. What does Front-end Development focus on?

Ans: This focuses on what users see and interact with on a website.

12. What are the key technologies used in Front-end Development?

Ans: The following fundamentals are used to design interactive Front-ends:

• HTML structures the content on web pages, like headings, paragraphs, images, and links.

• CSS styles the content on web pages, changing colours, fonts, and layout to enhance the appearance. • JavaScript adds interactivity to web pages, making them dynamic and engaging. It allows features such as forms, animations, and games.

13. What does Back-end Development manage?

Ans: This manages the behind-the-scenes functionality of a website, including servers, databases, and application logic.

14. What are the key technologies used in Back-end Development?

Ans: Key backend technologies are:

- Web Servers are computers that store and deliver web pages to users when they enter a URL.
- Databases store and manage data, like user information, product details, and website content.
- Back-end Programming Languages like PHP, Python, and Ruby handle tasks such as processing forms, and managing user logins.

15. What is Full-Stack Development?

Ans: In the case of login system, a full-stack developer will create the User Interface (UI) for front-end and handle user authentication and database interaction for back-end.

16. Give an example of a back-end programming language.

Ans: Python, PHP, or Ruby.

17. Why are full-stack developers in high demand?

Ans: Full-stack developers are in high demand because they can manage and develop all aspects of a web application, making them versatile and valuable in the tech industry..

18. Who created the first website, and when?

Ans: The first website was created by Tim Berners-Lee in 1991 and it is still accessible at http: //info.cern.ch. It was a simple page with links to information about the World Wide Web project.

8.3- Getting Started with HTML

19. What is HTML?

Ans: HTML is the standard language used to create web pages. HTML tags come together to build a web page. It was designed to make sharing of information on the internet easy.

20. What does HTML stand for?

Ans: HTML stands for HyperText Markup Language.

21. Who created HTML?

Ans: Tim Berners-Lee in 1991.

22. What are the different versions of HTML?

Ans: HTML 1.0, HTML 2.0, HTML 3.2, HTML 4.0, HTML 4.01, and HTML5.

23. What are the basic tools needed to start creating websites?

Ans: A text editor and a web browser.

- Text Editor: This is where you write your HTML code. Popular text editors include Notepad++, Sublime Text, and Visual Studio Code.
- Web Browser: You will use this to view and test your HTML files. Common web browsers are Google Chrome, Mozilla Firefox, and Microsoft Edge.

24. What is the purpose of the <!DOCTYPE html> tag in HTML?
Ans: To declare the document type as HTML5.
25. Mention two major improvements introduced in HTML5.
Ans: HTML5 introduced better multimedia support and new elements for creating graphics and interactive web pages.
26. What is a text editor in web development? Provide an example.
Ans: A text editor is software used to write HTML code. Examples include Notepad++, Sublime Text, and Visual Studio Code.
27. What are basic steps to write HTNL code?
Ans: • Select a text editor to write your HTML code. Popular choices include Notepad++, Sublime Text, and Visual Studio Code.
• Write the Basic HTML Structure
• Add content and elements to your HTML document.
• Save Your HTML File with extension .html or .htm.
28. How do you save an HTML file?
Ans: Save the file with a .html extension, e.g., My_first_website.html.
29. Write a simple HTML code snippet to display "Hello, World!" on a web page.
Ans:

```
<!DOCTYPE html>
<html>
<head>
  <title>Hello, World!</title>
</head>
<body>
  <h1>Hello, World!</h1>
</body>
</html>
```

30. How can you view an HTML file in a browser?
Ans: 1. Open Your Web browser (Google Chrome, Mozilla Firefox, and others).
2. Double-click on your file named My_first_website.html.
3. You should see the text welcome to my website displayed on the web page.
31. What should you do to see updates after making changes to an HTML file?
Ans: Refresh the web page in your browser.

8.4- HTML Basic Structure:

32. What is the purpose of the <!DOCTYPE html> declaration?
Ans: To tell the browser that the document is an HTML5 document.

33. What is the root element of an HTML document?

Ans: <html> tag.

34. What section of an HTML document contains meta-information?

Ans: <head> tag.

35. What element sets the title of a web page?

Ans: <title> tag

36. What element defines the content of a web page?

Ans: <body> tag.

37. What are the two categories of HTML tags based on structure?

Ans: Paired tags and unpaired tags (self-closing tags).

- ***Paired tags***: Comes in pairs an opening Tag and closing Tag i.e. <p>...</p>.
- ***Unpaired Tags:*** Do not need closing Tags. They are also known as self-closing Tags i.e. <img>, <br>.

38. What does the <head> section in an HTML document contain?

Ans: It contains meta-information about the document, such as the title.

39. What is the purpose of the <title> tag?

Ans: It sets the title of the web page, which appears on the browser tab.

40. Which tag is used to define the main heading of an HTML document?

Ans: The <h1> tag.

41. What is the <p> tag used for?

Ans: It is used to define a paragraph in an HTML document.

42. Why is it important to have a structured HTML document?

Ans: A structured document is easier to read, understand, and ensures that the web page displays as intended.

8.5- Creating Content with HTML

43. What is the importance of content in HTML?

Ans: Content in HTML is the main information on a web page that users read and interact with. It includes text, images, videos, links, and other elements that convey the purpose and message of the page. This makes it easier for people to find your site.

44. What is the importance of headings in HTML?

Ans: Organizing content, Search Engine Optimization (SEO), and consistent formatting.

45. What is the role of organizing content headings in HTML?

Ans: Organizing Content Headings helps organize the content into sections and subsections, making it easier for users to read and understand <h1> is typically used for the main title of the page, while <h2> to <h6> to are used for subheadings in decreasing order of importance.

46. What is SEO?
Ans: SEO stands for Search Engine Optimization. Search engines use headings to understand the structure and main topics of a web page. Proper use of headings can improve the page's SEO, helping it rank higher in search results.
47. What tag is used to define a paragraph in HTML?
Ans: Using the <p> tag, which creates a block of text with space above and below it.
48. What is the use of Links in HTML?
Ans: Links in HTML are used to connect one web page to another. They allow you to click on words or images to go to different parts of the same web page or to other web pages on the internet
49. What tag is used to create links in HTML?
Ans: <a>.
50. What is the range of heading tags in HTML?
Ans: From <h1> (main title) to <h6> (least important subheading).
51. What is the purpose of the <a> tag in HTML?
Ans: It is used to create hyperlinks that link to other web pages or resources.
52. What does the alt attribute in the <img> tag do?
Ans: +It provides alternative text for an image, which is useful for visually impaired users and when the image fails to load.
53. What tag is used to add images in HTML?
Ans: <img> tag.
54. What is the use of lists in HTML?
Ans: Lists improve readability by breaking complex ideas into simpler parts, allowing users to scan for details easily. Overall, lists make the content more organized and accessible for everyone. You can create ordered (numbered) and unordered (bulleted) lists
55. What are the two types of lists that can be created in HTML?
Ans: Ordered (numbered) lists and unordered (bulleted) lists.
56. How do you create an unordered list in HTML?
Ans: By using the <ul> tag, with list items defined inside <li> tags.
57. How do you create an ordered list in HTML?
Ans: By using the <ol> tag, with list items defined inside <li> tags.
58. What are tables used for in HTML?
Ans: Tables in HTML are used to display data in a structured format, allowing for easy comparison and organization of information.
59. What tag is used to create tables in HTML?
Ans: <table> tag.
What are comments in HTML?
Ans: In HTML, comments can be extremely useful for:
- Explaining the purpose of a specific section of code
- Leaving reminders for future edits
- Temporarily disabling code for testing purposes

60. What is the syntax for HTML comments?

Ans: <! --This is Comment -- >

8.6- Styling with CSS

61. What is the purpose of CSS in web development?

Ans: • Cascading Style Sheets (CSS) is very important for improving the visual appearance of webpages

• It improves user experience.

• It allows web developers to control the colours, fonts, layout, and overall design of HTML elements.

• CSS offers various properties and selectors to apply styles to specific elements, enabling responsive design that automatically adjusts to different screen sizes and devices

62. What are the three ways to integrate CSS into an HTML document?

Ans: Inline styles, internal styles, and external styles.

63. What is the use of Inline style?

Ans: This method involves adding CSS directly to individual HTML elements using the style attribute. For example, <h1 style="color: blue;">Hello World</h1> changes the color of the heading to blue.

64. What is the use of Internal style?

Ans: CSS can also be included in the <head> section of an HTML document using the <style> tag. This method allows you to define styles for the entire page without affecting others.

65. What is the use of External style?

Ans: The most efficient method for larger projects is to use an external CSS file, which is linked to the HTML document with the < link> tag in the <head> section. This keeps the HTML clean and allows for easy updates across multiple pages.

66. How can you change the background colour in CSS?

Ans: You can change the background colour of a web page or any HTML element using the background-color property. For example, if you want a blue background, you can Write: body {background-color: blue; } '

67. How can you set the background image of a web page?

Ans: You can set an image as the background of a web page using the background-image property. For example, font family issue as the background, you can write:

• *body{*

background-image: url(your-image.jpg");

}

68. What is the use of Divs and sections elements?

Ans: HTML elements like and <section> are used to group content together. You can then use CSS to style and position them.

69.. How do you create a layout using CSS Grid?
Ans: The CSS Grid Layout is a powerful tool for creating complex layouts. It allows you to arrange items into rows and columns.
70. What is CSS Flexbox?
Ans: Flexbox is another layout tool that helps in arranging items in a flexible and responsive way. It is useful for aligning items in a row or column.
71. What is the difference between Margins and Padding?
Ans: Margins and padding are used to create space around and inside elements. Margins create space outside the element, while padding creates space inside the element.
72. What is the difference between CSS animations and transitions?
Ans: Animations are used to create complex, multi-step effects, while transitions are used to create smooth, gradual changes between styles.

8.7- Introduction to JavaScript:

73. What is JavaScript used for?
Ans: JavaScript is a programming language that is used to make websites interactive and engaging. It allows developers to create things like animations, games, and responsive features that react when you click buttons or move your mouse.
74. What kind of features can JavaScript create?
Ans: Animations, games, and responsive features.
75. What is an example of JavaScript in action?
Ans: Pop-up messages, image changes on hover, and interactive buttons.
76. Who created JavaScript?
Ans: JavaScript was created in just 10 days by Brendan Eich in 1995.
77. What were the initial names of JavaScript?
Ans: It was initially called Mocha, then LiveScript, and finally JavaScript.
78. What is variable in context of JavaScript?
Ans: In JavaScript, you can store data using variables. A variable is like a container that holds information which can be used and manipulated in your code.
79. Write down the data types used in JavaScript?
Ans: Here are some common data types in JavaScript:
String: A sequence of characters used for text. var name = "Athar"; // String
Number: Represents both integer and floating-point numbers. var age = 15; // Number
Boolean: Represents true or false values. var isStudent = true; // Boolean
Array: A collection of values stored in a single variable. var scores = [90, 85, 88]; // Array
80. Define function in JavaScript?
Ans: Functions allow you to reuse code and perform specific tasks. They are like Mini programs that you can run whenever you need them.

81. What are parameters in JavaScript?
Ans: Parameters are placeholders for values that you pass to the function. You can use these values inside your function. Functions can take any number of parameters. You can pass different values each time you call the function.

82. What are HTML events?
Ans: HTML events are actions that occur in the browser, often triggered by user interactions. Events can be used to make web pages interactive by executing JavaScript code when a specific event occurs.

83. Write any two common HTML events?
Ans: Here are some common events you might encounter:
- ***onclick:*** Triggered when an element is clicked.
- ***onload:*** Triggered when a page or an image has finished loading.
- ***onmouseover:*** Triggered when the mouse pointer moves over an element.
- ***onmouseout:*** Triggered when the mouse pointer moves out of an element.
- ***onkeyup:*** Triggered when a key is released on the keyboard.

84. What is an Event Handler?
Ans: An event handler is a function that runs when a specific event occurs. You can attach event handlers to HTML elements to make them respond to user actions.

8.8- Developing and Debugging

85. What is the purpose of testing and debugging in web development?
Ans: Testing and debugging are important steps in web development. They help you find and fix errors in your code to ensure your web pages work correctly.

86. What is meant by debugging in web development?
Ans: Debugging is the process of finding and fixing issues in your code.

87. Write down some common debugging techniques in web development?
Answer: Using browser developer tools, reading error messages, and checking code.

88. What is the purpose of using browser developer tools in debugging?
Ans: Most web browsers have built-in developer tools that help you debug your code. For example, you can use the console to see error messages and set break points to pause your code and examine its behaviour.

89. How can you debug JavaScript code in the browser?
Ans: You can use the browser's developer tools, particularly the console, to log messages and errors. You can also set breakpoints to pause execution and inspect variables.

90. What should you do when you see an error message in the browser's console?
Ans: When something goes wrong, your browser will usually display an error message. Reading these messages carefully can help you understand what went wrong and how to fix it.

91. What are common issues in HTML structure that you should check for?

Ans: Go through your code line by line to check for common issues like missing semicolons, unmatched braces, or incorrect variable names. Ensure that HTML tags are properly nested and closed.

92. What are some common issues in web development and how to fix them?

Ans: Here are some common issues in web development and how to fix them:

1. Broken Links: Make sure all your links point to the correct URLs. Double-check the paths to your files.

2. Incorrect HTML Structure: Ensure your HTML tags are properly nested and closed.

3. CSS Issues: Verify that your CSS selectors are correct and that there are no typos in your styles.

93. Discuss some strategies for Testing Web Pages.

Ans: Strategies for Testing Web Pages

1. Cross-Browser Testing: Web pages can look different in different browsers. Test your web page in multiple browsers like Chrome, Firefox, and Edge to ensure consistency.

2. Responsive Design Testing: Make sure your web page looks good on all devices, including desktops, tablets, and smartphones. Use tools like the browser's responsive design mode to test how your page looks on different screen sizes.

3. User Testing: Ask your friends or family members to use your web page and provide feedback. They may find issues that you missed.

94. Why is cross-browser testing important?

Ans: Different browsers may render web pages differently. Cross-browser testing ensures that your web page looks consistent across popular browsers like Chrome, Firefox, and Edge.

95. How can you test a web page's responsiveness on different devices?

Ans: Use the browser's responsive design mode or testing tools to see how the page looks on various screen sizes. You can also test on real devices to ensure proper layout and functionality.

96. What is the role of user testing in web development?

Ans: User testing helps identify usability issues by allowing real users to interact with the web page. Feedback from testers can help improve the user experience and catch issues that developers may have missed.

97. What are common CSS issues that might need debugging?

Ans: Common CSS issues include incorrect selectors, missing or incorrect properties, typos, and conflicts between styles. Ensuring that the styles are applied as expected is crucial.