

INTRODUCTION TO WEB TECHNOLOGIES

Comprehensive Syllabus-Compliant Question Bank (All Units)

Weightage Category	Questions / Unit	Total Marks / Unit
Short Questions (1 Mark)	20 Questions	20 Marks
Conceptual Questions (2 Marks)	15 Questions	30 Marks
Analytical Questions (5 Marks)	10 Questions	50 Marks
Comprehensive Questions (8 Marks)	5 Questions	40 Marks

UNIT-1: INTRODUCTION TO INTERNET, WORLD WIDE WEB & HTML FUNDAMENTALS

Category A: Short Questions (1 Mark Each - 20 Questions Required)

- Q1. Define World Wide Web (WWW). [1 Mark]
- Q2. What does HTTP stand for? [1 Mark]
- Q3. What is the primary role of a Web Server? [1 Mark]
- Q4. Mention two Internet Protocols commonly used in web applications. [1 Mark]
- Q5. What is client-server communication? [1 Mark]
- Q6. Define Front-end Development. [1 Mark]
- Q7. What is Backend Development? [1 Mark]
- Q8. Give an example of a web browser. [1 Mark]
- Q9. What is a static web page? [1 Mark]
- Q10. What is the function of the <!DOCTYPE> declaration? [1 Mark]
- Q11. Name the root element of an HTML document. [1 Mark]
- Q12. Which tag is used to house meta-information about an HTML document? [1 Mark]
- Q13. What is the purpose of the <TITLE> tag? [1 Mark]
- Q14. Differentiate between an element and an attribute in HTML. [1 Mark]

- Q15.** What is a container element in HTML? [1 Mark]
- Q16.** Give an example of an empty element in HTML. [1 Mark]
- Q17.** Which HTML tag is used to create a new paragraph? [1 Mark]
- Q18.** What is the default background color of a browser window? [1 Mark]
- Q19.** How do you run a newly created HTML web page in a browser? [1 Mark]
- Q20.** What is an HTML editor? [1 Mark]

Category B: Conceptual Questions (2 Marks Each - 15 Questions Required)

- Q1.** Explain the working principles of the World Wide Web (WWW). [2 Marks]
- Q2.** Briefly describe the historical evolution of the Internet. [2 Marks]
- Q3.** Differentiate between a web page and a website. [2 Marks]
- Q4.** List any four characteristics of Hypertext Markup Language (HTML). [2 Marks]
- Q5.** State the core structural advantages of using HTML for layout building. [2 Marks]
- Q6.** Explain the role of an HTTP request and an HTTP response. [2 Marks]
- Q7.** What is the exact purpose of the <BODY> tag in an HTML document? [2 Marks]
- Q8.** Identify and explain any two essential attributes of the basic HTML <P> tag. [2 Marks]
- Q9.** Explain how text behaves inside a browser when wrapped in empty vs container elements. [2 Marks]
- Q10.** State the functional difference between web browsers and web servers. [2 Marks]
- Q11.** Describe how a simple HTML web page is executed natively on a local client computer. [2 Marks]
- Q12.** Why is the <!DOCTYPE html> declaration critical for modern rendering engines? [2 Marks]
- Q13.** List two distinct types of HTML editors and name one popular tool for each. [2 Marks]
- Q14.** What happens when multiple nested paragraph tags are placed inside a body tag without attributes? [2 Marks]
- Q15.** Elucidate the concepts of a client and a host in standard network client-server interactions. [2 Marks]

Category C: Analytical & Design Questions (5 Marks Each - 10 Questions Required)

- Q1.** Detail the architectural framework and key features of client-server communication in web environments. [5 Marks]
- Q2.** Compare and contrast the technical roles, skills, and tools used by Front-end and Backend developers. [5 Marks]
- Q3.** Draw and explain the basic, standard structural layout of an HTML document. [5 Marks]
- Q4.** Discuss the detailed differences between Container elements and Empty elements with illustrative examples. [5 Marks]

Q5. Explain how HTTP protocol functions as a stateless communication standard between a browser and a server. [5 Marks]

Q6. Provide a complete guide on how to create, format, save, and run a simple HTML web page on a modern web browser. [5 Marks]

Q7. Elucidate the step-by-step workflow that occurs when a user types an address into a browser to request a page. [5 Marks]

Q8. Analyze the functional advantages, design constraints, and disadvantages of writing code using pure text-based HTML editors. [5 Marks]

Q9. Discuss the various attributes used within basic elements to configure metadata and document properties. [5 Marks]

Q10. Explain how the architectural features of the Internet support global transmission of web content. [5 Marks]

Category D: Comprehensive Essay & Programming Tasks (8 Marks Each - 5 Questions Required)

Q1. Provide a comprehensive, structural breakdown of the World Wide Web (WWW). Explain its history, components, protocols (HTTP), and full working mechanisms with the help of a neat architecture diagram. [8 Marks]

Q2. Write an extensive essay detailing HTML architecture. Explain its key features, core advantages, and fundamental code blocks. Include a full valid code example featuring `<!DOCTYPE>`, `<HTML>`, `<HEAD>`, `<TITLE>`, and `<BODY>` elements. [8 Marks]

Q3. Analyze the client-server communication paradigm. Discuss its core concepts, structural layers, transmission mechanisms, and the individual technical responsibilities of Front-end frameworks and Backend systems. [8 Marks]

Q4. Discuss the anatomy of HTML elements. Provide a thorough comparison between Empty and Container elements, breaking down how tags, attributes, and values alter presentation within a browser window. [8 Marks]

Q5. Design a comprehensive step-by-step manual for web deployment starters: explaining how to construct a clean multi-paragraph web page from absolute scratch using basic tags, properly specifying attributes, and running it successfully. [8 Marks]

UNIT-2: WORKING WITH HTML TAGS & CREATING FORMS

Category A: Short Questions (1 Mark Each - 20 Questions Required)

- Q1. Which HTML tag is used to create a primary level-1 heading? [1 Mark]
- Q2. Name the tag used to insert a line break. [1 Mark]
- Q3. What is the function of the <hr> tag? [1 Mark]
- Q4. Which tag formats text into an italicized style? [1 Mark]
- Q5. Name the tag used to create bold text. [1 Mark]
- Q6. What does the <small> tag do in HTML? [1 Mark]
- Q7. Which tag defines subscript text? [1 Mark]
- Q8. Which tag defines superscript text? [1 Mark]
- Q9. Name the attribute used to change the background color of an HTML page. [1 Mark]
- Q10. What tag is used to add non-rendering comments in HTML code? [1 Mark]
- Q11. State the tag used to implement a hyperlink. [1 Mark]
- Q12. Which tag is the outer container for an unordered list? [1 Mark]
- Q13. Name the tag used to define an individual row in an HTML table. [1 Mark]
- Q14. Which element embeds an image into a web document? [1 Mark]
- Q15. State the attribute used to point to the source file of an HTML <video>. [1 Mark]
- Q16. What is the function of the <iframe> tag? [1 Mark]
- Q17. Name the root tag required to create interactive input forms. [1 Mark]
- Q18. Which type value of the <input> tag creates a hidden pass-code box? [1 Mark]
- Q19. Name the tag used to construct a drop-down selection list. [1 Mark]
- Q20. What type value creates a checkbox control? [1 Mark]

Category B: Conceptual Questions (2 Marks Each - 15 Questions Required)

- Q1. Differentiate between the structural visual output of the <h1> and <h6> tags. [2 Marks]
- Q2. Explain how a horizontal line layout can be customized using native attributes. [2 Marks]
- Q3. Distinguish between superscript (<sup>) and subscript (<sub>) formats with real-world text examples. [2 Marks]
- Q4. Describe how to change the background color of a specific element vs a whole body container. [2 Marks]
- Q5. Explain the exact syntax required to successfully embed a comment within an HTML block. [2 Marks]
- Q6. What are the target and href attributes used for inside an anchor (<a>) hyperlink tag? [2 Marks]

- Q7.** Compare the foundational structures of an Unordered List and an Ordered List. [2 Marks]
- Q8.** List four main inner tags required to build a valid, fully cross-referenced standard HTML data table. [2 Marks]
- Q9.** State the absolute minimum attributes required for the tag to render properly and accessibly. [2 Marks]
- Q10.** Explain how frames (<iframe>) are utilized to embed external multi-media or maps. [2 Marks]
- Q11.** Describe the purpose and parameters of the 'action' and 'method' attributes in a <form> tag. [2 Marks]
- Q12.** Explain the difference in functionality between a Radio Button input and a Checkbox input. [2 Marks]
- Q13.** What is the purpose of the <textarea> box over a standard single-line text input field? [2 Marks]
- Q14.** How does the Date-Time picker control enrich modern form inputs over simple text formatting placeholders? [2 Marks]
- Q15.** Contrast the behavior of the Submit button versus the Reset button within a form context. [2 Marks]

Category C: Analytical & Design Questions (5 Marks Each - 10 Questions Required)

- Q1.** Explain the usage and parameters of text formatting tags: Headings, Break, Horizontal Line, Italic, Bold, Small, Subscript, and Superscript. [5 Marks]
- Q2.** Provide a detailed code implementation demonstrating how to create nested ordered and unordered lists in HTML. [5 Marks]
- Q3.** Describe the comprehensive structure of HTML Tables, explaining the specific roles of <table>, <tr>, <th>, <td>, rowspan, and colspan. [5 Marks]
- Q4.** Discuss the detailed steps and attributes required to embed accessible Images, Video, and external Frames within a webpage layout. [5 Marks]
- Q5.** Explain how to configure an HTML Form Tag, explicitly contrasting the performance, security, and usage of the GET and POST methods. [5 Marks]
- Q6.** Detail the step-by-step creation of complex input controls: Text box, Password box, Text area, and Drop-down selection lists. [5 Marks]
- Q7.** Elucidate the native application and mechanics of modern semantic inputs: Checkbox, Radio button, Email field, and Color picker. [5 Marks]
- Q8.** Analyze the importance of semantic document structures when embedding rich media elements like independent video streams. [5 Marks]
- Q9.** Demonstrate using HTML syntax how to embed custom background colors, comments, and complex deep-linking anchors in a singular document. [5 Marks]
- Q10.** Explain the technical data-handling differences when a client clicks Submit versus Reset inside an input form panel. [5 Marks]

Category D: Comprehensive Essay & Programming Tasks (8 Marks Each - 5 Questions Required)

Q1. Develop a comprehensive HTML document that implements a structured informational landing page. It must correctly display all six structural tiers of Headings, utilize line breaks, use all standard typography elements (bold, italic, small, sub, sup), apply background color controls, and embed clear commented instructions. [8 Marks]

Q2. Provide an exhaustive guide on structural tables and embedded media in HTML. Write an extensive code snippet featuring an inventory table with cross-cutting data rows (using rowspan/colspan) alongside embedded images, responsive video players, and configured floating frame window structures. [8 Marks]

Q3. Design a comprehensive Employee Registration Form in HTML. The form must incorporate a <form> wrapper utilizing appropriate handler attributes, and include custom implementations for a Text box, a Password field, an expanded Text area, a Drop-down selection menu, Checkboxes, Radio selections, Email validation field, a Color picker, a Date-Time selector, and execution control buttons. [8 Marks]

Q4. Analyze the comprehensive engineering behind HTML collection components. Formulate a technical comparison of standard linear Lists (Ordered/Unordered/Nested) against tabular matrix groupings (Tables) with respect to semantic hierarchy, cross-browser rendering rules, and layout design properties. [8 Marks]

Q5. Explain structural user data acquisition methods on the web. Evaluate how Form fields process inputs, validate fields natively (such as email types and selectors), securely transmit payloads across parameters, and use action elements to manage server states. [8 Marks]

UNIT-3: CASCADING STYLE SHEETS (CSS) & LAYOUT PROPERTIES

Category A: Short Questions (1 Mark Each - 20 Questions Required)

- Q1. What does CSS stand for? [1 Mark]
- Q2. State one primary benefit of separating styling from structure via CSS. [1 Mark]
- Q3. Write the basic syntax pattern of a CSS rule. [1 Mark]
- Q4. What is a CSS Selector? [1 Mark]
- Q5. Name the style method that embeds CSS directly within a tag's style attribute. [1 Mark]
- Q6. What is an Internal Style Sheet? [1 Mark]
- Q7. Which tag is used to reference an External CSS file? [1 Mark]
- Q8. How do you add comments within a CSS file? [1 Mark]
- Q9. Name the CSS property used to alter text color. [1 Mark]
- Q10. Which property changes the background color of an element? [1 Mark]
- Q11. Name two properties used to change font characteristics. [1 Mark]
- Q12. What CSS property sets the alignment of text? [1 Mark]
- Q13. Name the layout element that tracks custom list item marker styles. [1 Mark]
- Q14. What is the function of the CSS 'display' property? [1 Mark]
- Q15. Name the innermost zone of the CSS Box Model. [1 Mark]
- Q16. Which property controls the space outside the border of an element? [1 Mark]
- Q17. What property manages the clear space between content and its border? [1 Mark]
- Q18. What component sits directly between padding and margin in the Box Model? [1 Mark]
- Q19. Name the element used to create a responsive top Navigation Bar. [1 Mark]
- Q20. What CSS positioning trick or property layout allows the creation of a Drop-down menu? [1 Mark]

Category B: Conceptual Questions (2 Marks Each - 15 Questions Required)

- Q1. Explain the core syntax difference between inline CSS and internal style blocks. [2 Marks]
- Q2. List two advantages of using External CSS files over embedding styles directly inside HTML files. [2 Marks]
- Q3. Describe how an element selector differs from a class selector in a CSS file. [2 Marks]
- Q4. Explain the operational priority (cascading order) when inline, internal, and external styles conflict on an element. [2 Marks]
- Q5. What is the structural role of the CSS Box Model in web layout calculation? [2 Marks]

- Q6.** Differentiate between the 'margin' and 'padding' properties within the Box Model context. [2 Marks]
- Q7.** Explain how the 'border' property can be customized using width, style, and color values. [2 Marks]
- Q8.** What is the technical difference between display: block and display: inline? [2 Marks]
- Q9.** Describe how to change the background of a web page using both single colors and gradient images via CSS. [2 Marks]
- Q10.** Explain how font-family fallbacks work when specifying typography chains in CSS properties. [2 Marks]
- Q11.** What are CSS comments used for, and what is their exact symbol syntax? [2 Marks]
- Q12.** Describe how text-align and text-transform properties alter written character displays. [2 Marks]
- Q13.** How is an unordered list transformed structurally into a horizontal menu list using basic CSS? [2 Marks]
- Q14.** Explain the purpose of the 'display: none' property when designing interactive drop-down menus. [2 Marks]
- Q15.** What properties control the alignment, layout style, and spacing of lists in CSS? [2 Marks]

Category C: Analytical & Design Questions (5 Marks Each - 10 Questions Required)

- Q1.** Introduce Cascading Style Sheets (CSS), elaborating on three major architectural benefits it brings to web engineering. [5 Marks]
- Q2.** Explain the complete syntax components of a CSS rule, detailing Selectors, Properties, and Values with concrete examples. [5 Marks]
- Q3.** Compare and contrast External, Internal, and Inline CSS implementations with code blocks for each approach. [5 Marks]
- Q4.** Detail the architectural mechanics of the CSS Box Model, defining Margin, Border, Padding, and Core Content. [5 Marks]
- Q5.** Explain how to configure core background properties, including color values, background images, and positioning options. [5 Marks]
- Q6.** Discuss CSS typography controls, detailing how to alter text fonts, text colors, line heights, sizes, and word spacing. [5 Marks]
- Q7.** Describe the application and values of the CSS 'display' property, specifically comparing block, inline, and inline-block. [5 Marks]
- Q8.** Provide a step-by-step technical guide for engineering an accessible CSS horizontal Navigation Bar from scratch. [5 Marks]
- Q9.** Explain the design process and active CSS states needed to build functional hover-triggered drop-down choice list modules. [5 Marks]
- Q10.** Analyze the impact of layout overrides like setting custom border values and reset padding parameters on overall page rendering. [5 Marks]

Category D: Comprehensive Essay & Programming Tasks (8 Marks Each - 5 Questions Required)

- Q1.** Compose a comprehensive technical treatise on Cascading Style Sheets (CSS). Detail its structural syntax rules, explore basic selectors (element, class, ID), and write a robust code integration demonstrating External link referencing, Internal style declaration blocks, and Inline styles running simultaneously. [8 Marks]
- Q2.** Analyze the CSS Box Model. Draw its conceptual framework, describe its core layout segments (Content, Padding, Border, Margin), and write an extensive CSS style sheet utilizing custom box dimensions, border configurations, specific margin separations, and padding offsets. [8 Marks]
- Q3.** Design a highly professional and responsive layout system using pure CSS. Implement a top-level corporate Navigation Bar containing structural links and an operational hover-activated CSS Drop-Down menu component, documenting every layout rule utilized. [8 Marks]
- Q4.** Evaluate the extensive range of visual CSS design controls. Build a comprehensive design suite managing page background parameters, detailed typography metrics, paragraph alignments, list layouts, and display settings. [8 Marks]
- Q5.** Explain the conceptual cascading hierarchy of web style models. Trace the pipeline rules that resolve conflicting design statements across multiple design documents, detailing how inline priority overrides, internal sheets, and structural inheritances affect page layout. [8 Marks]

UNIT-4: JAVASCRIPT - CLIENT-SIDE SCRIPTING & DYNAMIC CONTROL

Category A: Short Questions (1 Mark Each - 20 Questions Required)

- Q1. What is JavaScript? [1 Mark]
- Q2. State one key benefit of using client-side JavaScript in modern web pages. [1 Mark]
- Q3. Write a line of code to create a simple JavaScript statement. [1 Mark]
- Q4. Where inside an HTML file can a <script> tag be validly placed? [1 Mark]
- Q5. How do you attach an external JavaScript file to an HTML document? [1 Mark]
- Q6. Name the popup box used to show a one-way message alert. [1 Mark]
- Q7. Which JavaScript popup box asks for a true/false confirmation? [1 Mark]
- Q8. Name the popup box that prompts a user to enter string text values. [1 Mark]
- Q9. Which property is used to modify the inner HTML markup text of an element? [1 Mark]
- Q10. What command prints raw text output directly to an active document stream? [1 Mark]
- Q11. How do you fire a basic message warning message inside the browser console window? [1 Mark]
- Q12. Name the built-in function used to display standard browser alerts. [1 Mark]
- Q13. List two distinct Data Types natively supported by JavaScript core logic. [1 Mark]
- Q14. How do you declare a variable in JavaScript? [1 Mark]
- Q15. Name two types of Arithmetic Operators in JavaScript. [1 Mark]
- Q16. What is a Logical Operator used for in condition tracking? [1 Mark]
- Q17. Which symbol represents the assignment operator? [1 Mark]
- Q18. How do you start a single-line comment in JavaScript? [1 Mark]
- Q19. Name the keyword used to create a user-defined function block. [1 Mark]
- Q20. What is the structural scope of a variable declared outside any function body? [1 Mark]

Category B: Conceptual Questions (2 Marks Each - 15 Questions Required)

- Q1. List four main operational features and runtime benefits of JavaScript engine execution. [2 Marks]
- Q2. Contrast the performance outcomes of placing script execution tags in the <head> section versus the bottom of the <body>. [2 Marks]
- Q3. Write syntax examples demonstrating the difference between alert(), confirm(), and prompt() boxes. [2 Marks]

- Q4.** Explain how `document.write()` and `innerHTML` alter the Document Object Model (DOM) differently. [2 Marks]
- Q5.** What is the core function of `console.log()`, and why is it preferred for system debugging tasks? [2 Marks]
- Q6.** Differentiate between primitive data types and reference objects in primitive JavaScript structures. [2 Marks]
- Q7.** List and define three types of operators (Arithmetic, String, and Logical) used in expression statements. [2 Marks]
- Q8.** Explain how the conditional 'if...else' statement structures structural branching decisions. [2 Marks]
- Q9.** Describe the execution workflow of a nested 'if...else' statement block vs an 'else if' ladder. [2 Marks]
- Q10.** What are the operational rules and exit markers of a standard JavaScript 'switch' control statement? [2 Marks]
- Q11.** Compare the functional execution loops of a 'while' loop against a 'do...while' loop. [2 Marks]
- Q12.** Explain how 'break' and 'continue' jump statements change loop executions differently. [2 Marks]
- Q13.** Differentiate between a built-in core function and a user-defined function block in JavaScript syntax. [2 Marks]
- Q14.** Describe how to invoke a custom function from an HTML action hook or execution block. [2 Marks]
- Q15.** Explain the exact structural behavioral differences between global variables and local function variables. [2 Marks]

Category C: Analytical & Design Questions (5 Marks Each - 10 Questions Required)

- Q1.** Introduce client-side JavaScript, discussing its unique advantages and runtime characteristics in web application design. [5 Marks]
- Q2.** Demonstrate how to write and execute a simple JavaScript script, detailing internal placements and external file mapping. [5 Marks]
- Q3.** Provide an analysis of native user interaction boxes, explicitly detailing the mechanics of alert, confirm, and prompt boxes. [5 Marks]
- Q4.** Explain the standard display methods in JavaScript, showing code examples for `innerHTML`, `document.write()`, `window.alert()`, and `console.log()`. [5 Marks]
- Q5.** Elucidate JavaScript's data handling system, detailing standard Data Types, Variable declarations, and complex string Expressions. [5 Marks]
- Q6.** Deconstruct structural selection control systems, comparing 'if...else' conditionals, nested logic rules, and multi-tier 'else if' ladders. [5 Marks]
- Q7.** Explain the syntax framework and implementation of 'switch' case selection systems alongside validation parameters. [5 Marks]
- Q8.** Analyze looping constructs, explicitly detailing the design, execution, and boundary differences of 'while' and 'do...while' loops. [5 Marks]

Q9. Discuss Jump Statements, providing clear script scenarios showcasing how 'break' and 'continue' manage loop exit states. [5 Marks]

Q10. Explain Function Architectures, detailing declaration formats, parameters, return pathways, invocation steps, and scope rules. [5 Marks]

Category D: Comprehensive Essay & Programming Tasks (8 Marks Each - 5 Questions Required)

Q1. Formulate a comprehensive textbook entry for client-side JavaScript. Explain its core feature sets, architectural benefits, and provide full code implementations showing how to integrate scripts within the Document Head, Document Body, and as linked external script assets. [8 Marks]

Q2. Design a comprehensive interactive script panel utilizing standard JavaScript interaction mechanisms. Build a system that incorporates structured alert windows, confirm check boxes, prompt data extraction flows, and outputs verified responses using innerHTML, document.write(), and console logging fields. [8 Marks]

Q3. Write an extensive JavaScript program that handles complete arithmetic, comparative, and logical expression models. It must show a deep application of Variable assignments, multiple Core Data Types, explicit data updates, and clean program comment blocks. [8 Marks]

Q4. Analyze structural control execution pathways in JavaScript. Create a master script testing nested 'if...else' structures, complex 'else if' condition ladders, multi-case 'switch' statement paths, and loop architectures running concurrent 'while' and 'do...while' routines containing break commands. [8 Marks]

Q5. Evaluate the lifecycle, scope rules, and behaviors of structural Functions in JavaScript. Provide an exhaustive code implementation containing built-in modules alongside sophisticated user-defined functions, demonstrating variable updates, parameter handling, return states, and global versus local scope tracking. [8 Marks]