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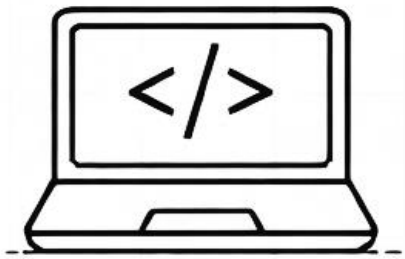
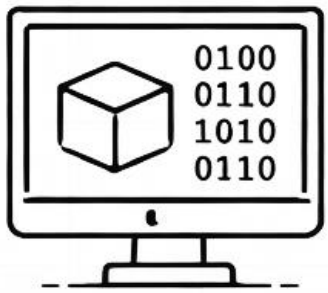
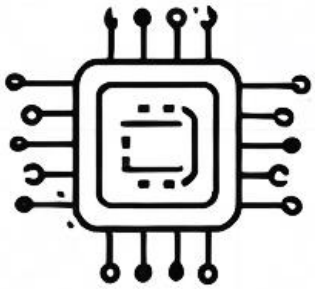
FREE NOTES

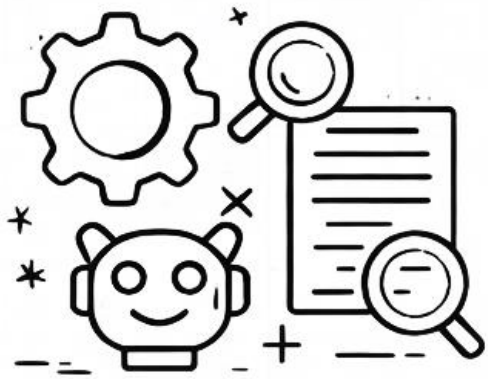
COMPUTER SCIENCE (330)

CHAPTERWISE NOTES









COMPUTER SCIENCE

Sl. No.	Module	Chapters (Public Examination)	Marks
1	**Module 1: Basic Computing**	L-2 Binary Logic; L-4 Operating System; L-5 Data Communication and Networking; L-6 Communications on Internet	7
2	Module 2: Office Automation	L-8 Digital Documentation; L-9 Spreadsheets; L-10 Digital Presentation	8
3	Module 4: Database Concepts, Web Designing	L-23 Database Management System; L-24 Web Designing using HTML; L-25 Inserting Images & Lists;	21

Component	Details	Marks
Public Exam (Selected Modules 1,2,3,)	Total Chapters : 10	36
Practical Exam	Practical	40
TMA	Tutor Marked Assignment	12
Final Possible Marks		**88 Marks**

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1

BINARY LOGIC

Introduction

Binary Logic is the basis of digital computers. In computers, all data such as letters, numbers and symbols are represented using **binary numbers (0 and 1)**. This chapter explains **number systems, conversions, character coding systems and logic gates** used in digital systems.

Number System

- Computer stores and processes two types of data:
  - **Character Data** – alphabets and special symbols
  - **Numeric Data** – numbers used for calculations
- Digital computers internally use the **Binary Number System**.
- In binary system data is represented using 0 and 1.
- **Binary system** is efficient for computers but difficult for humans because numbers become long.

Binary Numbers

- Binary Numbers are combinations of two digits**: 0 and 1.**
- Binary number system has base 2.
- Decimal number system has base 10 with digits 0–9.
- All numbers that are generated in decimal system can also be generated using binary numbers.

Octal Number and Hexadecimal Numbers

Octal Number System

- Octal Number System uses digits **0 to 7.**
- It has base **8**.
- It was earlier used to represent digital circuit numbers in a compact form.
- Octal numbers are sometimes **written as oct**.

Hexadecimal Number System

- Hexadecimal Number System uses **16 symbols.**
- Digits used**: 0–9 and A–F.**
- It has base 16.
- It is commonly used to represent digital circuit numbers.
- Hexadecimal numbers may be written with 0x before the value.

Conversion from One System to Another

1. Decimal to Binary Conversion

Steps

- Divide the decimal number **by 2.**
- Write the remainder.
- Repeat the division until **quotient becomes 0.**
- Write the remainders from right to left to get the binary number.
- **First remainder** → LSB (Least Significant Bit)
- **Last remainder** → MSB (Most Significant Bit).

2. Decimal to Octal Conversion

Steps

- Divide the decimal **number by 8.**
- Record the remainder.
- Repeat until quotient **becomes 0.**
- Write the remainders from right to left to obtain the octal number.

3. Decimal to Hexadecimal Conversion

Steps

- Divide the decimal **number by 16.**
- Record the remainder.
- Continue division until quotient becomes 0.
- Write remainders from right to left to get the hexadecimal number.
- **In hexadecimal:**
  - 10 = A
  - 11 = B
  - 12 = C
  - 13 = D
  - 14 = E
  - 15 = F.

4. Binary to Decimal

- Multiply each binary digit by the power of 2.
- Add the results to get the decimal number.

5. Octal to Decimal

- Multiply each octal digit by the power of 8.
- Add the results to obtain the decimal number.

6. Hexadecimal to Decimal

- Multiply each hexadecimal digit by the power of 16.
- Add the results to obtain the decimal number.

One's Complement And Two's Complement

One's Complement

- One's Complement of a binary number is obtained by:
  - Changing 0 to 1
  - Changing 1 to 0

Two's Complement

- Two's Complement is obtained by adding 1 to the One's Complement.
- **Formula:**
  - **2's Complement = 1's Complement + 1.**

Character Coding System (Ascii, Iscii & Unicode)

- Computers work with character data such as alphabets, numbers, punctuation marks and spaces.
- Since computers operate in binary form, characters are also represented in binary codes.
- Common character coding systems used in India are:
  - **ASCII**
  - **ISCII**

- **Unicode.**

ASCII

- ASCII – American Standard Code for Information Interchange.
- It represents characters using numeric codes.
- **Example:**
  - **A = 65**
  - ASCII value for a to z = **97 to 122.**

ISCII

- **ISCII** – Indian Script Code for Information Interchange.
- Used for Indian scripts and symbols.
- Developed by Bureau of Indian Standards in 1986 and revised in 1988.
- Helps define syllable boundaries for Indian language words.

Unicode

- Unicode provides a unique number for every character of all languages.
- Developed in 1987.
- Supports characters of many languages such as English, French, Greek and Korean.
- The first **256 codes** of Unicode are same as ASCII.
  - **Basic logic gates include:** AND, OR, NOT, NAND, NOR

1. AND Gate

- AND Gate works like the logical operator AND.
- Output is 1 only when all inputs are 1.

- If any input is 0, output becomes 0.
- Equation:
  - **C = A · B.**

2. OR Gate

- OR Gate produces output 1 if at least one input is 1.
- Output is 0 only when both inputs are 0.
- Equation:
  - **C = A + B.**

3. NOT Operation

- NOT Gate gives the complement or inverse of the input.
- If input is 0, output becomes 1.
- If input is 1, output becomes 0.
- Equation:
  - **$Q = \overline{A}$.**

Combination Gates

- **NOR Gate** = OR Gate + NOT Gate
- **NAND Gate** = AND Gate + NOT Gate

4. NOR Operation

- NOR Gate is the complement of OR operation.
- Output is true only when both inputs are false.
- If any input is true, output becomes false.

TOP QUETIONS

Q-1. What is Binary Number System?

Answer- Binary Number System is a number system that uses only two digits: 0 and 1. It has base 2 and is used by computers to represent and process all types of data.

Q-2. What is ASCII?

Answer- ASCII (American Standard Code for Information Interchange) is a character coding system that represents characters using numeric values so that computers can understand and process text.

Q-3. What is One's Complement?

Answer- One's Complement of a binary number is obtained by changing all 0s to 1s and all 1s to 0s. It is used in binary arithmetic operations.

Q-4. What is AND Gate?

Answer- AND Gate is a logic gate in which the output becomes 1 only when all inputs are 1. If any input is 0, the output becomes 0.

Q-5. What are Universal Gates?

Answer- NAND and NOR gates are called universal gates because they can be used to implement any Boolean expression or logic operation.

2

OPERATING SYSTEMS

Introduction

Binary Logic is the basis of digital computers. In computers, all data such as letters, numbers and symbols are represented using **binary numbers (0 and 1)**. This chapter explains **number systems, conversions, character coding systems and logic gates** used in digital systems.

Operating System:

- **Operating System (OS)** is the most important software that runs on a computer. It acts as an **interface between user and hardware**.

Examples of Operating Systems

- **Windows (Microsoft)**
- **Macintosh (Apple)**
- **UNIX**

File and Disk Management

File: A **collection of related information stored on secondary storage devices**.

Functions

- Allocates storage space for files.
- Organizes files on secondary storage.
- Performs **read, write and search operations**.
- Maintains **hierarchical file structure** for files and folders.

User Interface

User Interface (UI): Part of operating system through which **user interacts with the computer**.

Types of User Interface

- **CLI (Command Line Interface) :** Examples: **DOS, UNIX**
- **GUI (Graphical User Interface) :** Examples: **Windows, Linux, Solaris**

Types Of Operating System: Different operating systems are developed for different purposes.

1. Microsoft Windows

- GUI-based OS (icons, menus, mouse use)
- Easy to use, no need to remember commands
- Supports multitasking
- Versions: Windows 10, 8, 7, Vista

2. Linux

- Open-source OS (free to use & modify)
- Multi-user system
- Highly customizable
- Main parts: Kernel, System Library, System Utility

3. UNIX

- Old (1960s) but powerful OS
- Multi-user & multitasking
- Strong security system
- Used in servers & computers

Smartphone Operating Systems : iOS (Apple), Android (Google), Windows Phone (Microsoft).

TOP QUETIONS

Q-1. What is an Operating System?

Answer- An **Operating System** is system software that acts as an interface between the user and computer hardware. It manages hardware resources such as memory, processor and devices, and provides services for application programs.

Q-2. What is a Process?

Answer- A process is a program that is currently in execution. The operating system creates, schedules and terminates processes and allocates CPU time and resources to them.

Q-3. What is the difference between GUI and CLI?

Answer- GUI uses graphics, icons and menus to interact with the computer and is easy to use. CLI requires users to type commands and remember them but provides greater control and uses fewer system resources.

Q-4. Name some smartphone operating systems.

Answer- Some common smartphone operating systems are iOS, Android and Windows Phone. These operating systems allow smartphones to run applications, access the internet and perform various advanced computing functions.

3

DATA COMMUNICATION AND NETWORKING

Introduction

Data communication allows computers at different locations to exchange digital information. A computer network connects multiple computers so that they can share data and resources. This chapter explains **communication systems, transmission modes, transmission media, network devices, network topology, protocols, malware, and security concepts**.

Data Communication

- **Data Communication**: Transmission of digital data between two or more computers through communication channels.
- Data is transmitted using **electrical signals, optical fibers or wireless devices**.
- Information is exchanged in the form of **bits (0 and 1)**.
- Data is **encoded at the sender and decoded at the receiver**.

Basic Elements of Communication System

Basic elements of a communication system:

- **Transmitter**: Device that converts information into a suitable form for transmission.
- **Channel:** Physical medium used to send information from transmitter to receiver.
- **Receiver:** Device that receives and interprets the transmitted information.

Transmission Modes: Types of transmission modes:

Simplex

- Data flows **only in one direction**.
- Receiver only receives data.

Half Duplex : Data flows **in both directions**, but **one direction at a time**.

Full Duplex : Data flows **in both directions simultaneously**.

Communication Terminology

E-M Spectrum: Range of all possible frequencies of electromagnetic radiation.

Bandwidth: Range of frequencies that make up a signal. Types of bandwidth:

- **Narrowband :** Supports up to **64 Kbps**.
- **Wideband :** Supports transmission rates **greater than 64 Kbps**.
- **Broadband :** Supports speeds **above 2 Mbps**.

Transfer Rate : Amount of digital data transferred from one place to another in a given time.

Computer Network

- **Computer Network** : Group of interconnected computers used to exchange data and share resources.
- Networks allow sharing of **files, printers, and Internet connections**.
- The **Internet** is the largest example of a computer network.
- Computers may connect through **Ethernet cables or wireless signals**.

Network Devices

- **Modem:** Device that converts digital signals into analog signals and vice versa.
- **RJ45 Connector:** Standard connector used for Ethernet networking cables.
- **Ethernet Card:** Network adapter used for high-speed wired network connections.
- **Router:** Device that forwards data packets between networks.

- **Hub:** Basic device that connects multiple computers in a network.
- **Switch:** Intelligent device that sends data only to the destination device.
- **Gateway:** Device that connects networks using different protocols.
- **Bridge:** Device that connects two network segments within a network.

Types of Networks

LAN (Local Area Network)

- Network within a **small geographical area such as a building**.
- Provides **high data transfer speed**.

MAN (Metropolitan Area Network)

- Network covering a **city or campus area**.

WAN (Wide Area Network)

- Network covering a **large geographical area such as a country or the world**.
- **Internet** is an example of WAN.

Network Topology

Physical and logical arrangement of network devices and connections.

Types of topology:

- **Bus Topology:** All devices connected to a **single communication cable**.
- **Star Topology:** All nodes connected to a **central hub**.
- **Token Ring:** Data transmitted using **token passing method**.
- **Ring Topology:** Devices connected in a **circular structure**.
- **Mesh Topology:** Each node connected to **multiple other nodes**.
- **Tree Topology:** Combination of **bus and star topology** arranged hierarchically.

Network Protocols

Network Protocol: Set of rules and conventions used for communication between network devices.

Types of protocols:

- **FTP –** File Transfer Protocol
- **PPP –** Point to Point Protocol
- **TCP/IP –** Transmission Control Protocol / Internet Protocol
- **HTTP –** Hypertext Transfer Protocol
- **HTTPS –** Hypertext Transfer Protocol Secure
- **SLIP –** Serial Line Internet Protocol

Malwares

Malware: Malicious software designed to damage computer systems.

Virus: Program that **infects and damages files or data**.

Spam: Unwanted bulk emails usually used for advertisements.

Hacking: Unauthorized access to a **computer system or network** to exploit weaknesses.

Security Concept

Firewall: Security system that monitors and controls incoming and outgoing network traffic.

Antivirus: Software designed to detect, prevent, and remove computer viruses.

Cyber Ethics: Ethical guidelines for **responsible use of computers and the Internet**.

TOP QUETIONS

Q-1. What is Data Communication?

Answer- **Data communication** is the process of transmitting digital data between two or more computers through communication channels such as cables, optical fibers, or wireless media. It allows computers to exchange information over networks.

Q-2. What are the transmission modes in data communication?

Answer- Transmission modes are **Simplex, Half Duplex, and Full Duplex**. Simplex allows one-way communication, Half Duplex allows communication in both directions but one at a time, and Full Duplex allows simultaneous two-way communication.

Q-3. What is a computer network?

Answer- A computer network is a group of interconnected computers that communicate and share resources such as files, printers, and Internet connections. Networks improve communication and resource sharing among users.

Q-4. What is Network Topology?

Answer- Network topology is the arrangement of nodes and connections in a computer network. Common types include Bus, Star, Ring, Mesh, Token Ring, and Tree topology.

Q-5. What is a Firewall?

Answer- A firewall is a hardware or software security system that monitors and controls incoming and outgoing network traffic. It protects computer networks from unauthorized access and external attacks.

4

COMMUNICATIONS ON INTERNET

Introduction

Data communication allows computers at different locations to exchange digital information. A computer network connects multiple computers so that they can share data and resources. This chapter explains **communication systems, transmission modes, transmission media, network devices, network topology, protocols, malware, and security concepts**.

Internet

- **Internet**: A vast communication network that connects thousands and millions of computers across the globe.
- It is called a **network of networks** because it consists of many smaller interconnected networks.
- Users on the Internet can **share resources and communicate with each other**.
- Internet provides services like **email, chatting, blogging, and social networking**.
- Internet is an **information hub** where users can search information on almost any topic.

History of Internet

- **ARPANET (Advanced Research Projects Agency Network)** was created by the **U.S. Department of Defence**.
- It connected researchers, military personnel, and universities for communication.
- Later **NSFNet** linked high-speed computers.
- These networks gradually evolved into the **modern Internet** used worldwide.

Internet Terminologies

- **Webpage:** A document that can be viewed in a web browser.
- **Website:** A collection of interlinked web pages connected through hyperlinks.
- **World Wide Web (WWW):** A system of Internet servers that support documents formatted using HTML.
- **Web Browser:** Software application used to view web pages and navigate the web.
- **Web Server**: Server that responds to requests made by web browsers.
- **URL (Uniform Resource Locator):** Unique address used to identify a web page or resource on the Internet.

General format of URL: type://address/path

- **IP Address:** Unique numerical address assigned to every computer connected to the Internet.
- **HTML (Hyper Text Markup Language):** Markup language used to design and format web pages using tags.
- **XML (Extensible Markup Language):** Language used to structure and describe data in a human-readable and machine-readable format.
- **ISP (Internet Service Provider):** Organization that provides Internet access and related services to users.

Internet Protocols

- **Protocol:** A set of rules followed during communication on a network.

Common Internet protocols:

TCP/IP (Transmission Control Protocol / Internet Protocol)

- Basic protocol of the Internet.

- **TCP** divides messages into packets and reassembles them at the destination.
- **IP** assigns addresses and ensures correct delivery.

FTP (File Transfer Protocol)

- Used to **transfer files over a TCP/IP network**.
- Divides files into segments and reassembles them at destination.

HTTP (Hyper Text Transfer Protocol)

- Protocol used to **transfer hypertext documents on the World Wide Web**.
- Defines communication between **web browsers and web servers**.

Working Of Internet

- Every computer connected to Internet is called a **host**.
- Computers communicate using **communication media** such as telephone lines, fiber optics, microwaves, and satellites.
- Internet communication follows **TCP/IP protocol**.

Internet Services:

Internet provides various communication services.

Email :

Email (Electronic Mail):Messages sent electronically over the Internet.

- Emails travel through **multiple channels until they reach the destination address**.

Instant Messaging and Chat Rooms

Instant Messaging (IM)

- Service that allows **instant text communication between users**.

- Users can send **messages, links, images, videos, and audio files**.

Chat Rooms

- Online service where **multiple users communicate in real time**.
- Participants may discuss topics using **text, voice, or video communication**.

Newsgroups

Newsgroup: Public discussion forum where users exchange information about a specific topic.

- Messages are posted on a bulletin board.
- Users can read and respond to messages anytime.

Blogs : Website that contains online personal journal entries with comments and links.

Video Conferencing

Video Conferencing: Technology that allows communication between people at different locations using audio and video transmission. Types of video conferencing: **Point-to-Point, Multipoint, Streaming**

Social Networking

Social Networking: Internet service that allows users to build social relationships online.

Features:

- Users create **profiles**.
- Add **friends and connections**.
- Exchange **messages and information**.
- Join **interest groups and communities**.

Cookies :

Small messages sent by a web server to a web browser and stored in a text file.

Cloud Computing

Internet-based computing where data and applications are stored and accessed through the Internet instead of local devices.

Features:

- Resources are **shared over the Internet**.
- No need to install applications on personal devices.
- Provides **software services and storage space online**.
- Requires **web browser and Internet connection**.

TOP QUETIONS

Q-1. What is Internet?

Answer- Internet is a global communication network that connects millions of computers worldwide. It allows users to exchange information, access services, and share resources through interconnected networks.

Q-2. What is a URL?

Answer- A **URL (Uniform Resource Locator)** is the unique address used to identify and locate a resource on the Internet, such as a web page, image, or video.

Q-3. What is TCP/IP protocol?

Answer- TCP/IP is the fundamental Internet protocol. TCP divides data into packets and reassembles them at the destination, while IP assigns addresses and ensures that packets reach the correct computer.

Q-4. What is a Blog?

Answer- A blog is a website that contains personal or informational journal entries posted by a user. The process of writing and editing blog content is known as blogging.

5

DIGITAL DOCUMENTATION

Introduction

Digital documentation refers to documents created and stored in electronic form. These documents can be easily edited, formatted, copied and shared. Word processing software such as **Apache OpenOffice Writer** helps users create professional digital documents efficiently.

Word Processing And Word Processors

- **Word Processor:** Application software used to create, edit, format and print textual documents.
- The document created using a word processor is called a **document**.
- The process of creating documents using a word processor is called **word processing**.
- Documents may contain **text, images, tables and drawings**.
- Examples mentioned: **MS Word, OpenOffice Writer, WordPerfect**.

Features of Word Processor

- Allows creating, editing and saving documents.
- Enables text formatting such as bold, italic, size and colour change.
- Allows insertion of images, tables and objects.
- Find and Replace feature searches and replaces words.
- Spelling and Grammar Check corrects spelling errors.
- OLE (Object Linking and Embedding) inserts charts, pictures, audio or video.
- Mail Merge creates personalized documents.

Starting Openoffice Writer

- **OpenOffice Writer :** Word processor included in the OpenOffice Suite.
- Writer follows **WYSIWYG (What You See Is What You Get)** concept.

Start Writer : Start → All Programs → OpenOffice → Writer

Creating A New Document

Steps to create a new document:

- Click **File** → **New**
- Select **Text Document**
- A new document window opens. **Shortcut key (Ctrl + N)**

Saving A Document

Saving stores the document in the **computer's hard disk**.

Steps to save a document:

1. Click **File** → **Save As**
2. Choose folder location
3. Type file name

4 Click **Save (**Default file extension: **.odt)**

Important shortcut key :

Shortcut Key	Function
Ctrl + N	New document
Ctrl + S	Save document
Ctrl + Shift + S	Save As
Ctrl + O	Open document
Ctrl + P	Print document
Ctrl + A	Select all text
Ctrl + C	Copy text
Ctrl + V	Paste text

Shortcut Key	Function
Ctrl + X	Cut text
Ctrl + F	Find text
Ctrl + B	Bold text
Ctrl + I	Italic text
Ctrl + U	Underline text
F7	Spelling & Grammar check)
Ctrl + F12	Insert table

TOP QUETIONS

Q-1. What is a Word Processor?

Answer- A **Word Processor** is application software used to create, edit, format and print textual documents. It helps users produce professional documents containing text, images and tables.

Q-2. What is Formatting in Writer?

Answer- Formatting is the process of improving the appearance of a document by changing font style, size, alignment, spacing and page layout. It makes documents more readable and organized.

Q-3. What is Mail Merge?

Answer- Mail Merge is a feature used to create personalized documents such as letters or labels for many recipients. It combines a main document with data stored in a database.

Q-4. What is a Table in Writer?

Answer- A table is a structure made of rows and columns used to organize information clearly in a document. It helps present data in a systematic format.

Q-5. What is Track Changes?

Answer- Track Changes is a feature that records modifications made to a document. It shows inserted or deleted text in different colours and displays the user name and time of modification.

6

SPREADSHEETS

Introduction

Spreadsheets are application software used for **handling numerical data and short text**. Data is organized in **rows and columns**, which helps in performing calculations, analysing data and creating charts. Spreadsheet software like **OpenOffice Calc** helps in managing and presenting data efficiently.

Applications Of Spreadsheets

Spreadsheet: Application software used to store, calculate and analyse numerical data arranged in rows and columns.

Applications:

- Acts like a **calculator** for automatic calculations.
- Useful for **storing and analysing information**.
- Automatically **recalculates results when values change**.
- Used for managing **financial data and transactions**.
- Data can be represented using **charts and graphs**.
- Provides **built-in functions** for easy data processing.

Starting Openoffice Calc

Steps to start Calc:

- Click **Start → All Programs → OpenOffice 4.1.1**
- Select **OpenOffice Calc**

- The **Calc Application Window** appears.

OpenOffice Calc is a **spreadsheet application of OpenOffice Suite**.

Window Components & Basics

- **Title Bar:** Displays the workbook and application name.
- **Menu Bar:** Access to File, Edit, View, Insert, Format, etc.
- **Standard Toolbar:** Common tools like New, Open, Save, Print, Cut/Copy/Paste.
- **Formatting Toolbar:** Tools for Font style, Size, Bold, Italic, and Alignment
- **Formula Toolbar:** Includes the Name Box (Cell address) and Formula Bar (Cell content/formula).
- **Worksheet Structure:** Divided into Rows (1, 2, 3...) and Columns (A, B, C...).
- **Active Cell:** The currently selected cell with a dark border.
- **Sheet Tabs:** Located at the bottom (Sheet1, Sheet2...).
- **Status Bar:** Shows current sheet info and zoom levels.

Functions (Predefined Formulas)

All functions start with =. Use the Function Wizard to find categories like Math, Statistical, or Text.

1. SUM(range): Adds all numbers (e.g., =SUM(A1:A10)).
2. AVERAGE(range): Calculates the mean.
3. LEN(cell): Counts the number of characters in a cell.
4. TODAY(): Displays the current system date (no arguments needed).

Data Management

- **Sorting:** Arranging data in Ascending (A-Z) or Descending (Z-A) order.
- **Filtering:** Using **AutoFilter** to show specific records and hide others without changing the order.

TOP QUETIONS

Q-1. What is a Spreadsheet?

Answer- A Spreadsheet is application software used to store, organise and analyse numerical data in rows and columns. It allows users to perform calculations, apply formulas, create charts and analyse data efficiently.

Q-2. What are the applications of spreadsheets?

Answer- Spreadsheets are used for:

- Performing **automatic calculations**
- Managing **financial data and transactions**
- Analysing information using **formulas and functions**
- Representing data using **charts and graphs**
- Performing **What-if analysis** for decision making.

Q-3. What is Cell Referencing? Explain its types.

Answer- Cell Referencing is the method of referring to cell addresses in formulas.

Types:

- **Relative Referencing:** Cell address changes when formula is copied.
- **Absolute Referencing:** Cell address remains fixed using $ symbol.
- **Mixed Referencing:** Combination of relative and absolute referencing.

Q-4. What are Functions in a Spreadsheet?

Answer- A table is a structure made of rows and columns used to organize information clearly in a document. It helps present data in a systematic format.

Q-5. What is Track Changes?

Answer- Track Changes is a feature that records modifications made to a document. It shows inserted or deleted text in different colours and displays the user name and time of modification.

7

DIGITAL PRESENTATION

Introduction

Digital presentation is used to **present information to a group of people using slides**. Slides may contain **text, graphics, audio and video**. Presentation software like **OpenOffice Impress** helps in communicating ideas in an organized and attractive way.

Introduction To Impress

Impress : Presentation software included in the **OpenOffice Suite** used to create slide-based presentations.

Features of Impress:

- Allows creating and customizing **presentations**.
- Supports **text, images, tables, audio and video**.
- Provides **themes, background colours and text styles**.
- Supports **animation and slide transition effects**.
- Presentations can be viewed as **web pages in a browser**.
- Allows creating **handouts, speaker notes and charts**.

Creating an Empty Presentation

Steps:

- Start **OpenOffice Impress**.
- **Presentation Wizard** appears.
- Select **Empty Presentation** option.

- Choose **slide design** and **background**.
- Select **output medium (Screen, Paper etc.)**.
- Choose **transition effect and speed**.
- Click **Create** to open the presentation window.

Opening An Existing Presentation

Steps:

- Select **Open Existing Presentation** in Presentation Wizard.
- Choose required **file from list**.
- Click **Open**.

Alternative method:

- Click **File** → **Open**.
- Browse the file location.
- Select presentation file.
- Click **Open**.

Closing A Presentation

Steps:

- Click **File** → **Close** to close the presentation.
- Click **File** → **Exit** or close button to exit Impress.
- If file is not saved, a **message box appears** asking to save changes.

Options available:

- **Save** – saves the presentation

- **Discard** – closes without saving
- **Cancel** – cancels closing process.

View Tabs : Six views available: **Normal View, Outline View, Notes View, Handouts View, Slide Sorter View, Slide Show View**

Inserting A New Slide

Steps:

- Click **Insert** → **Slide**.
- Or **Right click** → **Slide** → **New Slide**.
- New slide appears in **workspace**.
- Layout can be selected from **Layouts section**.

Important point:

First slide is usually the **Title Slide** containing **title and subtitle**.

Adding Transitions

Transitions: Effects seen when the presentation moves from one slide to another.

Steps:

- Select the slide.
- Click **Slide Transition** in the docking tasks pane.
- Select transition style from the list.
- Choose **speed of transition**.
- Optionally add **sound**.
- Select slide advance option:

- **On Mouse Click**
- **Automatically After time**.

- Click **Apply to All Slides** if needed.

Applying Animation Effects

Animation: Special effect applied to text, pictures or objects on a slide.

Steps:

- Select the object to animate.
- Click **Custom Animation** in the docking pane.
- Click **Add** to select animation effect.
- Choose effect from **Entrance, Exit, Emphasis** etc.
- Select **start option, speed and direction**.
- Use **Change Order buttons** to set animation order.

Viewing Slide Show

Steps:

- Click **Slide Show → Slide Show**.
- Slides appear in **full screen mode**.

  Shortcut key: **F5**

Important point: Press **Esc** to exit the slide show.

Publishing A Presentation

Publishing: Converting a presentation into **web pages (HTML format)** for viewing in a browser.

Steps:

- Create a folder to store web files.
- Open the presentation.
- Click **File** → **Export**.
- Select **HTML Document (.html)** format.
- HTML Export Wizard appears.
- Choose design, format and navigation buttons.
- Click **Create** to generate web pages.

TOP QUETIONS

Q-1. What is OpenOffice Impress? Write its main features.

Answer- **OpenOffice Impress** is presentation software used to create slide-based presentations. It allows users to add text, pictures, tables, audio and video. It also provides features like templates, slide transitions, animation effects and tools for creating handouts and notes.

Q-2. What is Slide Master?

Answer- Slide Master is a slide that acts as a template for all slides in a presentation. It defines common elements such as background colour, text formatting and graphics. Changes made in Slide Master are automatically applied to all slides.

Q-3. What is the difference between Transition and Animation?

Answer- **Transition** is the effect that occurs when one slide changes to another during a presentation. **Animation** is the effect applied to objects like text, images or shapes on a slide to control how they appear or move.

8

DATABASE MANAGEMENT SYSTEMS

Introduction

A **Database Management System (DBMS)** is software used to store and manage data in an organized way. It helps computers process large amounts of data efficiently and allows users to store, retrieve and manipulate information easily.

Terminology

Database: An organized collection of data.

- Databases store large amounts of information in an **organized form**.
- Examples include **telephone directory, book index, student records**.

Need of Computerized Database

Manual databases create several problems:

- **Redundancy:** Multiple copies of the same data.
- **Inconsistency:** Different versions of the same data stored in different places.
- **Loss of Integrity:** Data becomes incorrect or invalid.
- **Data Insecurity:** Unauthorized users may alter data.

Advantages of computerized databases:

- Redundancy is controlled
- Consistency is maintained
- Data integrity is ensured

- Data sharing becomes possible
- Security restrictions can be applied.

Database Management System (DBMS) : Software used to create and manage computerized databases.

Relational Database Management System (RDBMS) : A DBMS based on the **relational model** introduced by **E. F. Codd**.

Relational Database: Database where data is stored in **two-dimensional tables**.

Table components:

- **Rows** → records or tuples
- **Columns** → attributes or fields.

Schema: Structure or organization of the entire database.

Entity: A person, object or concept for which data is stored. **Examples:** Student, Teacher, Course, Book.

Relation: A table containing data related to the same type of entity. A database can contain **multiple relations (tables)**.

Tuple / Row / Record: A single row of a table representing one record. The number of tuples in a table is called **cardinality**.

Attribute

- A column in a table representing a property of an entity.
- Number of attributes is called **degree of relation**.

Domain

Domain: The set of possible values that a column can contain. **Example:** Roll numbers from **1–50**.

Key

- A column or combination of columns used to identify a record in a table.

Primary Key

- **Primary Key:** Column or set of columns used to uniquely identify each row.

Candidate Key

- **Candidate Key :** A column or group of columns that can become the primary key.
- A table may have **multiple candidate keys**.

Alternate Key: Candidate keys that are **not selected as the primary key**.

Foreign Key: Column used to create relationship between two tables.

Data Models

To design a database properly, three models are created:

1. **Conceptual Data Model**
2. **Logical Data Model**
3. **Physical Data Model**

These models help developers design the database structure step-by-step.

Conceptual Data Model

Conceptual Data Model : High-level representation of database showing entities and relationships.

Features:

- Shows **entities and relationships**
- Does not specify **attributes**
- Does not specify **primary keys**

Example entities: Students , Courses, Marks, Results.

Logical Data Model

- **Logical Data Model:** Detailed model showing entities, attributes and relationships.

Features:

- Includes **all entities and relationships**
- Specifies **attributes of entities**
- Specifies **primary keys**
- Specifies **foreign keys**
- **Normalization** occurs at this level.

Physical Data Model

- **Physical Data Model:** Actual implementation of database structure in the computer system.

Features:

- Shows table structures
- Defines column names and data types
- Defines primary keys and foreign keys
- Defines relationships between tables.

MYSQL

- **MySQL:** An **open-source RDBMS software** used to create and manage relational databases.

Important points:

- MySQL can be downloaded free of cost.
- It allows users to create databases and tables.
- Data can be stored, retrieved and manipulated using SQL commands.

Structured Query Language

- **SQL (Structured Query Language):** A language used to create, manage and manipulate relational databases.

Important features:

- SQL is a **non-procedural language**.
- SQL is **case-insensitive**.
- Every SQL statement ends with **semicolon (;)**.
- Commands can be written in **multiple lines**.

Classes of SQL Commands

A. Table Structure (DDL)

- **Create Database:** CREATE DATABASE school;
- **Create Table:** sql CREATE TABLE ITEMS (item_code CHAR(5), item_desc VARCHAR(20), CP DECIMAL(6,2));
- **View Structure:** DESC ITEMS;
- **Modify Structure (ALTER):** Add Column: ALTER TABLE ITEMS ADD profit INT;

Remove Column: ALTER TABLE ITEMS DROP profit;

- **Delete Table:** DROP TABLE ITEMS; (Removes table permanently).

B. Data Operations (DML)

- **Insert Data:** INSERT INTO ITEMS VALUES ('A01', 'Milk', 40.00);
- **Update Data:** UPDATE ITEMS SET SP = 50 WHERE item_code = 'A01';
- **Delete Records:** DELETE FROM ITEMS WHERE CP > 100; (Use DELETE FROM ITEMS; to clear all data).

C. Querying Data (SELECT)

- **Show All:** SELECT * FROM ITEMS;
- **Specific Columns:** SELECT Item_Desc, SP FROM ITEMS;
- **Unique Values:** SELECT DISTINCT CP FROM ITEMS;
- **Condition (WHERE):** SELECT * FROM ITEMS WHERE CP > 30;
- **Sorting (ORDER BY):** SELECT * FROM ITEMS ORDER BY SP DESC; (Default is ASC).

MySQL Data Types

- **CHAR(n):** Fixed length string (stores exact *n* characters).
- **VARCHAR(n):** Variable length string (stores up to *n* characters).
- **INT / INTEGER:** Stores whole numbers.
- **DECIMAL(p, s):** Fractional numbers (e.g., DECIMAL(6,2) means total 6 digits, 2 after decimal).
- **DATE:** Stores date values (Format: 'YYYY-MM-DD').

TOP QUETIONS

Q-1. What is DBMS?

Answer- A Database Management System (DBMS) is software used to create, store, organize and manage data in a structured form. It allows users to retrieve, update and maintain data efficiently.

Q-2. What is a Relational Database?

Answer- A **relational database** is a database in which data is stored in tables consisting of rows and columns. These tables are related to each other through keys.

Q-3. What is SQL?

Answer- SQL (Structured Query Language) is a language used to create, manage and manipulate relational databases. It provides commands for creating tables, inserting data and retrieving information.

Q-4. What is the SELECT command?

Answer- The SELECT command is used to retrieve data from one or more tables in a database. It can display all columns or specific columns based on conditions.

Q-5. What is the difference between Primary Key and Foreign Key?

Answer- A **Primary Key** uniquely identifies each record in a table. A **Foreign Key** is used to create a relationship between two tables by referencing the primary key of another table.

9

WEB DESIGNING USING HTML

Introduction

Web designing is the process of creating **web pages for the Internet**. These web pages contain components like **text, images, forms, hyperlinks, audio and video**. **HTML (Hyper Text Markup Language)** is the basic language used to design and structure web pages.

Components Of Web Page

- A **Web Page** may contain different types of contents such as:
    - **Text**, **Images**, **Hyperlinks**, **Forms**, **Audio**, **Video**
- A **Website :** Collection of **interlinked web pages**.
- Web pages are connected using **hyperlinks**.

What Is Html?

HTML (Hyper Text Markup Language): Basic language used to **create web pages**.

Important points:

- HTML document is a **text file**.
- It can be created using **text editors like Notepad**.
    - File extension of HTML document is: **.html, .htm**
- When opened in a browser, the document appears as a **web page**.

HTML Tags

- **Tag:** Special keyword enclosed within **< >** **brackets** used to give instructions to the browser.

Types of tags:

- **Structural Tags**: Define the **structure of a web page**.
- **Formatting Tags**: Used to **format the contents** of a web page.

Examples:

- **Structural tags:** <HTML>, <HEAD>, <BODY>
- **Formatting tags:** <B>, <BR>, <HR>, <IMG>

Container Elements

Container Element: Element having **opening tag and closing tag**.

Example:

- <HTML> ... </HTML>
- <BODY> ... </BODY>

Empty Elements

- **Empty Element:** Element that contains only a starting tag. **Example:**

Attributes

- **Attribute :** Property used to **change the default behavior of a tag**.

Important points:

- Attribute values are assigned using **= sign**.
- Many tags support **multiple attributes**.

Example: <P ALIGN = RIGHT>

Structure of HTML Document

Basic structure:

<HTML>

<HEAD>

<TITLE>Page Title</TITLE>

</HEAD>

<BODY>

Content of web page

</BODY>

</HTML>

Formatting Tags & Attributes

Tag	Purpose	Key Attributes / Notes
<P>	New Paragraph	ALIGN (Left, Right, Center, Justify)
** **	Line Break	Moves text to the next line (Empty Tag)
<B>, <I>, <U>	Bold, Italic, Underline	Used for text emphasis
<CENTER>	Align Center	Places content in the middle
<FONT>	Text Styling	FACE (Style), SIZE (1-7), COLOR
<H1> to <H6>	Headings	<H1> is Largest; <H6> is Smallest
<HR>	Horizontal Rule	WIDTH, SIZE (Thickness), COLOR, NOSHADE

TOP QUETIONS

Q-1. What is HTML?

Answer- HTML (Hyper Text Markup Language) is the basic language used to create web pages. It uses tags to structure and format the contents of a web page.

Q-2. What is a Web Page and Website?

Answer- A web page is a document displayed in a web browser containing text, images, links and other content. A website is a collection of interlinked web pages.

Q-3. What is a Tag in HTML?

Answer- A tag is a special keyword enclosed within angular brackets (< >) used to instruct the browser how to display content on a web page.

Q-4. What is the difference between Container and Empty elements?

Answer- A container element has both opening and closing tags such as **<BODY>...</BODY>.** An empty element has only a starting tag such as **
.**

Q-5. What is the use of <HR> tag?

Answer- The <HR> tag is used to draw a horizontal line on a web page. It separates different sections of a web page and improves the visual layout.

10

INSERTING IMAGES AND LISTS IN A WEB PAGE

Introduction

Web pages become more attractive when they contain **images and structured information**. HTML allows inserting images and different types of lists in a web page. These features help organize content and make the web page easier to read and understand.

Image Formats

Digital images exist in different **file formats**.

Common formats used for web pages: **JPG (JPEG), GIF, PNG**

Inserting Images In A Web Page

- Images are inserted using the **<IMG> tag**.

<IMG> Tag: Tag used to **insert an image in a web page**.

Basic syntax: <IMG SRC = image_name>

Attributes of <IMG> Tag

SRC: Specifies the **URL or location of the image file**.

Example: <IMG SRC = dream1.jpeg>

BORDER: Specifies **border width around the image**.

Unit: Pixels

HEIGHT: Specifies **height of the image** in pixels.

WIDTH: Specifies **width of the image** in pixels.

ALT: Displays **alternate text when image cannot be displayed**.

Purpose: Helps user understand **which image should appear** if image is missing.

TOP 5 QUETIONS

Q-1. What is the use of <IMG> tag?

Answer- The **<IMG> tag** is used to insert images in a web page. The image location is specified using the **SRC attribute**, which provides the URL or file name of the image.

Q-2. What are the common image formats used in web pages?

Answer- Common image formats used in web pages are JPG, GIF, and PNG. JPG is used for photographs, GIF is used for images with fewer colors, and PNG is suitable for images with transparency.

Q-3. What is an unordered list in HTML?

Answer- An **unordered list** is a list in which items are displayed with bullets. It is created using **<UL> tag**, and each list item is inserted using **<LI> tag**.

Q-4. What is an ordered list?

Answer- An **ordered list** is a list where items are arranged in a specific sequence using numbers or letters. It is created using the **<OL> tag**, and list items are inserted using **<LI> tag**

Q-5. What is a definition list?

Answer- A definition list is used to display terms and their definitions. It is created using <DL> tag, where <DT> defines the term and <DD> defines the description.