



# WEB DEVELOPMENT (660)

## CHAPTERWISE NOTES



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## 1

# Basics of Office Productivity Tools

## Introduction to Office Productivity Tools

**Definition :** Software applications designed to help users create documents, presentations, and spreadsheets efficiently.

**Key Software :** Apache OpenOffice (Writer, Calc, Impress) or MS Office (Word, Excel, PowerPoint).

## Word Processing (OpenOffice Writer / MS Word)

- **Purpose:** Creating, editing, and formatting text documents like letters and reports.
- **Features:** Spell Check, Mail Merge, Tables, and Formatting (Font, Alignment).
- **Mail Merge:** A powerful tool to create multiple personalized letters or labels at once.

## Spreadsheets (OpenOffice Calc / MS Excel)

- **Purpose:** Organizing data in rows and columns to perform calculations.
- **Worksheet vs. Workbook:** A worksheet is a single page; a workbook is a collection of pages.
- **Functions & Formulas:** Using predefined formulas like SUM(), AVERAGE(), and IF() for data analysis.

## Presentation Tools (OpenOffice Impress / MS PowerPoint)

**Purpose:** Creating visual slide shows for teaching or business meetings.

**Components:** Slides, Animations, Transitions, and Master Slide (for consistent design).

## Presentation Enhancements (MS PowerPoint/Impress)

- **Slide Layouts :** Different ways to arrange text and images on a slide (e.g., Title slide, Two-content slide).
- **Slide Sorter View :** A view that shows miniature versions of all slides, making it easy to rearrange them.
- **Handouts :** Printing small versions of slides on paper for the audience to take home.



## Functions in Calc

Commonly used functions are:

1. **Sum** – used to calculate the total of values in a range.

**Syntax : =Sum(A1:G1)**

2. **Average** - used to calculate the average of values in a range.

**Syntax : =Average(A1:G1)**

3. **Max** – used to find the maximum value from a range of values.

**Syntax : =Max(A1:G1)**

4. **Min**– used to find the minimum value from a range of values.

**Syntax : = Min(A1:G1)**

5. **Count** – used to count the number of values from a range of values.

**Syntax : =Count(A1:G1)**

## Important Questions and Answers

**Q1. What is the use of the SUM() function in Excel/Calc?**

**Ans** - The SUM() function is used to add all the numbers in a specified range of cells automatically.

**What is the intersection of a row and a column in a spreadsheet called?**

**Ans** - A Cell.

**Q2. Explain any four main features of a Word Processor.**

**Ans – Four Main Features Of A Word Processor :**

1. **Formatting:** Changing fonts, colors, and styles.
2. **Spell Check:** Automatically finding and correcting spelling/grammar errors.
3. **Tables:** Organizing information in rows and columns.
4. **Mail Merge:** Creating bulk documents easily.



**Q3. What are the steps to create a simple presentation?**

**Ans -**

1. Open the presentation software (Impress/PowerPoint).
2. Choose a template or blank slide.
3. Add text and images to individual slides.
4. Apply transitions and animations.
5. Save the file and press F5 to run the slideshow.



## 2

# Basics of HTML and CSS

## Introduction

- **Definition:** HTML (HyperText Markup Language) is the standard language used to create webpages.
- **Role:** It defines the structure of a webpage using various tags.

## Basic Structure of an HTML Document

Every HTML file must follow this specific order:

- `<html>`: The root element that encloses all the content.
- `<head>`: Contains meta-information (like the title) that doesn't show on the page.
- `<title>`: Sets the name of the webpage shown on the browser tab.
- `<body>`: Contains the visible content like text, images, and links.

## Text Formatting Tags

- `<b>` or `<strong>`: To make text bold.
- `<i>` or `<em>`: To make text italic.
- `<u>`: To underline text.

## Introduction to CSS (Cascading Style Sheets)

- **Purpose:** CSS is used to design and style the HTML structure (colors, fonts, layouts).

### Types of CSS :

1. **Inline CSS:** Using the style attribute inside an HTML tag.
2. **Internal CSS:** Using the `<style>` tag inside the `<head>` section.



3. **External CSS:** Linking a separate .css file to the HTML document.

### Advantages of CSS :

1. **Saves Time:** Styles can be reused across multiple pages.
2. **Easy Maintenance:** Changes made in one CSS file update the entire site.
3. **Faster Loading:** Reduces repetitive HTML code, improving speed.
4. **Device Compatibility:** Ensures websites look good on desktops and mobile phones.

## Important Questions and Answers

### 1. Which tag is used to insert a line break in HTML?

**Ans -** <br> tag.

### 2. Name any two attributes of the <body> tag.

**Ans -** 1. bgcolor (sets background color) 2. text (sets text color).

### 3. What is the use of the <hr> tag?

**Ans -** The <hr> tag stands for Horizontal Rule. It is used to draw a horizontal line across the page to separate sections.

### 4. Write an HTML code to create a simple web page with a blue background, yellow text, and a heading "Welcome to NIOS".

**Ans - HTML code :**

```
<html>

<head>

  <title>My Page</title>

</head>

<body bgcolor="blue" text="yellow">

  <h1>Welcome to NIOS</h1>

  <p>This is a simple web page.</p>
```



</body>

</html>

**5. Explain the difference between Ordered and Unordered lists with their tags.**

**Ans – Difference Between Ordered And Unordered Lists With Their Tags :**

1. **Ordered List (<ol>)** : Items are marked with numbers or letters. Attribute used is type (1, A, a, I).
2. **Unordered List (<ul>)** : Items are marked with bullets. Attribute used is type (disc, circle, square).



## 3

# Dreamweaver

## Understanding the WYSIWYG Concept

- **Concept :** WYSIWYG stands for "What You See Is What You Get." This means that as you design your web page visually (placing images, typing text), the software automatically writes the complex HTML code in the background.
- **Advantage :** It allows people who don't know much coding to create professional-looking websites quickly.

## Key Components of the Dreamweaver Workspace

- **Document Window:** This is the large area in the center where you build your page. It shows your design as it would appear in a browser.
- **Insert Panel:** This panel contains icons for adding various objects like images, tables, hyperlinks, and media files without writing tags.
- **Property Inspector:** Located at the bottom, it is context-sensitive. If you click on text, it shows font options; if you click an image, it shows width/height and link options.
- **Files Panel:** This is used to manage your site's files and folders. It helps you keep track of all the images and HTML pages in your project.

## Viewing Modes (The Three Pillars)

- **Code View :** A hand-coding environment for writing and editing HTML, JavaScript, and server-side code.
- **Design View :** A fully visual layout environment where you can edit the page just like a Word document.
- **Split View :** Provides a synchronized view where the window is split into two; you can see the code and the design side-by-side.



## The Process of Site Definition

- **Local Site :** Before starting, you must define a "Local Site." This is a folder on your computer where all your web assets (images, CSS, HTML) are organized. Without this, links and images might break when you upload the site.

## Important Questions and Answers

### Q1. Define Dreamweaver and explain its primary advantage for web developers.

**Ans -** Dreamweaver is a professional WYSIWYG HTML editor. Its primary advantage is that it allows developers to design websites visually, saving time by automatically generating the code.

### Q2. What is the difference between the Insert Panel and the Property Inspector?

**Ans -** The Insert Panel is used to add new elements (like tables or images) to the page. The Property Inspector is used to modify the characteristics of an element that is already selected on the page.

### Q3. Why is "Site Definition" important in Dreamweaver?

**Ans -** Site definition tells Dreamweaver where your project files are stored locally. It is important because it ensures that all links and image paths are correctly maintained relative to each other.

### Q4. How can you insert a table in Dreamweaver? List the steps and attributes you can set.

**Ans – Steps :**

1. Click Insert > Table.
2. Enter rows and columns.
3. Set attributes like Border, Cellpadding, and Cellspacing.
4. Click OK. These attributes control the thickness of lines and spacing inside cells.

### Q5. What are Page Properties in Dreamweaver? Name any four properties you can set.

**Ans -** Page Properties allow you to define the visual settings for the entire HTML document. Four properties you can set are:

1. **Page Title:** The name that appears in the browser tab.
2. **Background Image/Color:** The wallpaper or color of the page.



3. **Text Color:** The default color for all text on the page.
4. **Links Color:** Specific colors for normal, visited, and active links.

**Q6. Explain the advantage of using Layers for page layout instead of Tables.**

**Ans -** Layers offer more flexibility than tables because they can be placed exactly anywhere on the page using X and Y coordinates. Unlike tables, layers can overlap each other (using Z -index), and they are easier to move around without disturbing the rest of the content.



# Web Hosting and Legal Aspects

## Introduction to Web Hosting

**Definition:** Web hosting is a service that allows organizations and individuals to post a website or web page onto the Internet.

**Web Host:** A business that provides the technologies and services (servers) needed for the website to be viewed on the Internet.

## Types of Web Hosting

1. **Free Hosting:** Best for personal sites; often includes advertisements from the host.
2. **Shared Hosting :** Multiple websites reside on one web server connected to the Internet. It is cost-effective.
3. **Dedicated Hosting :** The user has entire control over the server; used for high-traffic websites.
4. **Cloud Hosting:** It is a new type of hosting platform that provides the user powerful, scalable and reliable hosting based on clustered load-balanced servers and utility billing.
5. **Clustered hosting :** Here, multiple servers host the same content, with an objective of better resource utilization. Clustered servers are a perfect solution as it provides high-available dedicated hosting, or creating a scalable web hosting solution.

## Domain Name System (DNS)

- **Domain Name:** The address of your website (e.g., [www.google.com](http://www.google.com)).
- **Extensions:** Common suffixes like .com (Commercial), .edu (Education), .gov (Government), and .in (India).

## Legal Aspects and IT Act 2000

- **Intellectual Property Rights (IPR):** Protecting original work (text, images) from being copied.
- **Copyright:** Legal right that protects the creator's original work.
- **Information Technology Act (IT Act) 2000 :** The primary law in India dealing with cybercrime and electronic commerce.



## Website Policies

A website policy is a set of documents telling visitors of website what information they can collect and what they can do with that information. The following are the reasons for developing a website policy :

1. Create a better electronic environment on the internet.
2. Imply the laws / legislation that may pertain to your business.
3. Create a transparent environment to users/stake-holders.
4. Set down the rules and regulations to operate and manage website effectively

## Guidelines for Indian Government Websites

The **National Informatics Centre (NIC), India (2009)** provided guidelines for government websites. These include the following key policies:

1. Copyright Policy
2. Hyperlinking Policy
3. Terms & Conditions
4. Privacy Policy
5. Content Contribution, Moderation and Approval Policy (CMAP)
6. Web Content Review Policy (CRP)
7. Content Archival Policy (CAP)
8. Website Security Policy
9. Website Monitoring Policy
10. Contingency Management

## Copyright Policy

A **copyright policy** protects the rights of the original creator of content.

### Copyright covers :

- Written content such as articles, stories, and programs



- Images and graphics
- Architectural designs
- Music and lyrics
- Movies and recordings

### Important Points:

- Website content must be used only with proper permission.
- Copying images, text, HTML, or scripts without permission is illegal.
- Unauthorized use of content is called **copyright violation**.
- Companies take such violations seriously and may take legal action.

### Hyperlinking Policy

A **hyperlinking policy** defines how links are used on a website.

### Key Features:

- Helps users easily navigate different pages of a website.
- Provides access to important sections and external resources.
- Includes accessibility features such as help pages and alternative links.

## Important Questions and Answers

### Q1. Define Web Hosting.

**Ans** - Web hosting is a service that provides space on a server to store website files, making them accessible to users worldwide via the Internet.

### Q2. What do you understand by 'Bandwidth' in hosting?

**Ans** - Bandwidth is the amount of data that can be transferred between your website and its users. It determines how many visitors can view your site at the same time.



**Q3. What is the purpose of an IP address?**

**Ans** - It is a unique numerical address used to identify a computer or server on the internet.

**Q4. Which protocol is used to access web pages on the internet?**

**Ans** - HTTP (Hypertext Transfer Protocol) or HTTPS.

**Q5. What is free web hosting? Name two websites helpful in this regard.**

**Ans** - Free web hosting is a service where a provider offers storage space on a web server at no cost to the user. It is a non-paid hosting model designed for beginners, students, or small personal projects.

**Helpful Websites for Free Hosting** : [www.netfirms.com](http://www.netfirms.com), [www.tripod.com](http://www.tripod.com).



## 5

# Advanced HTML

## HTML Tables

- **Components:** Using `<table>`, `<tr>` (row), `<td>` (data cell), and `<th>` (header cell).
- **Cell Spanning:** `colspan` for merging columns and `rowspan` for merging rows.
- **Table Formatting:** Attributes like `cellpadding`, `cellspacing`, and `border`.

## HTML Forms

- **Structure:** The `<form>` tag wraps all input elements.
- **Input Types:** text, password, radio, checkbox, submit, and reset.
- **Dropdowns & Text Areas:** Using `<select>` for menus and `<textarea>` for multi-line text.

## Cascading Style Sheets (CSS) Details

- **Selectors:** ID selectors (`#`), Class selectors (`.`), and Tag selectors.
- **Inline, Internal, and External CSS:** Different ways to link styles to HTML.
- **Box Model:** Understanding Content, Padding, Border, and Margin.

## Frames and Iframes

- **Frameset:** Dividing the browser window (mostly replaced by Iframes in modern web).
- **Iframe:** Displaying one webpage inside another webpage.

## Attributes of <TABLE>

- **CELLSPACING :** used to set the space between the cells in a table. It takes value in pixel.
- **CELLPADDING :** used to set the space between the cell data and cell wall in a table. It takes value in pixel.



- **WIDTH** : used to set the width of the table, as either an absolute width in pixels, or a percentage of the document's width. **For example** : <WIDTH= width in pixel or percent>

**COLSPAN** : Specifies the number of columns the cell can span. The default COLSPAN for any cell is 1.

**ROWSPAN** : Specifies the number of rows the cell can span. The default ROWSPAN for any cell is 1.

## Important Questions and Answers

**Q1. Write the HTML code to create a table with 3 rows and 2 columns, where the first row is a header merged across both columns.**

**Ans - HTML code :**

```
<table border="1">
  <tr>
    <th colspan="2">Student Report</th>
  </tr>
  <tr>
    <td>Name</td>
    <td>Marks</td>
  </tr>
  <tr>
    <td>Rahul</td>
    <td>85</td>
  </tr>
</table>
```

**Q2. Create an HTML Form for a User Login with fields for 'Username', 'Password', and a 'Login' button.**

**Ans –**

```
<form>
  <label>Username:</label> <br>
  <input type="text" name="user"> <br> <br>
```



```
<label>Password:</label> <br>  
<input type="password" name="pass"> <br> <br>  
<input type="submit" value="Login" >  
</form>
```



## 6

# Scripting

## Introduction to Client-Side Scripting

**Definition :** JavaScript is a lightweight, interpreted programming language used to make web pages interactive.

**Client-side :** The script runs on the user's browser, not on the server.

## Basics of JavaScript

- **Syntax:** Scripts are placed inside `<script>` and `</script>` tags.
- **Variables:** Using `var` to store data (e.g., `var x = 10;`).
- **Data Types:** Numbers, Strings (text), and Booleans (True/False).

## Operators in JavaScript

- **Arithmetic:** `+`, `-`, `*`, `/`.
- **Comparison:** `==` (equal to), `!=` (not equal to), `>`, `<`.
- **Logical:** `&&` (AND), `||` (OR).

## Control Structures (Logic)

- **Conditional Statements:** `if`, `if...else` used for decision making.
- **Loops:** `while` and `for` loops used for repeating a task multiple times.

## Functions and Events

- **Functions:** Blocks of code designed to perform a particular task.
- **Events:** Actions that happen on a web page, like clicking a button (`onclick`) or hovering a mouse (`onmouseover`).



## Important Questions and Answers

**Q1. Where should the <script> tag be placed in an HTML document?**

**Ans** - It can be placed in both the <head> and the <body> sections.

**Q2. Which operator is used to check if two values are equal?**

**Ans** - The == (Double equal to) operator.

**Q3. Explain the 'while' loop with a code example.**

**Ans** - A while loop repeats a block of code as long as a specified condition is true.

**JavaScript :**

```
var i = 1;

while (i <= 5) {

    document.write("Number is " + i + "<br>");

    i++;

}
```

**Q4. Predict the output of the following script :**

```
<html>
<head>
<script language="JavaScript">
i=9
sum=0
while (i<10)
{
sum=sum+i
i=i+1
}
document.write("the value of sum is "+sum)
```



```
</script>
```

```
</head>
```

```
</html>
```

**Ans** - The output of the script will be : the value of sum is 9

**Q5. What are the advantages of using JavaScript in web development?**

**Ans - Advantages Of Using Javascript In Web Development :**

- 1. Interactivity:** It makes web pages dynamic and responsive.
- 2. Speed:** Since it runs on the client-side, it reduces server load.
- 3. Validation:** It can check user input in forms before sending it to the server.
- 4. Rich Interfaces:** It allows features like drag-and-drop and sliders.



## 7

# PHOTOSHOP

## Introduction to Photoshop

- **Definition:** Adobe Photoshop is a powerful image editing software used for creating, retouching, and enhancing digital graphics and photos.
- **Role in Web Dev:** To resize images, create web banners, and optimize graphics for faster loading on websites.

## The Photoshop Interface

- **Menu Bar:** Contains menus like File, Edit, Image, and Layer.
- **Tools Panel:** Contains tools for selecting, cropping, painting, and editing images.
- **Options Bar:** Displays settings for the currently selected tool.
- **Layers Palette:** The most important part, used to manage different elements of an image independently.

## Basic Tools and their Uses

**Selection Tools:** Marquee tool (Rectangular/Elliptical), Lasso tool (Freehand), and Magic Wand (Color-based selection).

**Editing Tools :** Crop tool (to remove unwanted parts), Eraser tool, and Healing Brush (to fix spots).

**Painting Tools:** Brush tool, Gradient tool, and Paint Bucket.

## Working with Layers

- **Concept:** Layers are like transparent sheets stacked on top of each other. You can edit one layer without affecting the others.
- **Operations:** Creating new layers, deleting, hiding, and merging layers.

## Image Optimization for Web

- **File Formats:** JPEG (for photos), GIF (for simple graphics/animations), and PNG (for transparency).



- **Resolution:** Web images usually need a resolution of 72 PPI (Pixels Per Inch).

### Selection Tools

- **Marquee :** Click the tool button, choose a rectangular or an elliptical marquee. Drag the marquee over the area of the image you want to select.
- **Move :** Move tool is used to select and move objects on the page. Click the tool button, then click on any object on the image you want to move.
- **Lasso :** Lasso tool selects an object by drawing a freehand border around it.
- **Crop Tool :** Select the crop tool button, then click on the area of the image you wish to select. It selects and cuts portions of an image.
- **Slice Tool :** Slice tool is used to cut images into slices, which can be exported to a web page.

## Important Questions and Answers

**Q1. Which tool is used to select an area of an image based on color similarity?**

**Ans -** Magic Wand Tool.

**Q2. What is the purpose of 'Layers' in Photoshop?**

**Ans -** Layers allow you to work on one element of an image without disturbing others. They provide flexibility in editing and stacking different parts of a graphic.

**Q3. Explain the use of any four tools from the Photoshop Tools Panel.**

**Ans – Tools From The Photoshop Tools Panel :**

1. Move Tool: To move selections or layers.
2. Lasso Tool: For freehand selection of irregular shapes.
3. Crop Tool: To cut out parts of an image.
4. Clone Stamp: To copy one part of an image onto another.

**Q4. Describe the steps to resize an image for a website in Photoshop.**

**Ans -** Steps To Resize An Image For A Website In Photoshop :

1. Open the image in Photoshop.



2. Go to Image > Image Size.
3. Change the Width and Height as required (usually in Pixels).
4. Ensure Resolution is set to 72.
5. Click OK and save the file using Export > Save for Web.



# Safety and Security

## Security Breaches and Threats

**Definition:** A security breach is any incident that results in unauthorized access to data, applications, or networks.

**Common Threats:** Malware, Viruses, Worms, Trojan Horses, Phishing, and Pharming.

## Types of Cyber Attacks

- **Phishing :** Sending fraudulent emails to steal sensitive information like passwords and credit card details.
- **Skimming :** Stealing credit/debit card information by using a small electronic device.
- **Trojan Horse :** A harmful program that misleads users of its true intent (looks like useful software but steals data).

## Cyber Security Measures

- **Network Security :** Using Firewalls and Antivirus software to protect networks.
- **Data Protection :** Regular backups and strong password policies.

## Legal Aspects: IT Act 2000

In India, the primary law that deals with cybercrime and electronic commerce is the Information Technology Act, 2000.

- **Legal Recognition:** It provides legal recognition to electronic records and digital signatures.
- **Cybercrime Control:** It defines various cybercrimes (like hacking and data theft) and prescribes punishments for them.
- **Digital Signatures:** It provides the legal framework for using digital signatures to verify the identity of the sender of an electronic document.



## Important Questions and Answers

### Q1. Define Phishing.

**Ans** - Phishing is a cyber-attack where attackers send fake emails or messages to trick users into revealing sensitive information like passwords or bank details.

### Q2. What is the purpose of a Firewall?

**Ans** - A firewall acts as a barrier between a trusted network and an untrusted network (like the internet) to block unauthorized access.

### Q3. What steps should be taken if a security breach is detected in a system?

**Ans - Steps to be Taken Upon Detection of a Security Breach :**

1. Immediately change all administrative and user passwords.
2. Disconnect the compromised system from the network to prevent further spread.
3. Notify the relevant authorities or the IT security team.
4. Conduct a full system scan and restore data from a clean backup.

### Q4. What is malware? Explain three types of malware.

**Ans** - Malware, or "malicious software," is any program designed to intentionally damage, disrupt, steal data, or gain unauthorized access to computer systems and networks.

#### Three Types of Malware

**1. Virus :** A computer virus is a type of malicious code that attaches itself to a legitimate program or file. It remains dormant until the user executes the infected file. Once active, the virus can replicate itself by inserting its code into other programs and files on the system, often corrupting or deleting data in the process.

**2. Worm :** Unlike a virus, a worm is a standalone piece of malware that does not need to attach itself to an existing program. It has the ability to replicate itself automatically and spread across a network by exploiting security vulnerabilities. Because they spread so rapidly, worms often consume large amounts of network bandwidth and can crash entire systems.



**3. Trojan Horse :** A Trojan Horse is a harmful program that misleads the user by appearing as a useful or legitimate application (such as a free game or a utility tool). Once the user installs and runs the software, the Trojan "releases" its malicious payload, which can be used to steal sensitive information, spy on the user, or provide hackers with remote access to the computer.

