CBSE

QUESTION & CONCEPT BANK

Chapter-wise & Topic-wise

Includes Point-wise Answers with Step-wise Marking

CLASS 10th

COMPUTER APPLICATIONS

- Chapter-wise **CONCEPT MAPS**
- CBSE 2024-25 & NEP 2020 **CURRICULUM BASED**
- Chapter-wise **LAB ACTIVITIES**
- CBSE 2024 with Handwritten Solutions **LATEST CBSE PAPER**
- As per Latest Pattern **MOCK TEST**

2025 EXAMINATION

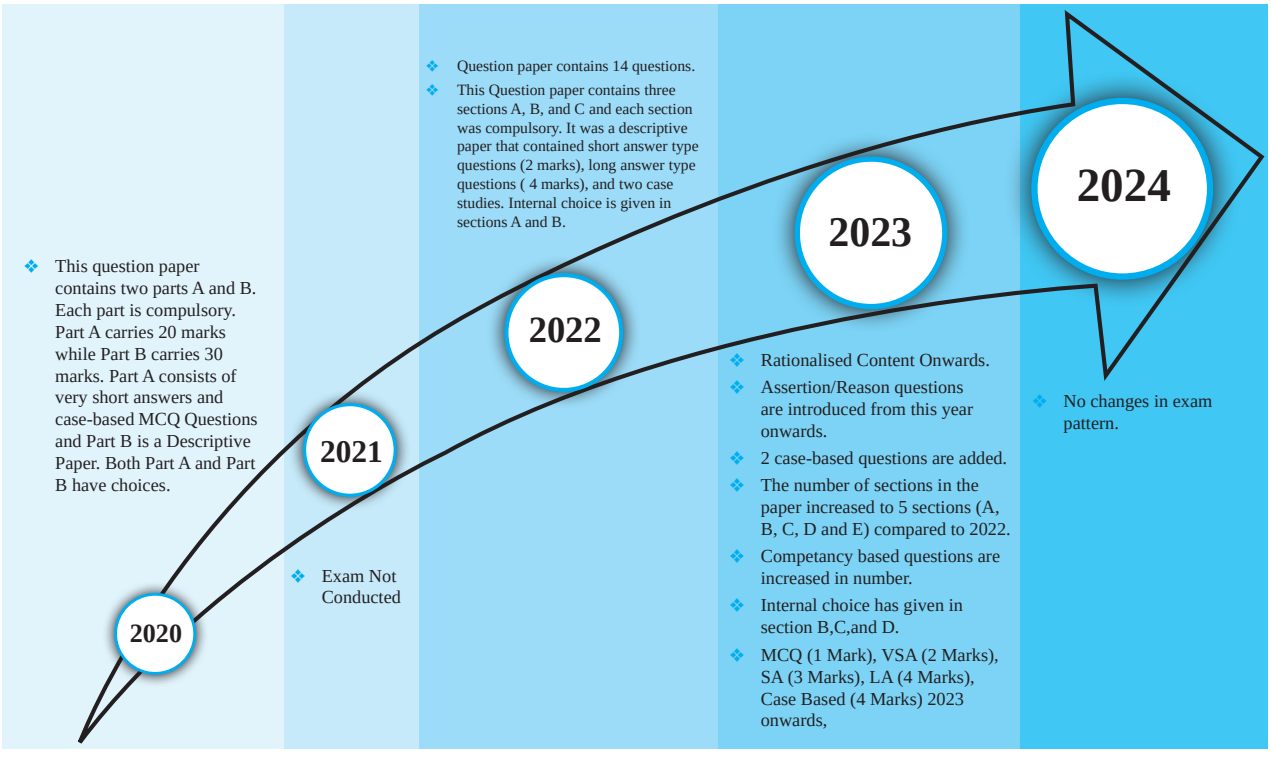
Chapter-wise Weightage and Trend Analysis of CBSE Past 5 Years' Papers

CHAPTERS	2020	2021	2022	2023	2024
Basics of Internet	11	Exam not Conducted	10	10	10
Internet and Web Services	4		5	5	5
Introduction to HTML	5		2	4	10
List&Images	10		2	8	6
Working With LINKS, FORMS, and TABLES	10		4	12	8
Cascading Style Sheet	–		2	5	1
Cyber Ethics	10		–	10	10

Question Typology

YEAR	Objective Questions		Subjective Questions				
	MCQs	A/R	Fill in the Blanks	VSA	SA	LA	Case Based type
2024	12	2		7	4	2	2
2023	12	2		7	4	2	2
2022	-	-		-	4	4	-
2021	Exam Not Conducted						
2020	-	-		13	4	2	2

Evolving Trends in CBSE Exam Patterns

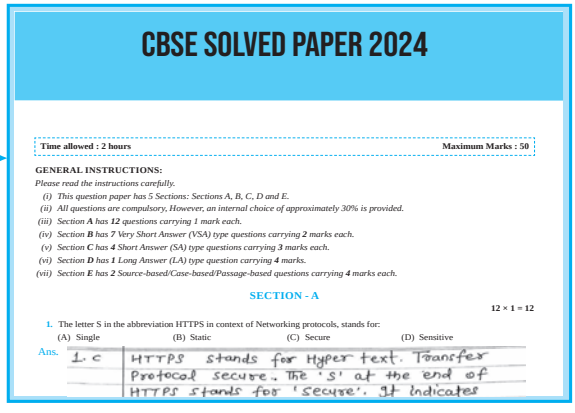


HOW TO USE THIS BOOK

This book is structured to support your learning journey of preparing for your board exams through a variety of engaging and informative elements. Here's how to make the most of it:

CBSE Solved Paper of 2024 with Handwritten Answers: *Get yourself updated with the latest Board Question Papers. With handwritten answers, learn the practical application of concepts and effective answering techniques to achieve higher scores.*

CBSE Solved Paper



CBSE SOLVED PAPER 2024

Time allowed : 2 hours — Maximum Marks : 50

GENERAL INSTRUCTIONS:

Please read the instructions carefully.

(i) This question paper has 5 Sections: Sections A, B, C, D and E.
(ii) All questions are compulsory, However, an internal choice of approximately 30% is provided.
(iii) Section **A** has **12** questions carrying 1 mark each.
(iv) Section **B** has **7** Very Short Answer (VSA) type questions carrying **2** marks each.
(v) Section **C** has **4** Short Answer (SA) type questions carrying **3** marks each.
(vi) Section **D** has **1** Long Answer (LA) type question carrying **4** marks.
(vii) Section **E** has **2** Source-based/Case-based/Passage-based questions carrying **4** marks each.

SECTION - A

12 × 1 = 12

1. The letter S in the abbreviation HTTPS in context of Networking protocols, stands for:
(A) Single (B) Static (C) Secure (D) Sensitive

Ans. 1. c HTTPS stands for Hyper text Transfer Protocol secure. The 'S' at the end of HTTPS stands for 'Secure'. It indicates

Imagine transforming a plain, boring page into a stunning, interactive masterpiece—this is the magic of HTML! As the language of the web, HTML brings websites to life, structuring content and adding flair. Whether it's embedding videos, creating dynamic links, or organizing information in tables, HTML is your ticket to captivating web design

Preview

At the start of every chapter, you'll find a thoughtfully chosen image and a quote that captures the main idea and motivation of the topic. This approach aims to get your interest and give you a glimpse of the theme ahead.

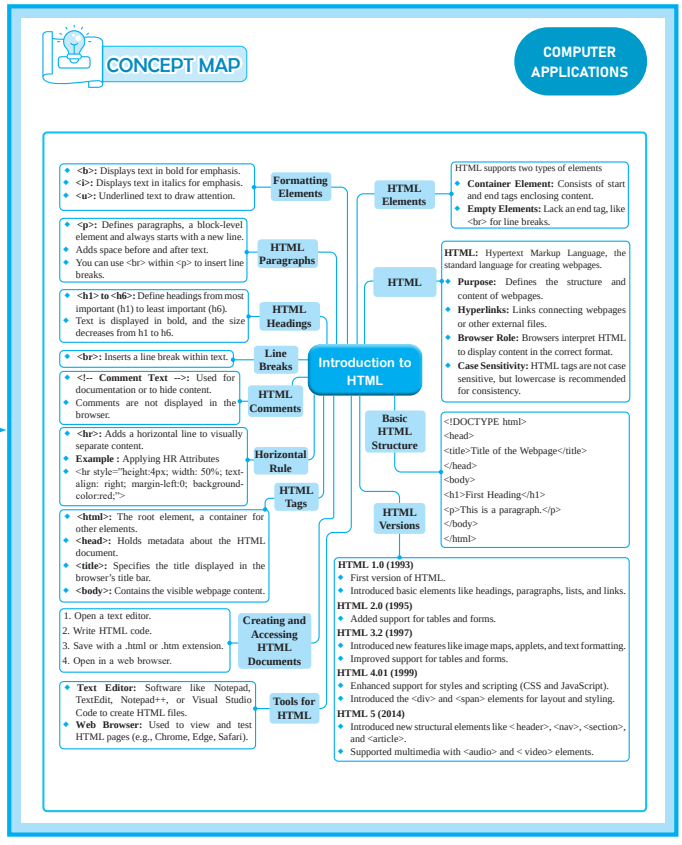
Before diving into the details, we outline the syllabus and analyze the weightage given to each topic over the past five years. This helps you prioritize your study focus based on the significance of each section.

SYLLABUS & WEIGHTAGE

Concept Names		Years					
		2019	2020	2021	2022	2023	2024
Introduction to Web Page Designing Using HTML		2 Q (1 M) 1 Q (5 M)	5 Q (1 M)	Exam not Conducted	—	1 Q (1 M)	3 Q (1 M)
HTML Basic Structure	Viewing an HTML Document						
Versions of HTML	HTML Tags						
HTML Elements	Comment Tag						
Creating an HTML Document							
HTML Elements		1 Q (1 M)	1 Q (1 M)		—	2Q (1 M), 1Q (2 M)	1 Q (2 M) 1 Q (3 M)
HTML Headings	HTML Paragraph						
Bold <b>	Em						
Italics <i>	Strong						
Underline <u>							

Concept Map

The concept map appears to be a comprehensive study aid that outlines key concepts in a structured format, featuring definitions, diagrams, and processes. For a student, it would serve as a visual summary, making complex ideas more accessible and aiding in revision and understanding of concept for their curriculum.



Lab Activity 1

Create a simple webpage using basic HTML tags covered in the chapter.

Instructions to Implement the Code:

1. Use any text editor like Notepad, Notepad++, or any other code editor.
2. Save the file with the name about_me.HTML.
3. Enter the HTML code provided above into your new file.
4. Replace "Your Name" with your actual name and adjust the hobbies and favorite subjects as per your preference.
5. After saving the file, you can open it in any web browser to see how it looks.

Lab Activity 2

Create a webpage for Physics Wallah Books review of your favorite subject.

Instructions to Implement the Code:

1. Follow all the basic steps to create and save the file.
2. Use <h1>heading wherever needed to add a page title, e.g., "My Favorite Book Review".
3. Add text using paragraph <p> introducing why they chose the book.
4. Use formatting elements like <b> ,<i> <u> wherever needed.
5. Use Structural Tags like <br> and <hr> to structure the webpage as given in the image. Use any text editor like Notepad, Notepad++, or any other code editor.

Lab Activities: *Lab activities provide hands-on experience with practical applications of theoretical concepts.*

1. *Allows students to apply theoretical knowledge in real-world scenarios, enhancing their practical skills.*
2. *Develop problem-solving skills as students experiment, troubleshoot, and find solutions during lab exercises.*

Wordbank:

1. *Provides a summary of crucial terms, ensuring students grasp the key concepts of the chapter.*
2. *Acts as a valuable study aid during revisions, helping students quickly refresh their memory of the chapter's content.*

Word Bank

HTML (Hypertext Markup Language): The foundation of any website, HTML is the markup language that tells web browsers how to display content on the Internet.

HTML Document: A text file that ends with .HTML and contains the HTML code to tell your browser what to show on a web page.

Web Browser: A software like Chrome, Firefox, or Edge that you use to visit websites and view web pages.

Tag: Pieces of HTML code are used to create elements on a web page, such as <p> for paragraphs or <img> for images.

HTML: The root tag that wraps around the entire content of your web page.

Head: The part of your HTML document that contains meta-information, like the title and links to stylesheets or scripts—it's like the brain of your page.

Title: The text you see on the browser tab, tells you the name of the web page.

Body: The part of your HTML document where all the visible content goes, like text, images, and videos—it's like the canvas for your website's art.

Attributes: Settings for your HTML tags that change how they look or behave, such as style for CSS or href for links.

Text (Attribute): Changes the color of the text inside an element.

Background (Attribute): Sets an image or color as the background of an element.

Bgcolor (Attribute): Specifies the background color of an element.

Link (Attribute): Change the color of unvisited links on your web page.

vlink (attribute): Changes the color of visited links, indicating that you've already clicked on them.

alink (attribute): Changes the color of the link at the moment it is clicked.

Break (br) Tag: A self-closing tag is used to insert a line break in the text.

Horizontal (hr) Tag: Creates a horizontal line across the page, often used to separate content.

Comment Tag: A way to insert notes in the HTML code that the browser will not display or execute.

Heading (h1 to h6): Header tags that define section headings, with h1 being the most important and h6 the least.

Paragraph (p) Tag: Marks a paragraph of text, just like in a book or an essay.

Bold (b) Tag: It makes the text bold for emphasis.

Italic (i) Tag: Italicizes your text, often used for emphasis or to show a different tone.

Underline (u) Tag: Underlines text to draw attention to it or indicate special significance.

VIVA QUESTIONS

1. What are the two main parts of an HTML document?
2. Which tag is used to create a new line without starting a new paragraph?
3. Where does the text within the <title> tag appear when viewed in a web browser?
4. Write a line of HTML code that makes a word bold.
5. How do you add a comment in HTML that will not be displayed on the webpage?
6. What does HTML stand for, and what is its primary use in web development?
7. Name the two tags that are required in every HTML document.
8. What is the purpose of the <head> tag?
9. What does the <title> tag do, and where can you see its effect in a web browser?
10. Describe what the body tag contains.
11. What attribute would you use to change the background color of an entire HTML page?
12. What is the difference between link, vlink, and alink?
13. When would you use a <br> tag instead of a <p> tag?
14. What does the <hr> tag do?
15. How do you write a comment in HTML, and why is it important?
16. How many levels of headings does HTML have, and how are they used to structure a webpage?
17. What is the difference between an empty element and a container element in HTML?
18. Give an example of an empty element and explain what it does.
19. Can you name a container element and describe how it is used in an HTML document?
20. What does the bgcolor attribute do in the body tag?
21. How do you set an image as a background in a web page using the background attribute in the body ta
22. Explain the use of the text attribute in the body tag.
23. What is the purpose of the align attribute in the heading (h1 to h6) and paragraph (p) tags?
24. How would you center-align a heading on a web page using HTML?
25. Write an HTML code snippet to right-align a paragraph.

Viva Questions:

Viva questions prepare students for oral examinations and enhance their understanding through verbal explanations.

Promotes critical thinking as students must analyze and explain concepts verbally.

COMPETENCY BASED SOLVED EXAMPLES

Multiple Choice Questions (1 M)

1. **What does HTML stand for?**
   (a) Hyper Text Markup Language
   (b) High Tech Markup Language
   (c) Hyperlink Text Markup Language
   (d) Hyper Technical Markup Language
2. **Which tag is used to provide line break _____in HTML document?** CBSE SQP 2022
   (a) <p> (b)
   (c) <line> (d)
3. **An empty element has a _____ but no _____ tag.** CBSE SQP 2020
   (a) start , end (b) top, bottom
   (c) front, back (d) left ,right
4. **Which HTML element is the root element of an HTML document?**
   (a) <head> (b) <meta>
   (c) <body> (d) <HTML>
5. **Which of the following is the latest version of HTML?**
   (a) HTML3 (b) HTML2
   (c) HTML4 (d) HTML5
6. **What is the use of <br> tag in HTML Code?** CBSE SQP 2021
   (a) To add a background image
   (b) To create a new paragraph
   (c) To insert a line break
   (d) To change the text color
7. **The <hr> tag is used for:**
   (a) Creating a hyperlink reference
   (b) Inserting a horizontal rule or line
   (c) Defining an HTML header
   (d) Adding a page break
8. **Which of the following statements is correct to add a comment in an HTML document?**
   (a) <!--This is a comment-->
   (b) <comment>This is a comment</comment>
   (c) <!This is a comment>
   (d) (This is a comment)
9. **What is the importance of vlink attribute of tag?** CBSE SQP 2020
   (a) To set the vertical alignment of text
   (b) To specify the color of visited links
   (c) To validate the hyperlink
   (d) To increase the visibility of a link
10. **Which of the following is the correct extension to save an HTML file?**
    (a) .htm (b) .txt
    (c) .HTML (d) Both (a) and (c)
11. **Which of the following is the correct HTML structure for creating a basic HTML page?**
    (a)
    ```
    <HTML>
      <head>
        <title>Page Title</title>
      </head>
      <body>
        <h1>Hello, World!</h1>
      </body>
    </HTML>
    ```
    (b)
    ```
    <HTML>
      <body>
      <head>
        <h1>Hello, World!</h1>
      </head>
      </body>
    </HTML>
    ```
    (c)
    ```
    <head>
      <HTML>
        <title>Page Title</title>
      </head>
      </HTML>
      <body>
        <h1>Hello, World!</h1>
      </body>
    ```
    (d) None of these
12. **M in HTML stands for:** CBSE SQP 2023
    (a) Modify (b) Management
    (c) Multiple (d) Markup
13. **link, vlink, alink are attributes of _____tag.** CBSE SQP 2023
    (a) <body> (b) <a>
    (c) <HTML> (d) <img>
14. **Which of the following tags can be used to draw a horizontal line in a webpage?**
    (a) <line> (b) <hrule>
    (c) <hr> (d) <rule>
15. **Which attribute is NOT valid for the < body > tag?** CBSE SQP 2021
    (a) background (b) color
    (c) vlink (d) bgcolor
16. **Which is the correct way to comment out something in HTML?** CBSE SQP 2021
    (a) Using ## and # (b) Using <!-- and -->
    (c) Using <-- and -/-> (d) Using <!-- and -!>
17. **Which sequence of HTML tags is correct?** CBSE SQP 2021
    (a) <HTML> <head><title></title></head><body></body></HTML>

For each topic, solved examples are provided including PYQs, CBSE SQPs etc that exemplify how to approach and solve questions. This section is designed to reinforce your learning and improve problem solving skills.

Sovled Examples

MISCELLANEOUS EXERCISE

Multiple Choice Questions (1 M)

1. Which of the following tags is used to insert stylesheets, scripts and meta information about the webpage in HTML?
   (a) Title (b) Head
   (c) Style (d) HTML
2. Which of the following statements is incorrect about HTML tags?
   (a) HTML tags are written inside angled < > brackets.
   (b) Tags help web browsers to differentiate between plain text and HTML text.
11. The <title> tag is placed between _____ tag.
    (a) Head (b) Body
    (c) Meta (d) Header
12. Which of the following is needed to create a webpage?
    (a) Text-editor
    (b) Search-engine
    (c) Web-browser
    (d) Both (a) and (c)
13. Which of the following is not an HTML editor?
    (a) Notepad++ (b) Microsoft
    (c) Sublime (d) Visual studio code

ANSWER KEYS

Multiple Choice Questions

1. (b) 2. (c) 3. (b) 4. (b) 5. (b) 6. (c) 7. (a) 8. (b) 9. (d) 10. (a)
11. (a) 12. (d) 13. (b) 14. (b) 15. (c) 16. (b) 17. (c) 18. (b) 19. (b) 20. (d)
21. (b) 22. (b)

Assertion and Reason

1. (a) 2. (a) 3. (b) 4. (c) 5. (d)

HINTS & EXPLANATIONS

Multiple Choice Questions

1. (b) The <head> tag is used to insert meta-information about the webpage, such as the title, links to external resources (stylesheets, scripts), and meta tags.
2. (c) HTML tags are not case sensitive. <HEAD>, <Head>, <head> all are valid tags and give result.
3. (b) The <hr> tag is used to insert a thematic break and create a horizontal line on an HTML page.
4. (b) The code inside an HTML comment (<!-- ... -->) is not displayed on the webpage. Both Line 1 and Line 3 will be displayed.
11. (a) The <title> tag is placed within the <head> section of an HTML document and is used to define the title of the webpage, which appears in the browser's title bar or tab.
12. (d) To create and access a webpage, you need a text editor to write the HTML code and a web browser to view the webpage.
13. (b) Microsoft is not an HTML editor. The other options listed are text editors commonly used for HTML development.
14. (b) H in HTML stands for "Hypertext," which refers to the structure of interconnected documents and resources linked through hyperlinks.
15. (c) HTML stands for HyperText Markup Language, and it is used to create and structure sections, paragraphs, and links on web pages. It is not a programming language because it does not have the capability to create dynamic

Answer Key

At the end of each chapter, you'll find additional exercises intended to test your grasp of the material. These are great for revision and to prepare for exams.

Answer Key and Explanations Mistake 101 and Nailing the Right Answer to know how to write the ideal answer.

MOCK TEST PAPER 1

Max. Marks: 50 **Time Allowed: 2 hours**

General Instructions:

(i) *This Question Paper has 5 Sections* ***A-E.***
(ii) *All Questions are compulsory. However, an internal choice of approximately* ***30%*** *is provided.*
(iii) *Section A has* ***12*** *questions carrying* ***01*** *mark each.*
(iv) *Section B has* ***7*** *Very Short Answer (VSA) type questions carrying* ***02*** *marks each.*
(v) *Section C has* ***4*** *Short Answer (SA) type questions carrying* ***03*** *marks each.*
(vi) *Section D has* ***1*** *Long Answer (LA) type question carrying* ***04*** *marks.*
(vii) *Section E has* ***2*** *Source-based/Case-based/Passage based Questions carrying* ***04*** *marks each.*

Section–A

All questions are compulsory

1. What is the correct HTML tag to create a hyperlink? 1
   (a) <url> (b) <link>
   (c) <a> (d) <href>
2. In the following code, which type of CSS is being linked? 1

   ```
   <!DOCTYPE html>
   <head>
     <link rel="stylesheet" type="text/css" href="styles.
     css">
   </head>
   <body>
     <!-- Content goes here -->
   </body>
   </html>
   ```

   (a) External CSS (b) Internal CSS
   (c) Inline CSS (d) Import CSS
3. Which of the following protocols will you use to share files over the internet? 1
   (a) SMTP (b) HTTPS
   (c) FTP (d) POP
4. Which of the following tags is not required to create a definition list? 1
   (a) <dl> (b) <dt>
   (c) (d) <dd>
5. The _____ input type is used to provide a secure way to enter information in the form. 1
   (a) <checkbox> (b) <radio button>
   (c) <password> (d) <combo-box>
6. Which of the following is an example of proprietary software? 1
   (a) Mozilla Firefox (b) Linux
   (c) Microsoft Windows (d) Apache Tomcat
7. Which of the following border-style properties is used to add a single dark line border on an element? 1
   (a) None (b) Dotted
   (c) Solid (d) Dashed
8. What is a Homepage? 1
9. What does SSH stand for?
   (a) Secure Socket Layer (b) Secure Shell
   (c) Secure HTTP (d) Secure Host
10. Which of the following is not an e-commerce website? 1
    (a) Amazon (b) Wikipedia
    (c) eBay (d) Shopify

Questions No-11 & 12 are Assertion and Reason types. Each question consists of two statements, namely, Assertion (A) and Reason (R). Select the most suitable option considering the Assertion and reason.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

Mock Test

Mock Test Paper: Test your preparedness with our Mock Test Paper designed to mirror the format and difficulty of real exams. Use the detailed explanations to identify areas of strength and opportunities for improvement.

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Mock Test Paper 311-318

CBSE SOLVED PAPER 2024

Time allowed : 2 hours **Maximum Marks : 50**

GENERAL INSTRUCTIONS:

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*(vi) Section **D** has **1** Long Answer (LA) type question carrying **4** marks.*

*(vii) Section **E** has **2** Source-based/Case-based/Passage-based questions carrying **4** marks each.*

SECTION - A

12 × 1 = 12

1. The letter S in the abbreviation HTTPS in context of Networking protocols, stands for:

(*a*) Single (*b*) Static (*c*) Secure (*d*) Sensitive

Ans.

1. c

HTTPS stands for Hyper text. Transfer Protocol secure. The 'S' at the end of HTTPS stands for 'secure'. It indicates that HTTPS is more secure than HTTP because it uses encryption to increase the security of data transfer.

2. Which of the following is not a Web Service?

(A) Using Diksha learning portal (B) Sending and receiving email

(C) File transfer over Bluetooth (D) Using a banking Portal for online transaction

Ans.

2.(c) Web services typically involve communication over the Internet and include services such as web portals and email. file transfer over Bluetooth does not require internet connectivit

3. In 3G and 4G mobile technologies, the character 'G' stands for:

(A) Generation (B) GPRS (C) Grid (D) Google

Ans.

3. (A) In mobile technology, 'G' stands for 'Generation'. 3G and 4G represent the third and fourth generations of wireless mobile telecommunication technology.

4. A website or online platform where individual or groups regularly publish written content, typically in a reverse chronological order is known as:

(A) News Group (B) Vlog (C) Chat Group (D) Social Networking

Ans.

4. (B) A blog is a type of website where individuals or groups regularly post content, typically displayed in reverse chronological order with the most recent post appearing first.

5. Which of the following is ***not*** an attribute of the <font> tag?

(A) face (B) height (C) size (D) color

Ans.

5. (B) The <font> tag in HTML is used to define the font size, color, and face for text. It includes attributes like, face; size; and 'color.' 'Height' is not an attribute of the <font> tag.

6. In HTML, we start a comment using:

(A) <!-- (B) !--> (C) --!> (D) <--!

Ans.

6. (A) In HTML, comments begin with <!-- and end with -->. This syntax tells the browser to ignore the content inside as it is meant for notes or explanations not displayed on the web page.

7. Which of the following elements have both the opening and the closing tags in HTML?

(A)
 (B) <h1> (C) <hr> (D) <img>

Ans.

7. (B) The <h1> tag has both an opening <h1> and a closing </h1> tag. It is used for defining the largest heading in HTML.

8. The default color of vlink is

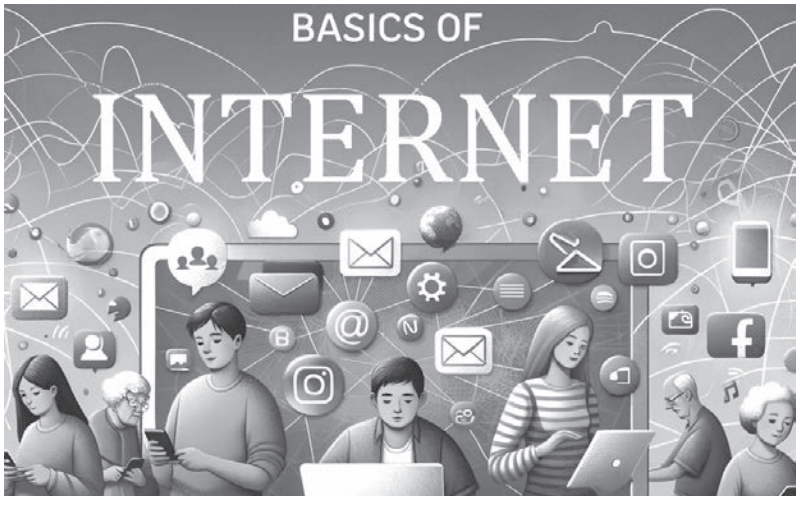
(A) Green (B) Purple (C) Blue (D) Yellow

Ans.

8. (B) In HTML, the default color of visited links (vlink) is purple, indicating that the user has already visited the linked page.

1

BASICS OF INTERNET



"Imagine a world where knowledge, entertainment, and connections are just a click away—that's the power of the Internet! It opens up endless possibilities for learning, helps us stay connected with friends, and equips us with the tools to shape our future. Dive into the digital world and discover how the Internet can transform your life!"

SYLLABUS & WEIGHTAGE

Concept Names	Years					
	2019	2020	2021	2022	2023	2024
Introduction to Internet (syllabus(World Wide Web, web servers, web clients, web sites, web pages, web browsers, blogs, news groups, HTML, web address, e-mail address, downloading and uploading files from a remote site.)	3Q (1M), 1Q (3 M)	1Q (1 M), 2Q (2 M)	Exam not Conducted	1Q (2M)	1Q (2M), 1Q (3M)	1Q (2M)
Internet Protocols: TCP/IP, SMTP, POP3, HTTP, HTTPS. Remote login and file transfer protocols: SSH, SFTP, FTP, SCP, TELNET, SMTP, TCP/IP.	—	1Q (1 M), 1Q (5 M)		1Q (4 M) 1Q (3M)	2Q (1M), 2Q (3M)	1Q (1M)

Introduction to Internet

World Wide Web (WWW)

Key Concepts:

- Developed by Tim Berners-Lee in 1989, it's a network of digital information accessible via the Internet.
- Web servers store, process, and deliver web content to users upon request.

Webpages:

- Individual documents on the Web.
- Written in HTML (Hypertext Markup Language).
- Contain text, images, links, and multimedia elements.

Hyperlinks:

- Text or objects that, when clicked, lead to other webpages or resources.
- Enable navigation between webpages.

Web Address (URL)

- A web address, also known as a URL (Uniform Resource Locator), is a unique identifier.
- Used to locate and access specific resources on the World Wide Web.

Protocol:

- Specifies how the web browser should communicate with the server.

Common protocols include:

- HTTP, HTTPS and FTP.

Domain:

- Represents the website's address or the server's location.
- Often begins with "www" (subdomain) but not always.
- **Examples:** google.com, example.org, openai.com.

Examples of Web Addresses:

- https://www.google.com/
- mailto:contact@example.com

Introductions

- The Internet is a global network of interconnected computer networks that facilitates information exchange and communication worldwide.
- Developed as ARPANET in the late 1960s, it has evolved into a decentralized system connecting billions of devices.

Newsgroups

- Newsgroups, also known as Usenet
- Online discussion forums on the Usenet network.
- Hierarchical organization by topic.
- Wide range of topics, independent of the web.

Purpose:

Sharing information, asking questions, and discussing topics of interest.

Common Features:

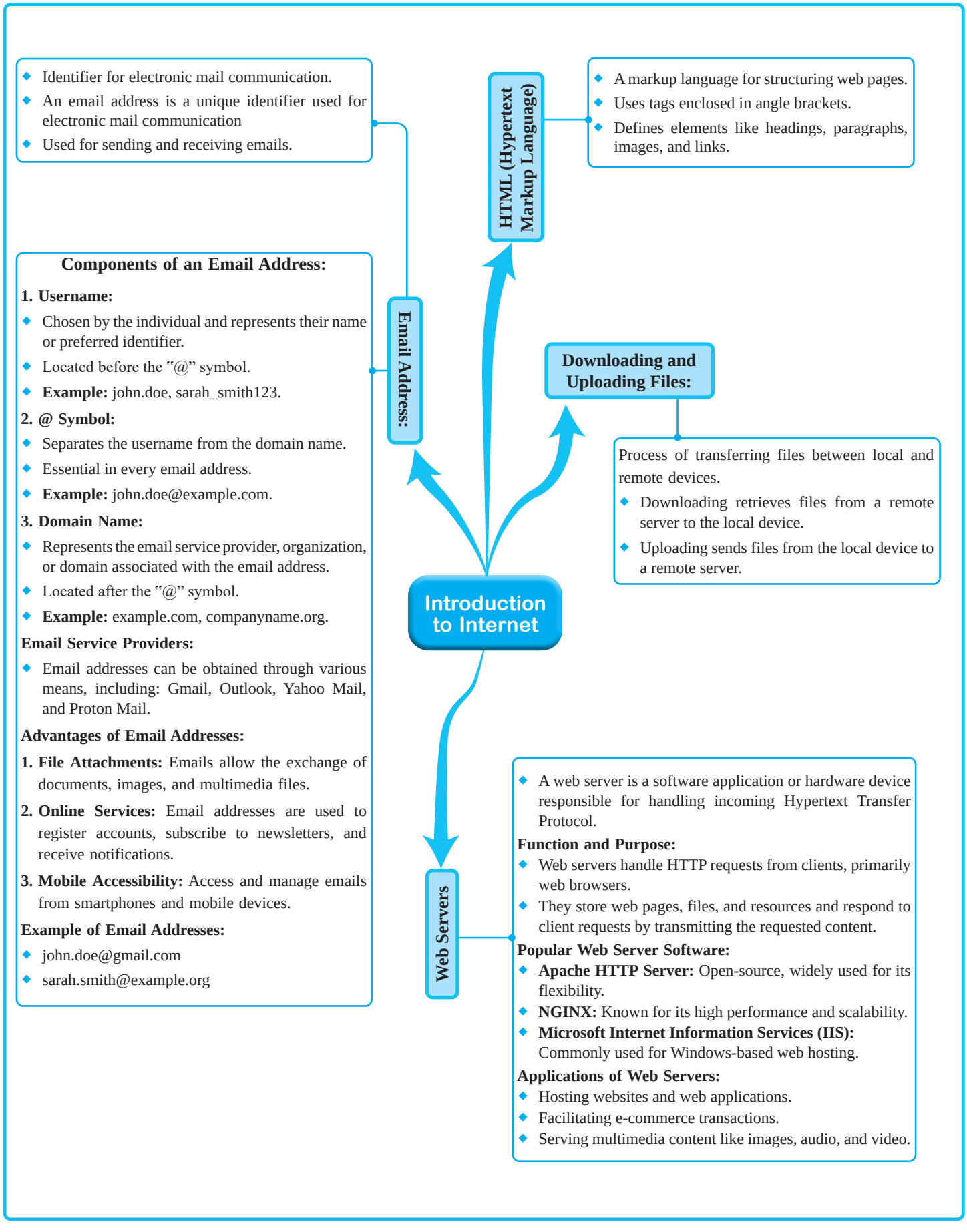
- **Hierarchical Structure:** Organized into categories or groups.
- **Posts:** Messages within threads.

Examples of Newsgroups:

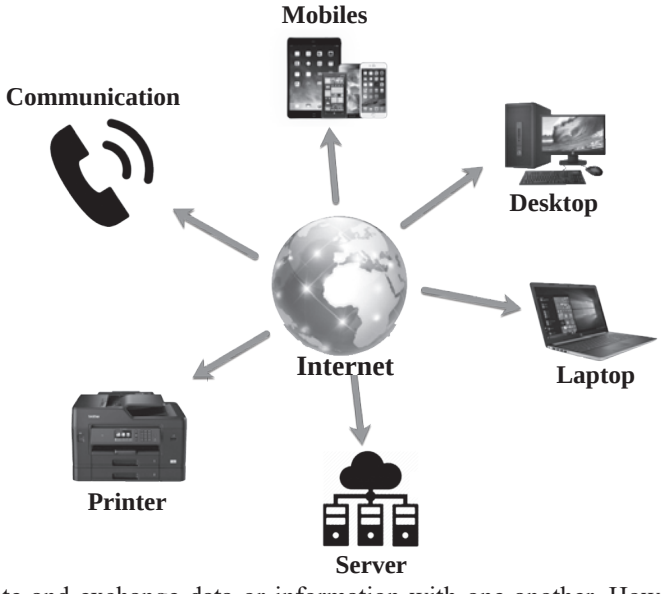
Google Groups, Usenet.

Internet Connection Methods

- **Broadband:** High-speed internet via DSL, cable, or fiber -optic connections.
- **Dial-Up:** Traditional phone line-based connection, now less common.
- **Satellite:** Uses satellite signals to provide internet access, ideal for remote areas.
- **Wireless:** Access via Wi-Fi, cellular networks, or other wireless technologies.
- **Fiber-Optic:** High-speed internet using optical fibers for data transmission.


Introduction to Internet
Email Address:
Identifier for electronic mail communication.
An email address is a unique identifier used for electronic mail communication
Used for sending and receiving emails.
Components of an Email Address:
1. Username:
Chosen by the individual and represents their name or preferred identifier.
Located before the "@" symbol.
Example: john.doe, sarah_smith123.
2. @ Symbol:
Separates the username from the domain name.
Essential in every email address.
Example: john.doe@example.com.
3. Domain Name:
Represents the email service provider, organization, or domain associated with the email address.
Located after the "@" symbol.
Example: example.com, companyname.org.
Email Service Providers:
Email addresses can be obtained through various means, including: Gmail, Outlook, Yahoo Mail, and Proton Mail.
Advantages of Email Addresses:
1. File Attachments: Emails allow the exchange of documents, images, and multimedia files.
2. Online Services: Email addresses are used to register accounts, subscribe to newsletters, and receive notifications.
3. Mobile Accessibility: Access and manage emails from smartphones and mobile devices.
Example of Email Addresses:
john.doe@gmail.com
sarah.smith@example.org
HTML (Hypertext Markup Language)
A markup language for structuring web pages.
Uses tags enclosed in angle brackets.
Defines elements like headings, paragraphs, images, and links.
Downloading and Uploading Files:
Process of transferring files between local and remote devices.
Downloading retrieves files from a remote server to the local device.
Uploading sends files from the local device to a remote server.
Web Servers
A web server is a software application or hardware device responsible for handling incoming Hypertext Transfer Protocol.
Function and Purpose:
Web servers handle HTTP requests from clients, primarily web browsers.
They store web pages, files, and resources and respond to client requests by transmitting the requested content.
Popular Web Server Software:
Apache HTTP Server: Open-source, widely used for its flexibility.
NGINX: Known for its high performance and scalability.
Microsoft Internet Information Services (IIS): Commonly used for Windows-based web hosting.
Applications of Web Servers:
Hosting websites and web applications.
Facilitating e-commerce transactions.
Serving multimedia content like images, audio, and video.

Communication is the process by which a person shares their ideas, thoughts, and emotions with others. Computer and communication technology have changed the way we share information. A person sitting in one area of the world can now communicate with someone sitting in another in a matter of seconds.



Today's computers can communicate and exchange data or information with one another. However, to interact with each other, the computers must be connected. This connectivity of computers is referred to as a **Network**, and the interconnection of networks is known as the **Internet**.

The Internet is a global network of interconnected computer networks that allows for the exchange of information and communication between devices worldwide. It is a vast infrastructure that enables the transfer of data, facilitates online services, and connects billions of devices and users across the globe.

History and development of Internet

During the 1960s, **ARPA (Advanced Research Project Agency)**was working on a project to create a communication system capable of handling any emergency. The benefit of such a network is that even if a portion of the network is destroyed, the remaining computers on the network may still communicate with one another. The visionary thinkers engaged with the initiative were able to connect the computers by telephone.

The first network, the **Advanced Research Projects Agency Network (ARPANET)**, went live in 1969. It initially linked computers at selected universities and research facilities to let researchers undertake basic research by sharing information.

The network gradually became accessible to non-governmental organisations and the general public. As a result, people began to use it for things like message sending and file sharing. By the end of the 1970s, computer networks had become multinational.

ARPANET expanded, connecting hundreds of more computers in universities and industrial labs by the 1980s. The ARPANET became known as the Internet, and it was accessible via phone lines.

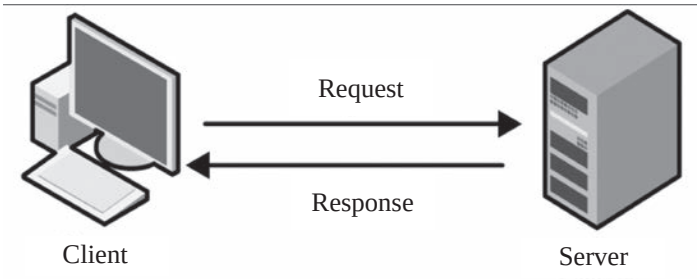
DID YOU KNOW?

The Internet relies on a set of protocols, known as the ***Internet Protocol Suite (TCP/IP)****, which govern how data is transmitted between devices. These protocols provide a standardized framework for addressing, routing and transmitting information across the network.*

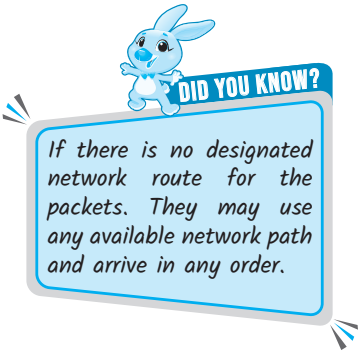
How does the Internet work?

The Internet is built on a client-server architecture. The client is a program that allows the user to request services from the server and view the results. A server is a computer program that maintains and handles Internet-based services.

Clients use individual workstations or personal computers to send the request. The servers are located somewhere on the network, typically on more powerful devices. Clients and servers are frequently used to refer to the machines that run the client and server programs. The client begins the communication with the server.



Client-Server Architecture



Data transmission over the Internet

1. When you type a website's address into your browser, your device (the client) sends out a request. It's like asking a librarian for a specific book.
2. This request travels through various pathways on the Internet to reach the right server. The server is like a special librarian for the website you are trying to visit, who knows exactly where the information is kept?
3. Once the server finds the information, it sends it back to your device. This can be likened to the librarian bringing you the book you asked for.
4. Your device receives the information and displays it. Now, you're reading the book or, in Internet terms, viewing the website.

The Internet uses packet-switching technology to transmit data. The larger communications are divided into smaller units known as packets. Each packet is marked with its sequence number, destination address, and other relevant data. The packets are then routed separately across the network to their destination.

Connecting to the Internet

The basic needs for connecting to the Internet include:

- A computer
- A modem.
- Accounts with Internet service providers (ISPs)
- A network link
- A browser.

TRY IT OUT

1. What was the primary purpose of the ARPANET, the precursor to the Internet?
   (a) Commercial transactions online
   (b) Military communications during the Cold War
   (c) Social media interaction
   (d) Streaming videos online
2. In which decade did the Internet become widely accessible to the public?
   (a) 1960s (b) 1970s
   (c) 1980s (d) 1990s

Modem

A modem is a network device that is commonly used to connect to the Internet using telephone lines. A modem is a device that translates digital signals to analogue signals, and vice versa. Its name is derived from two words: modulator and demodulator.

Internet Service Provider (ISP)

An Internet service provider (ISP) is an organisation that offers individuals and organisations with Internet access and related services. Each Internet user is assigned a unique user ID by the ISP when they create an account to use the Internet. The ISP charges its customers a price based on the kind of connection and the usage options selected.

ISPs operate in various geographic locations in India and around the world.

Some well-known ISPs in India include BSNL, MTNL, Tata Communications, Airtel, and Reliance.

Router

A router distributes the Internet connection from the modem to different devices in your network via wired Ethernet cables or wirelessly using Wi-Fi.

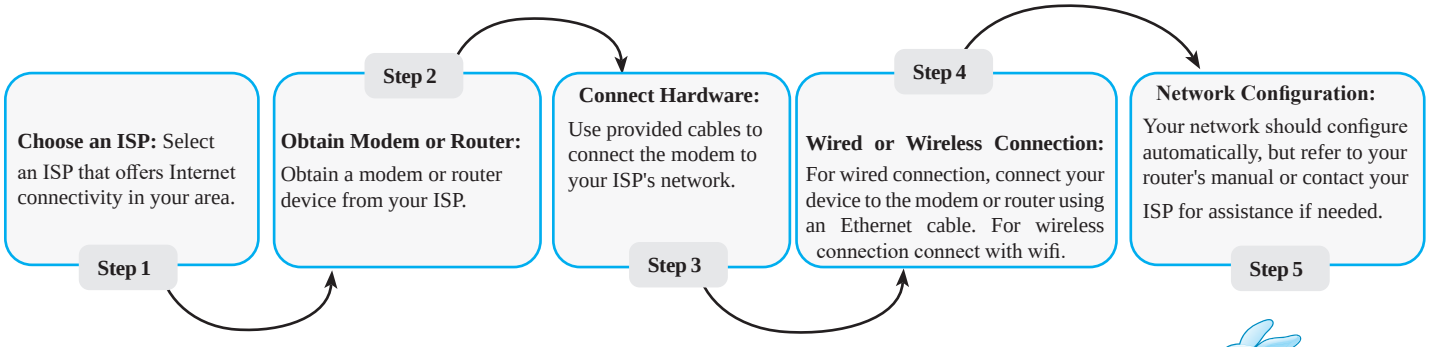
Web Browser

This is a software application used to access the Internet. Browsers like Google Chrome, Mozilla Firefox, Safari, and Microsoft Edge allow you to view websites and interact with web content.

Network Interface

Devices need a network interface to connect to a router. This can be a wired Ethernet connection or a wireless network interface card (Wi-Fi). Most modern devices, such as smartphones and laptops, come with built-in network interfaces.

Steps to connect to the Internet:



Internet Uses

The Internet is a global network that connects computers all over the world, allowing people to share information and communicate instantly. The Internet's capabilities are vast, transforming how we live, learn, and connect with the world around us. Some of the uses of Internet are:

Communication: Chat, email, and video calls make talking to anyone around the world super easy.

Research: Instant access to information on virtually any topic for homework or curiosity.

News: Keep up-to-date with global events and local stories in real-time.

Entertainment: Movies, music, games, and social media for relaxation and fun.

Shopping: Buy anything from books to bikes without leaving your home.

Banking: Manage money, pay bills, and transfer funds with a click.

Learning: Online courses and tutorials offer education on demand.

Social Networking: Connect with friends, share photos, and join communities.

DID YOU KNOW?

A computer operates with digital signals, whereas telephone lines use analog signals. To connect to the Internet, digital signals must be translated to analogue signals. The process of conversion is known as modulation. Similarly, to receive data from the Internet, analogue signals conveyed by telephone wires must be transformed to digital signals. This procedure is known as demodulation.

Internet Connection Methods

There are various methods to connect to the Internet, depending on the available infrastructure and technology in your area , and data transfer speed. Here are some common Internet connection methods you can use to connect to the Internet.

1. Dial-up connection:

Dial-Up Internet utilizes **Public Switched Telephone Network (PSTN)** telephone line to establish an Internet connection. When connecting, the modem in your computer dials a phone number provided by your **Internet Service Provider (ISP)** and establishes a connection over which Internet data is transferred.

The modem serves as a link between the computer and the telephone connection. To connect to the Internet, the computer contacts a number issued by the ISP.

Key Points:

- It's the slowest form of Internet connection available, with speeds up to 56 Kbps.
- You cannot use the telephone for voice calls while connected to the Internet unless you have a separate line.
- Widely available, especially in rural areas where other forms of Internet connectivity might not be present.

2. Broadband Connection

A broadband connection provides high-speed Internet access through various transmission technologies. The term "broadband" originally referred to a wide bandwidth data transmission with the ability to transport multiple signals and traffic types simultaneously. Today, it is commonly used to describe Internet services that are faster than traditional dial-up access. Broadband connections include several types of high-speed Internet access, such as Digital Subscriber Line (DSL), cable Internet, fiber-optic Internet, and satellite Internet, each offering different speeds, reliability, and availability. Here's a detailed look at broadband connections:

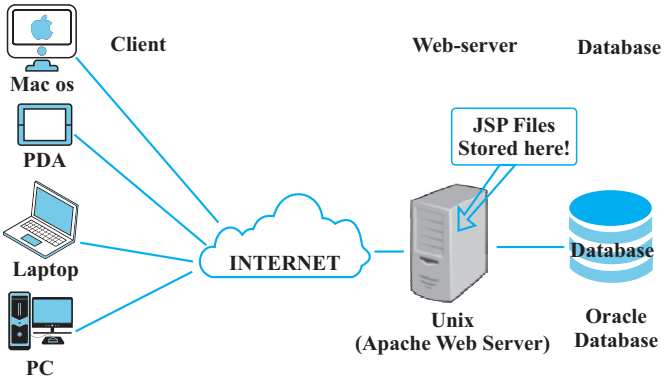
TRY IT OUT

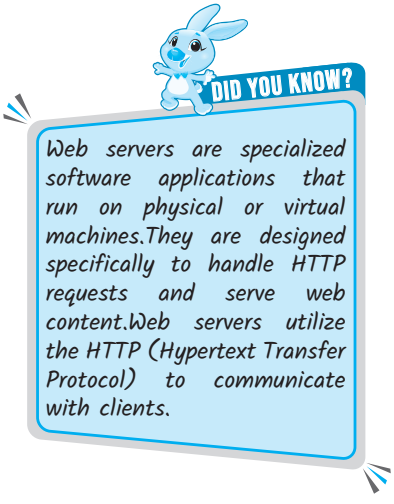
1. *What type of Internet connection typically offers the highest speed?*
   (a) Dial-up connection
   (b) DSL (Digital Subscriber Line)
   (c) Satellite connection
   (d) Fiber-optic connection
2. *Which technology allows you to access the Internet over the air without physical cables?*
   (a) Ethernet (b) Fiber-optic
   (c) Wi-Fi (d) DSL

Digital Subscriber Line (DSL)

DSL uses existing telephone lines to deliver high-speed Internet access. Unlike dial-up, DSL allows the Internet and telephone services to work over the same

HTTP requests from clients, primarily web browsers. They store web pages, files, and resources and respond to client requests by transmitting the requested content.

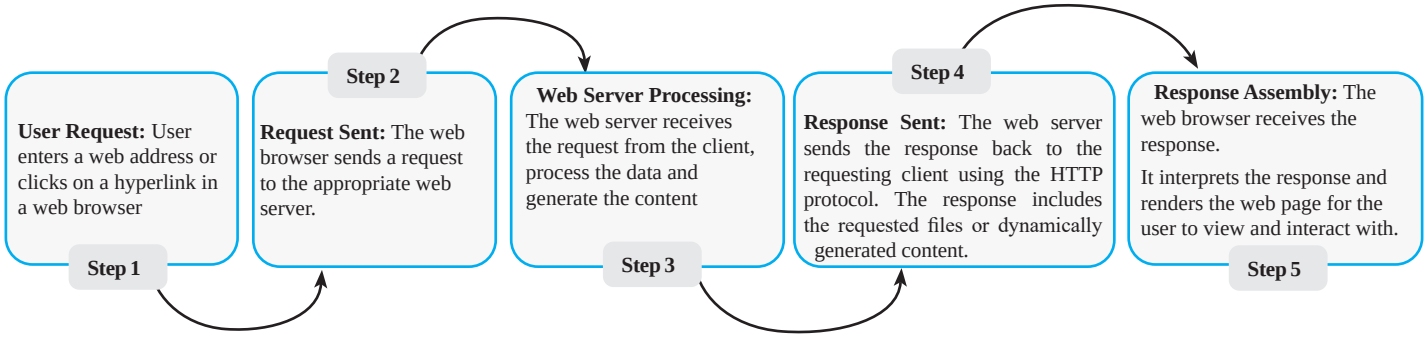




A web server can refer to either hardware or software, or a combination of both.

As hardware, a web server is a computer that stores web server software and a website's component files (e.g., HTML documents, images, CSS stylesheets, and JavaScript files). It's connected to the Internet and supports physical data interchange with other devices connected to the web.

How does the Web Server Handle Client Requests?



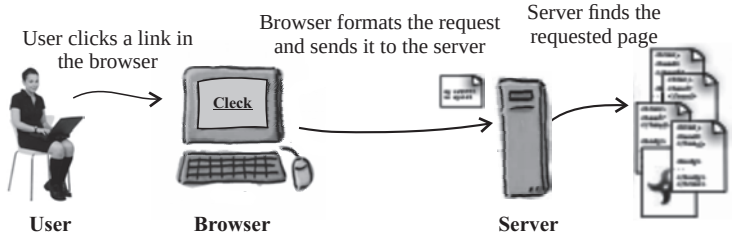
Popular Web Server Software

Apache HTTP Server: One of the oldest and most widely used web server software.
Nginx: Known for its high performance, stability, rich feature set, simple configuration, and low resource consumption.
Microsoft Internet Information Services (IIS): Integrated with Windows servers for hosting websites, services, and applications.
LiteSpeed: Known for its high performance and scalable web server capabilities, often used for its ability to speed up load times.

Web Clients

Web clients, also known as user agents, are software applications or devices that interact with web servers to access and display web content. They are the tools through which users interact with websites and web-based services. A web client can be physical or virtual and can be located in the cloud or data centers also.

A web client can take various forms, including **web browsers**, **mobile apps such as Zoom App, search engine crawlers**, or even **IoT devices** with Internet connectivity.



TRY IT OUT

1. What is the primary role of a web server?
   (a) To provide dynamic IP addresses to devices on a network.
   (b) To serve web pages to clients upon request.
   (c) To encrypt and secure online data.
   (d) To route emails to appropriate clients.
2. Which of the following is a popular web server software?
   (a) Microsoft Excel
   (b) Apache HTTP Server
   (c) Adobe Photoshop
   (d) Oracle Database

Domain Name	Description
Com - Commercial:	Originally intended for commercial businesses, but now widely used by a variety of sites.
Org - Organization:	Initially for non-profit organizations, though now used more broadly.
Net - Network:	Originally for network services like Internet service providers, but now open for general use.
Edu - Education:	Reserved for educational institutions, primarily in the United States.
Gov - Government:	Exclusive to government entities in the United States.
Mil - Military:	Reserved for the United States military.
Info - Information:	Open for anyone; intended for informational sites.

Blogs

Blogs are online platforms or websites where individuals or groups regularly publish articles or posts in reverse chronological order. These articles, known as blog posts, typically cover a wide range of topics . Blogs allow individuals to share their perspectives, engage with readers, and foster discussions on various subjects.

Key Features of Blogs:

- New blog posts show up first, so you can easily catch up on the latest.
- Readers can comment on posts, sparking conversations and connections.
- These organize posts, making it easier to find topics you're interested in.

DID YOU KNOW?

Basically URLs Fall into two categories:

1. Absolute URLs

An absolute URL provides the complete address, including the protocol (https://), domain (www.example.com), and the path to the specific resource (/path/to/page.html). It's like giving someone your full address with the country, city, street, and house number.

https://www.example.com/path/to/page.html

2. Relative URLs

A relative URL specifies the path to a resource relative to the current page or directory. It doesn't include the protocol or domain name. It's like telling someone how to get to the kitchen from the living room in your house.

/path/to/page.html

Newsgroups

Newsgroups, also known as **Usenet Newsgroups**, are online discussion forums that facilitate conversations and the exchange of information among participants on various topics of interest. They originated in the early days of the Internet and continue to be utilized as a decentralized network for discussion and sharing. It is similar to an electronic bulletin board.

A newsgroup allows you to search for specific topics and find postings or messages about them.

You can read these posts, reply to them, or submit your own. You must first become a member of a newsgroup before you may post messages on it. The benefit of this type of media is that the messages remain on the 'board' for others to view and respond to for at least 24 hours and up to one week. In a newsgroup, you can search for almost any topic you can imagine. Every topic is covered in a newsgroup, from computer items to medical advancements to the latest developments on your favourite programme.

Advantages of Newsgroups

(*i*) Newsgroups are organized into specific subjects, making it easy to find and participate in discussions that interest you.

(*ii*) You can interact with people from all around the world, sharing information and opinions.

(*iii*) Newsgroups often attract experts in various fields. Getting advice or answers from someone knowledgeable can be incredibly valuable, especially on niche topics.

TRY IT OUT

1. *What primarily differentiates a blog from a website?*
   - *(a) Blogs require Internet access; websites do not.*
   - *(b) Blogs are interactive with readers; websites are not.*
   - *(c) Blogs are owned by the government; websites are private.*
   - *(d) Blogs cannot include images or videos; websites can.*
2. *What is a newsgroup primarily used for?*
   - *(a) Selling products online.*
   - *(b) Sharing and discussing news through articles.*
   - *(c) Streaming videos.*
   - *(d) Conducting polls.*

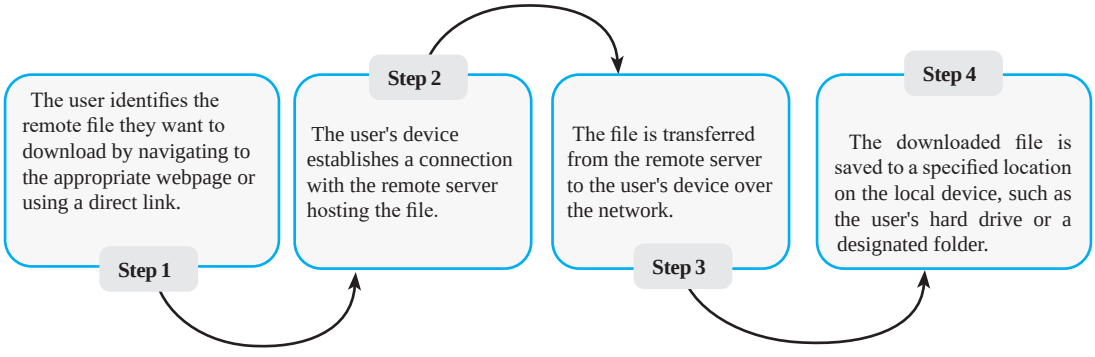
HTML

HTML, short for **Hypertext Markup Language**, is a standard markup language used for creating the structure and presentation of web pages on the World Wide Web. It serves as the foundation for building web pages, defining the elements and layout of content within a document with the help of tags and attributes. There have been various versions of HTML but HTML5 is the latest version of HTML.

Downloading Files from a Remote Site:

When downloading files, the user initiates a request to retrieve a specific file or set of files from a remote server. This could include documents, images, videos, software, or any other type of file that is made available for downloading. The user's web browser or a specialized download manager handles the process of transferring the files from the remote server to the local device.

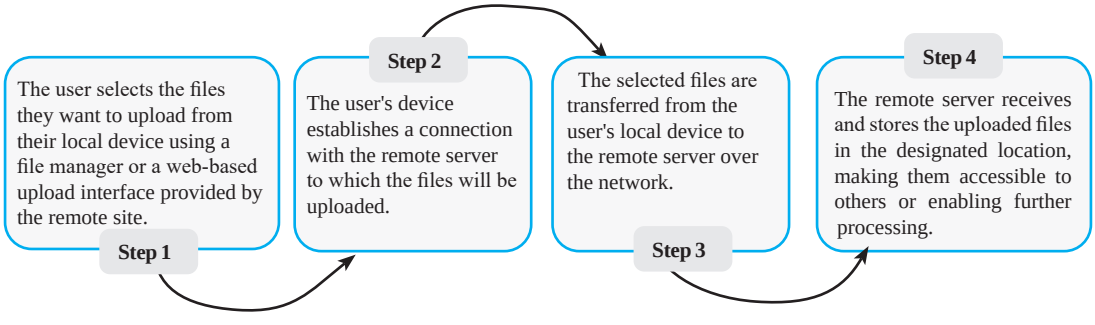
Downloading files typically involves the following steps:



Uploading Files to a Remote Site:

When uploading files, the user selects one or more files from their local device and sends them to a remote server or website. This allows the user to share files with others, store files remotely, or publish content online.

Uploading files typically involves the following steps:



Conceptual pitfalls

1. Students might get confused with the terms web and Internet and use them "interchangeably. "web" and "Internet" as interchangeable can lead to confusion. The Internet is the global network that connects various devices and networks, while the World Wide Web (WWW) is a system of interlinked hypertext documents accessed via the Internet using web browsers.
2. A student might think that a website and web server is same . But , website and a web server are not the same thing. A web server is a software application that delivers web content to clients (such as browsers), while a website is a collection of web pages accessible through the browser.
3. Students might assume that an intranet (private network) is the same as the Internet. While intranets use Internet technologies, they are restricted to a specific organization or group and are not globally accessible like the Internet.

Real-life Application

1. Using the Internet to share your thoughts or hobbies with the world. Imagine you love painting and want to share your artwork. By learning HTML (the code that creates web pages), you can build a blog. This blog lives on a web server, which is like a digital library shelf where your blog sits. When people type in your web address, they can see your paintings and read your stories.
2. Using the Internet to learn and discuss school subjects with students from everywhere. Let's say you're studying for a big science test. You can use a web browser (like Chrome or Firefox) to join an online study group where students ask questions and share answers. It's like having a study session in a digital classroom where everyone helps each other out.
3. Getting study materials from the Internet to watch and learn at your own pace. You found a cool science channel online that explains how rockets work. By downloading the videos, you can watch them anytime, even without the Internet. It's like borrowing a book from a digital library to read at home.

COMPETENCY BASED SOLVED EXAMPLES

Multiple Choice Questions

(1 M)

1. **Ravi was trying to log-in to his net-banking account. He noticed that the URL of the net banking starts with 'https'. The 's' in 'https' stands for _____ .**
   (*a*) Safe (*b*) Software
   (*c*) Secure (*d*) Simple
2. **Which of the following is not an Internet connection method?**
   (*a*) DSL (*b*) Cable Internet
   (*c*) Modem (*d*) Mobile Broadband
3. **The World Wide Web is developed by _____ in ____**
   (*a*) John Von Newman, 1989
   (*b*) Charles Babbage, 1979
   (*c*) Tim Berners-Lee,1989
   (*d*) John Napier, 1979
4. **Which of the following is not an example of a web server?**
   (*a*) Apache Tomcat (*b*) API
   (*c*) IIS (*d*) NGINX
5. **A _____ is an online journal or informational website run by an individual, group, or corporation that offers regularly updated content about a topic.** CBSE SQP 2023
   (*a*) News group (*b*) Blog
   (*c*) WWW (*d*) e-Groups
6. **When was the Internet originally developed?**
   (*a*) 1950s (*b*) 1960s
   (*c*) 1970s (*d*) 1980s
7. **What is the Internet?**
   (*a*) A collection of websites and online services.
   (*b*) A single computer network maintained by a central authority.
   (*c*) A local network used for personal communication.
   (*d*) A global network of interconnected computer networks.
8. **What is the purpose of the Internet?**
   (*a*) To host websites and online content
   (*b*) To provide a secure network for government use
   (*c*) To exchange information and communication between devices worldwide
   (*d*) To connect a limited number of devices in a local area
9. **What is the purpose of hyperlinks in the World Wide Web?**
   (*a*) To connect computers worldwide
   (*b*) To publish content on the web
   (*c*) To enable seamless navigation between websites and resources
   (*d*) To centralize authority on the web
10. **Which of the following is NOT an example of a web client?**
    (*a*) Web browser (*b*) Mobile app
    (*c*) Search engine crawler (*d*) Web server
11. **What is the main function of a web client?**
    (*a*) To store and deliver web content
    (*b*) To establish secure connections
    (*c*) To interact with web servers and access web content
    (*d*) To manage network infrastructure
12. **Collection of hyper linked documents available on the Internet is known as_____.** CBSE SQP 2022
    (*a*) Website (*b*) Webpage
    (*c*) Search Engine (*d*) URL
13. **Which of the following is not an example of a web browser?**
    (*a*) Safari (*b*) Microsoft Edge
    (*c*) Yahoo! (*d*) Opera
14. **Which of the following is the correct format for a web address (URL)?**
    (*a*) www.example.com
    (*b*) example@website.com
    (*c*) http://example.com
    (*d*) example#website.com

Answer Key

	(*b*) 14.	(*c*) 13.	(*b*) 12.	(*c*) 11.
(*b*) 10.	(*c*) 9.	(*c*) 8.	(*b*) 7.	(*a*) 6.
(*a*) 5.	(*a*) 4.	(*c*) 3.	(*c*) 2.	(*c*) 1.

Assertion and Reason

(1 M)

Direction: The following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:

(*a*) Both A and R are true, and R is the correct explanation of A.
(*b*) Both A and R are true, but R is not the correct explanation of A.
(*c*) A is true, but R is false
(*d*) A is false, but R is true.

1. **Assertion (A):** Search engine is a hardware device that searches for any websites on the World Wide Web.
   Reason (R): Google Search and Microsoft's Bing are two popular search engines. CBSE SQP 2023
2. **Assertion (A):** The web browser sends a request to the corresponding web server to fetch the requested webpage.
   Reason (R): Web browsers are software applications that allow users to access and interact with information on World Wide Web.

3. **Assertion (A):** The web is an application built on the Internet.
   Reason (R): The Internet connects people worldwide.
4. **Assertion (A):** The email address serves as a virtual address to send, receive, and manage electronic messages.
   Reason (R): An Email address consists of two main components: username and domain name and is separated by @ symbol.
5. **Assertion (A):** Sending files from the local device to a remote location is called downloading.
   Reason (R): When downloading files, the user initiates a request to retrieve a specific file or set of files from a remote server.

Answer Key

1. (*p*) 2. (*p*) 3. (*q*) 4. (*p*) 5. (*p*)

Subjective Questions

Very Short Answer Type Questions (2 M)

1. **Define a web client and write the names of two types of web clients.**

Ans. A web client is a program used to access and display content from the Internet on a user's device. These tools communicate with web servers to fetch and present web pages or emails to the user. Examples include: ***(1 M)***

(*i*) Web Browsers such as Google Chrome and Mozilla Firefox, which show web pages. ***(½ M)***

(*ii*) Email Clients like Microsoft Outlook and Mozilla Thunderbird, for managing emails. ***(½ M)***

2. **What do you understand by the term URL? How is it different from an email address?** **CBSE SQP 2021**

Ans. A URL (Uniform Resource Locator) is an address used to access specific resources on the Internet, such as websites. It specifies the location of a digital resource on the web and the protocol needed to retrieve it, typically starting with "http://" or "https://". ***(1 M)***

An email address, on the other hand, identifies an email account that can send and receive messages over the Internet. It usually consists of a user name and a domain name, separated by an "@" symbol, like "user@example.com". ***(1 M)***

OR

What do you understand by a newsgroup? How is it different from a blog? ***(2 M)***

Ans.

Newsgroup	Blog
For public discussions on a variety of topics.	To share updates, insights, and personal commentary
Messages and responses in a forum- like setting.	List item will be marked with a circle.
Users engage in multi-directional conversations.	Primarily one-way content delivery, with comments for feedback
Structured around specific subjects or themes	Managed by an individual or group, focused on thematic content

3. **What is web address? Write the name of the components of the web address.**

Ans. Web addresses, also known as URLs (Uniform Resource Locators), are strings of text that specify the location of a resource on the Internet, like a webpage. They enable browsers to retrieve and display content from web servers. ***(1 M)***

Components of a Web Address:

(*i*) Protocol

(*ii*) Domain Name

(*iii*) Path ***(1 M)***

4. **Why web addresses are essential?**

Ans. A web address is a unique address used to locate any website,web page, or any other resources on the World Wide Web. It serves as the address or location of a webpage, website, file, or any other resource available on the Internet. Without any specified web address user can not access the resources they are looking for. ***(2 M)***

5. **What are web browsers? Write the name of any two Web browsers.**

Ans. Web browsers are software applications that allow users to access and interact with information and resources on the World Wide Web requested by the users. They provide a graphical user interface (GUI) through which users can navigate websites, view webpages. ***(1 M)***

Example of Web browsers: Google Chrome, Opera, Safari, Mozzila Firefox,etc. ***(1 M)***

6. **What is World Wide Web? Who developed the World Wide Web?**

Ans. The World Wide Web (WWW), commonly known as the Web, is an interconnected network of digital information accessible via the Internet. ***(1 M)***

It was developed by **Tim Berners-Lee** in **1989** and has since transformed the way we share and access information on a global scale. ***(1 M)***

7. **Write the full form of Cc and Bcc (used in email communication). Explain the difference between them, in email communication:** **CBSE 2020**

Ans. Here,Cc stands for Carbon Copy and Bcc stands for Blind Carbon Copy. ***(1 M)***

Difference between Cc and Bcc:

Cc (Carbon Copy): Sends a copy of the email to recipients listed in the "Cc" field. Everyone can see each other's addresses. ***(½ M)***

Bcc (Blind Carbon Copy): Sends a copy to recipients in the "Bcc" field, but their addresses are hidden from others. Used for privacy and group emails without revealing addresses. ***(½ M)***

Short Answer Type Questions (3 M)

1. Define Internet and write its two uses in our daily life. How is it different from the World Wide Web (www). CBSE SQP 2021

Ans. Internet is a global network of computers connected to each other, allowing them to communicate and share information. It facilitates a wide range of services, including email, file sharing, and access to websites. *(1 M)*

Two Uses in Daily Life:

1. **Communication:** Email, messaging apps, and social media platforms allow people to communicate instantly across the globe. *(½ M)*
2. **Information Access:** Search engines and websites provide access to vast amounts of information on every conceivable topic. *(½ M)*

Difference from the World Wide Web (www):

While the Internet is the whole network of computers connected together, the World Wide Web (www) is just one part of it where you can browse websites using a web browser. Think of the Internet as the whole city, and the Web as just the shopping mall in the city. *(1 M)*

2. "A web browser is different from a web server". Explain any two differences in web browser and web server with suitable example of each. CBSE SQP 2021

Ans.

Feature	Web Browser	Web Server
Role	A tool for users to request, view, and interact with web content.	A system that stores and delivers web content to browsers upon request.
Example	Chrome allows users to see and interact with websites by entering URLs.	Apache software handles requests from browsers and sends back the requested web pages
Main Purpose	To provide an interface for users to explore the Internet by displaying web pages.	To host web pages and manage requests from browsers to access these pages *(3 M)*

3. Write a short note on HTML.

Ans. HTML, short for Hypertext Markup Language, is a standard markup language used for creating the structure and presentation of web pages on the World Wide Web. It serves as the foundation for building web pages, defining the elements and layout of content within a document. There have been various versions of HTML but HTML5 is the latest version of HTML.

HTML utilizes a system of tags, enclosed in angle brackets (< >), to specify the structure and formatting of the content. These tags, also known as elements, consist of an opening tag, content, and a closing tag. They indicate how different parts of the webpage should be displayed in a web browser. *(3 M)*

4. What are Internet protocol ? Name any two protocols used on Internet.

Ans. Internet protocols are rules and formats that govern how data is transmitted and received over the Internet, ensuring devices can communicate effectively. *(1 M)*

Two Protocols Used on the Internet:

1. **HTTP (Hypertext Transfer Protocol):** Used for transmitting web pages from servers to browsers. *(1 M)*
2. **SMTP (Simple Mail Transfer Protocol):** Used for sending and forwarding emails. *(1 M)*

Case Based Questions

Case Based-I

Mr. Raj is a wildlife photographer who has decided to share his passion through an online portfolio. He's creating a website that not only displays his photography but also allows people to discuss wildlife conservation. He intends for the site to be interactive and secure, allowing for the submission of wildlife sightings by visitors. Raj is familiar with web development basics and understands the necessity of a secure and user-friendly website.

Read the case study given below and attempt any 4 subquestions (out of 5). Each sub-question carries 1 mark.

1. Which language will Raj most likely use to create the layout and structure for his web pages?

(*a*) XML (*b*) HTML
(*c*) SQL (*d*) Python

Ans. (*b*) HTML, which stands for Hypertext Markup Language, is the standard language used to create and design web pages. It helps in structuring content on the web, such as headings, paragraphs, images, and links

2. Raj wants to ensure that visitors' wildlife submissions are securely transmitted to his server. Which protocol should he ensure is implemented on his website's submission form?

(*a*) HTTP (*b*) SMTP
(*c*) HTTPS (*d*) POP3

Ans. (*c*) HTTPS stands for Hypertext Transfer Protocol Secure. It is used to secure the data sent between a website and a user's browser, ensuring that the information like wildlife submissions remains confidential

3. To allow discussions on his website, Raj plans to integrate a platform for visitors to post comments. What is this type of interactive platform called?

(*a*) Web server (*b*) Blog
(*c*) Web client (*d*) News group

Ans. (*b*) A blog is a type of website or part of a website that allows for regular postings, often sorted in reverse chronological order. Blogs often include a comment section where visitors can post their thoughts and engage

4. When visitors want to view Raj's photographs, which software will they use to access his website?

(*a*) Operating system (*b*) Web browser

(*c*) Antivirus software (*d*) Media player

Ans. (*b*) A web browser is software used to access and view websites. Browsers like Google Chrome, Mozilla Firefox, and Safari enable users to load web pages, view images, and interact with multimedia content on the internet

5. For backing up his website data, Raj wants to use a protocol that ensures the secure transfer of his files to a remote backup server. Which protocol should he use?

(*a*) FTP (*b*) SFTP

(*c*) TELNET (*d*) SNMP

Ans. (*b*) SFTP, or Secure File Transfer Protocol, is used for securely transferring files over a network. It provides an encrypted connection that helps protect the data during transfer,

Case Based-II

Ms. Priya, a high school librarian, is leading a project to digitize the school's library system. The new system will allow students and teachers to access ebooks, research papers, and academic articles through the school's website. She needs to understand the technical aspects of setting up a secure and efficient digital library that is accessible over the Internet.

Read the case study given below and attempt any 4 subquestions (out of 5). Each sub-question carries 1 mark.

6. Which markup language will Priya use to create the web pages for the digital library?

(*a*) CSS (*b*) HTML

(*c*) Java (*d*) C++

Ans. (*b*) HTML (Hypertext Markup Language) is the standard language used for creating and designing web pages.

7. To protect the privacy of students and teachers accessing the digital library, which protocol should be used for the website?

(*a*) HTTP (*b*) FTP

(*c*) HTTPS (*d*) TCP/IP

Ans. (*c*) HTTPS (Hypertext Transfer Protocol Secure) is used to secure the communication between a user's browser and the website, ensuring that all data exchanged, such as login credentials and personal information, remains encrypted and protected from unauthorized access.

8. Priya wants to allow teachers to upload additional academic resources to the digital library. What type of computer will host these resources?

(*a*) Web client (*b*) Mainframe

(*c*) Supercomputer (*d*) Web server

Ans. (*d*) A web server is a computer that stores web pages and makes them available to the internet.

9. Students will access the digital library primarily using what type of software on their devices?

(*a*) File manager (*b*) Web browser

(*c*) Text editor (*d*) Email client

Ans. (*b*) A web browser, such as Chrome, Firefox, or Safari, is the software that students will use to access the digital library

10. If Priya wants to receive suggestions and feedback on the digital library via email, which protocol will be used to retrieve these messages from the school's email server?

(*a*) SMTP (*b*) POP3

(*c*) IMAP (*d*) FTP

Ans. (*c*) IMAP (Internet Message Access Protocol) allows for the retrieval of email messages from a server to a local client.

Hints & Explanations

Multiple Choice Questions (1 M)

1. (*c*) In 'https', the 's' stands for 'Secure'. It indicates that the HTTP protocol is being used with a layer of SSL/TLS encryption, making the communication between the browser and the web server secure.

2. (*c*) Among all the given options, Modem is not an Internet connection method. A Modem is a networking device. It is used to modulate and demodulate the electronic signal

3. (*c*) The World Wide Web is developed by Tim Berners-lee in 1989.

4. (*b*) Apache Tomcat, NGINX, and IIS are the most common web servers. API is not the web server.API stands for Application Programming Interface and it allows various programs to connect and share information.

5. (*b*) A blog is an online platform where individuals, groups, or corporations publish regularly updated content on various topics.

News groups and e-Groups focus on discussions, while WWW refers to the entire web, not specific content formats like blogs.

6. (*b*) The Internet was originally developed in 1960.

7. (*d*) The Internet is a vast, global network of interconnected computer networks that enables the exchange of information and communication worldwide.

8. (*c*) The primary purpose of the Internet is to facilitate the exchange of information, communication, and services between devices and users across the globe.

9. (*c*) Hyperlinks, commonly known as links, are used in the World Wide Web to connect web pages and resources together. They allow users to navigate between different web pages, websites, and online resources by simply clicking on the link.

10. (*d*) A web client is a software application or device that requests and displays web content from web servers. Examples of web clients include web browsers, mobile apps, and search engine crawlers. A web server, on the other hand, is responsible for hosting and delivering web content to web clients.

MOCK TEST PAPER

Max. Marks: 50 **Time Allowed: 2 hours**

General Instructions:

(*i*) *This Question Paper has **5** Sections **A-E**.*

(*ii*) *All Questions are compulsory. However, an internal choice of approximately **30%** is provided.*

(*iii*) *Section A has **12** questions carrying **01** mark each.*

(*iv*) *Section B has **7** Very Short Answer (VSA) type questions carrying **02** marks each.*

(*v*) *Section C has **4** Short Answer (SA) type questions carrying **03** marks each.*

(*vi*) *Section D has **1** Long Answer (LA) type question carrying **04** marks.*

(*vii*) *Section E has **2** Source-based/Case-based/Passage based Questions carrying **04** marks each.*

Section-A

All questions are compulsory

1. What is the correct HTML tag to create a hyperlink? **1**

(*a*) <url> (*b*) <link>

(*c*) <a> (*d*) <href>

2. In the following code, which type of CSS is being linked? **1**

```
<!DOCTYPE html>
    <head>
      <link rel="stylesheet" type="text/css" href="styles.
      css">
    </head>
    <body>
      <!-- Content goes here -->
    </body>
  </html>
```

(*a*) External CSS (*b*) Internal CSS

(*c*) Inline CSS (*d*) Import CSS

3. Which of the following protocols will you use to share files over the internet? **1**

(*a*) SMTP (*b*) HTTPS

(*c*) FTP (*d*) POP

4. Which of the following tags is not required to create a definition list? **1**

(*a*) <dl> (*b*) <dt>

(*c*) (*d*) <dd>

5. The _____ input type is used to provide a secure way to enter information in the form. **1**

(*a*) <checkbox> (*b*) <radio button>

(*c*) <password> (*d*) <combo-box>

6. Which of the following is an example of proprietary software? **1**

(*a*) Mozilla Firefox (*b*) Linux

(*c*) Microsoft Windows (*d*) Apache Tomcat

7. Which of the following border-style properties is used to add a single dark line border on an element? **1**

(*a*) None (*b*) Dotted

(*c*) Solid (*d*) Dashed

8. What is a Homepage? **1**

9. What does SSH stand for?

(*a*) Secure Socket Layer (*b*) Secure Shell

(*c*) Secure HTTP (*d*) Secure Host

10. Which of the following is not an e-commerce website? **1**

(*a*) Amazon (*b*) Wikipedia

(*c*) eBay (*d*) Shopify

Questions No-11 & 12 are Assertion and Reason types. Each question consists of two statements, namely, Assertion (A) and Reason (R). Select the most suitable option considering the Assertion and reason.

(*a*) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(*b*) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).

(*c*) Assertion (A) is true, but Reason (R) is false.

(*d*) Assertion (A) is false, but Reason (R) is true.

11. **Assertion (A):** The <table> element in HTML is used to create a tabular representation of data. **1**

Reason (R): Tables are useful for displaying structured data in rows and columns.

12. **Assertion:** 2G (Second Generation) technology revolutionized mobile communications by enabling faster data transfer speeds than 3G technology and improved multimedia capabilities. **1**

Reason: 3G networks offer higher data rates and support multimedia services like video streaming, mobile internet browsing, and video calling.

Section-B

(2 marks each)

13. You are creating a webpage and want to change the text color of a paragraph to blue and size of text to 16 px. Write the HTML code snippet with the appropriate attributes. **2**

14. Write any two advantages of the chat in web services. **2**

OR

Write any two advantages of email. **2**

15. Name two security concerns related to e-commerce transactions. **2**

16. What is the role of the SFTP protocol in secure data transmission? **2**

OR

What does SCP stand for? Explain its role . **2**

17. Differentiate between the terms Web Site and Web Page. **2**

OR

What is a Web Browser? Write the names of any two commonly used Web Browsers. **2**

18. Name the following with respect to HTML: **2**

(*a*) The attribute used to change the list item marker.

(*b*) Tag to insert a horizontal line.

19. Write the HTML code to display the chemical reaction given below. **2**

$2C_7H_6O_2 + 15O_2 \rightarrow 14CO_2 + 6H_2O$

Section-C

(3 marks each)

20. Write any three differences between copyright and trademark? **3**

OR

What do you mean by freeware software? Give examples of two freeware software. **3**

21. What are web servers? What are the functions of web servers? **3**

22. Explain the following with an example. **3**

(*a*) Cell padding (*b*) Cell spacing

23. Describe the difference between B2B and B2C e-commerce models, providing examples of each. **3**

Section-D

(4 marks each)

24. Write code to design the webpage given below by using the specifications. **4**

Solar System Information

This table provides basic information about the planets in our solar system, including their diameter, distance from the Sun, and the number of moons they have.

Planet	Diameter (km)	Distance from Sun (million km)	Number of Moons
Mercury	4,880	57.9	0
Venus	12,104	108.2	0
Earth	12,742	149.6	1
Mars	6,779	227.9	2
Jupiter	139,822	778.5	79
Saturn	116,464	1,427.0	83
Uranus	50,724	2,870.9	27
Neptune	49,244	4,498.3	14

Specification 1: The heading of the webpage "Solar System Information" should be the first level of the heading with color "darkblue". The heading should be aligned in the center of the webpage and the body should have "3px wide border".

Specification 2: The text should be added using a paragraph in the center of the webpage. The size of the paragraph text should be "5" and the face should be "Cursive".

Specification 3: The table width should be "80%" with "cell padding: 8" and cellspacing :0,. The table should have a background color "lightgrey" and should be in the center of the webpage. The table should have a collapsed border.

OR

Write code to design the webpage given below by using the specifications . **4**

Contact Us

Please fill out the form below to get in touch with us.

Name:

Email:

Subject:

Message:

Submit

Specification 1: The heading of the webpage "Contact US" should be the first level of the heading.

EXPLANATIONS

1. (*c*) The <a>tag, which stands for anchor, is used to create hyperlinks in HTML. It allows you to link to another web page, file, or resource by specifying the destination URL within the 'href' attribute of the <a>tag. ***(1 M)***

2. (*a*) External CSS is linked externally using the <link> element and an external styles .css file. ***(1 M)***

3. (*c*) FTP is specifically designed for transferring files over the internet. It allows users to upload and download files to and from a remote server. It's a common choice for file sharing and management. ***(1 M)***

4. (*c*) The tag is not required to create a definition list. is typically used within ordered lists (<ol>) or unordered lists (<ul>) to define list items, but it is not used in the structure of a definition list (<dl>). ***(1 M)***

5. (*c*) The <password> input type is used to provide a secure way to enter a password in a form. When a user enters a password in a <password> field, the characters are usually masked or hidden (e.g., displayed as asterisks) to protect the password from being easily seen by others looking at the screen. ***(1 M)***

6. (*c*) Microsoft Windows is an example of proprietary software because it is owned by Microsoft, and the source code is not openly accessible to the public. ***(1 M)***

7. (*c*) The 'border-style: solid;' CSS property is used to add a single, continuous line border to an element. It creates a solid border around the element, and the color and width of the border can be further defined using other CSS properties. ***(1 M)***

8. It is the first page that users typically see when they visit a website's domain or URL. The homepage serves as the starting point for navigating and exploring the content and features of a website. ***(1 M)***

9. (*b*) SSH stands for Secure Shell. It is a cryptographic network protocol used for secure remote command-line login, secure file transfer, and other secure network services between two computers. ***(1 M)***

10. (*b*) Wikipedia is not an e-commerce website. It is a collaborative online encyclopedia where users can contribute and edit articles on a wide range of topics. It does not involve buying or selling products or services, which is the primary focus of e-commerce websites like Amazon, eBay, and Shopify. ***(1 M)***

11. (*a*) The <table> element in HTML is used to create tables that organize data in rows and columns, making it easier to present structured information. ***(1 M)***

12. (*d*) 2G technology was a step forward in mobile communications but did not provide significantly faster data transfer speeds or improved multimedia capabilities compared to later generations. 3G networks did offer higher data rates and support multimedia. ***(1 M)***

Nailing the Right Answer

- After reading the question, try to eliminate obviously wrong choices. This can narrow down your options and increase your chances of selecting the correct answer.
- Sometimes, the question itself contains clues to the correct answer. Look for hints or keywords that may lead you to the right choice.

13.
```
<!DOCTYPE html>
<head>
        <title>Text Color Example</title>
</head>
<body>
        <h2>Change Text Color</h2>
        <p><font color="blue" size ="16 px" This is a paragraph with blue text color. To change the text color of a paragraph to blue, use the font tag </font></p>
</body>
</html>
```
(2 M)

Nailing the Right Answer

- You can also use hexadecimal codes to change the color of the text.
- You could specify multiple font families separated by commas as fallback options.

14. 1. **Real-time Communication:** Chat in web services enables real-time communication between users and businesses or between users themselves. This means that people can get immediate responses to their queries, making it convenient for addressing questions, issues, or providing support. Real-time communication enhances user engagement and satisfaction. ***(1 M)***

2. **Personalization and Customization:** Chat services can collect user data and preferences, allowing businesses

```
<body>
    <table cellspacing="20" border="1">
        <tr>
            <td>Cell 1</td>
            <td>Cell 2</td>
        </tr>
        <tr>
            <td>Cell 3</td>
            <td>Cell 4</td>
        </tr>
    </table>
</body>
</html>
```
(1 M)

Mistakes 101 : What not to do!

- Students tend to forget specifying the units for padding and spacing values.
- Students might misunderstand the difference between cell padding and cell spacing.

23. B2B e-Commerce: In the B2B e-commerce model, businesses sell products or services directly to other businesses. The transactions are typically larger in volume and value compared to B2C transactions. B2B transactions often involve negotiation, customized pricing, and long-term relationships. **(1 M)**

Example: A manufacturer of computer components selling microprocessors to a computer assembly company. **(½ M)**

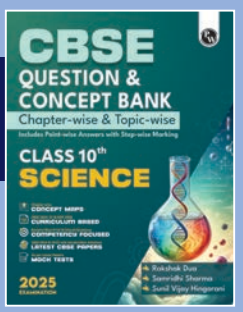
B2C e-Commerce: B2C e-commerce involves businesses selling products or services directly to individual consumers. Transactions are often smaller in volume and value compared to B2B transactions. B2C e-commerce is usually more focused on mass marketing and providing a seamless shopping experience to individual customers. **(1 M)**

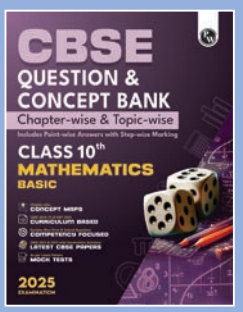
Example: An online retail store selling clothing and accessories to individual shoppers. **(½ M)**

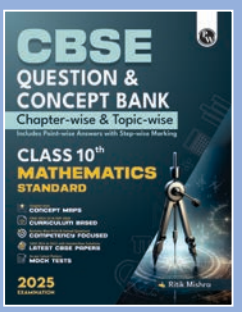
24.
```
<!DOCTYPE html>
<head>
  <title>Solar System Information</title>
  <style>
    h1{
      color:darkblue ;
    }
  </style>
</head>
<body border= "4"
  <h1 align="center" >Solar System Information</ h1>
  <p align="center"> <font face="Cursive" size="5">This table provides basic information about the planets in our solar system, including their diameter, distance from the Sun, and the number of moons they have.</font></p>
<table border="1" cellpadding="8" cellspacing="0" width="80%" align="center" bgcolor="lightgrey">
  <tr>
    <th>Planet</th>
    <th>Diameter (km)</th>
    <th>Distance from Sun (million km)</th>
    <th>Number of Moons</th>
  </tr>
  <tr>
    <td>Mercury</td>
    <td>4,880</td>
    <td>57.9</td>
    <td>0</td>
  </tr>
  <tr>
    <td>Venus</td>
    <td>12,104</td>
    <td>108.2</td>
    <td>0</td>
  </tr>
  <tr>
    <td>Earth</td>
    <td>12,742</td>
    <td>149.6</td>
    <td>1</td>
  </tr>
  <tr>
    <td>Mars</td>
    <td>6,779</td>
    <td>227.9</td>
    <td>2</td>
  </tr>
  <tr>
    <td>Jupiter</td>
    <td>139,822</td>
    <td>778.5</td>
    <td>79</td>
  </tr>
  <tr>
    <td>Saturn</td>
    <td>116,464</td>
    <td>1,427.0</td>
    <td>83</td>
  </tr>
```

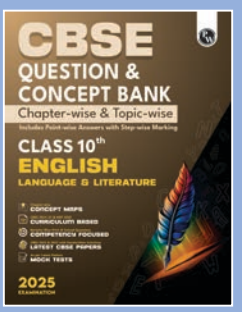
Complete Your Preparation

QUESTION & CONCEPT BANK

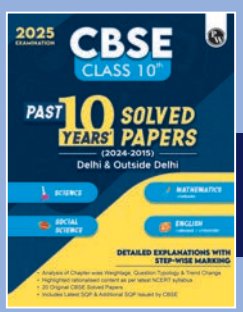


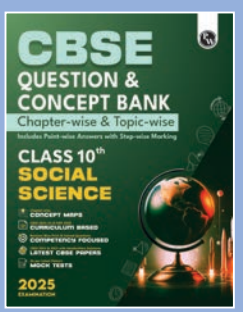


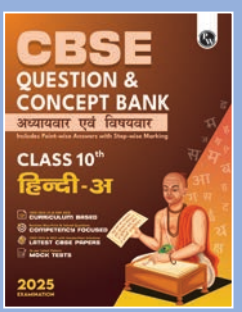


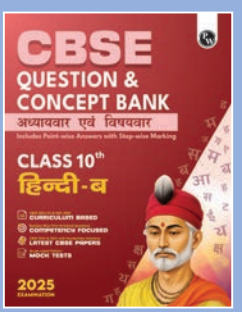


Past 10 Years Solved Papers

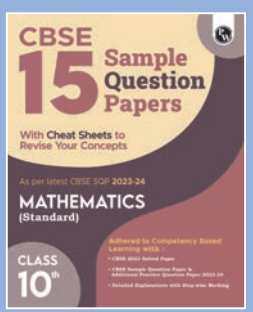


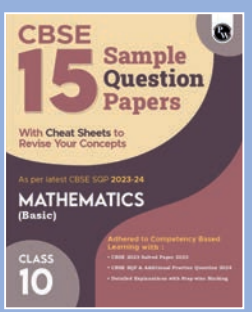


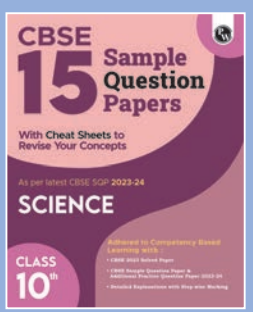


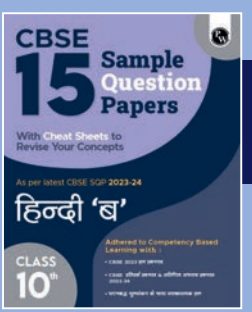


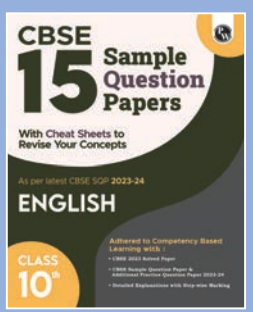
SAMPLE PAPERS

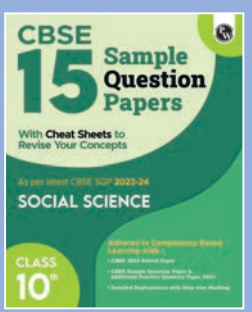


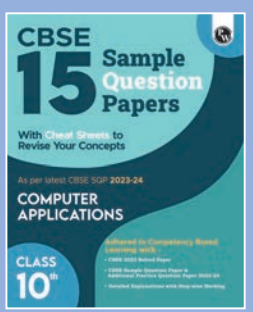


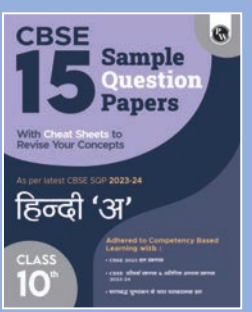












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