

Chapter 1

Introduction to Computer

1. Introduction to Computer

A computer is an electronic device that accepts data as input, processes it according to a set of instructions, stores data/results, and produces meaningful information as output.

Basic Computer Working

Input → Processing → Output → Storage

Example:

If we enter two numbers 10 and 20 and ask the computer to add them:

- **Input: 10 and 20**
- **Processing: Addition**
- **Output: 30**
- **Storage: Result can be saved for future use**

Definition

A computer is an electronic programmable machine that accepts data, processes it according to instructions, stores it, and produces information as output.

2. Characteristics of a Computer

1. Speed

A computer can perform millions or billions of calculations in a very short time.

2. Accuracy

A computer produces highly accurate results if the instructions and data supplied are correct.

GIGO:

Garbage In, Garbage Out

This means incorrect input produces incorrect output.

3. Diligence

A computer does not become tired or bored. It can perform the same task repeatedly with the same efficiency.

4. Storage

Computers can store a large amount of data and retrieve it whenever required.

5. Automation

Once a program is started, a computer can perform tasks automatically according to instructions.

6. Versatility

A computer can perform many different types of tasks.

For example:

- Typing documents
- Calculations
- Internet browsing
- Designing
- Video editing
- Programming
- Accounting
- Gaming

7. Reliability

Computers can perform repetitive operations consistently without loss of concentration.

8. Multitasking

A computer can work with multiple programs at the same time.

Example:

You can:

- Play music
- Browse the Internet
- Download a file
- Work in MS Word

at the same time.

3. Limitations of Computer

Although computers are powerful, they have limitations.

1. No Intelligence of Its Own

A computer cannot normally think like a human. It follows instructions given by humans/programs.

2. No Feelings

A computer does not have emotions, feelings, or common sense like humans.

3. Dependency

A computer requires hardware, software, electricity/power, and instructions to perform useful work.

4. GIGO

Wrong input or instructions can produce wrong results.

5. Security Risks

Computers can be affected by:

- Viruses
- Malware

- Ransomware
 - Hacking
 - Data theft
-

4. Applications of Computers

Computers are used in almost every field.

Field	Uses
Education	Online classes, examinations, e-learning
Banking	ATM, online banking, transactions
Business	Accounting, billing, payroll
Healthcare	Patient records, diagnosis support
Government	Records, online services
Railway	Ticket booking and reservation
Communication	Email, video calls, messaging
Designing	AutoCAD, CorelDRAW, Photoshop
Entertainment	Movies, music, games
Science	Research and calculations
Industry	Automation and production
Defence	Communication and monitoring
E-Commerce	Online shopping and payments

5. Data and Information

These two terms are very important.

Data

Data means raw facts and figures that have not yet been processed.

Examples:

25

50

Anil

85

12/08/2026

Data may include:

- Numbers
- Text
- Images
- Audio
- Video
- Symbols

Information

Information is processed and meaningful data.

Example:

Suppose marks are:

50, 60, 70, 80

After calculating the average:

Average = 65

Here, 50, 60, 70, 80 are data, while 65 as the calculated result is information.

Difference

Data	Information
Raw facts	Processed facts
May not have meaning by itself	Meaningful
Input to computer	Output after processing
Example: 50, 60, 70	Example: Average = 60

6. Computer System

A computer system consists mainly of:

1. Hardware
2. Software
3. Data
4. Users
5. Procedures

Hardware

The physical parts of a computer that we can see and touch are called hardware.

Examples:

- Keyboard
- Mouse

- Monitor
- CPU
- Printer
- Scanner
- Hard disk
- RAM

Software

Software is a collection of programs/instructions that tells the computer what to do.

Examples:

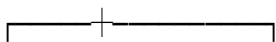
- Windows
- Linux
- MS Word
- MS Excel
- Photoshop
- Tally Prime
- Google Chrome

7. Hardware

Hardware can broadly be divided into:

Computer Hardware

↓



Input Processing Output

↓

Storage

Major Hardware Categories

1. Input Devices

Used to enter data and instructions.

Examples:

- Keyboard
- Mouse
- Scanner
- Microphone
- Webcam

- Joystick
- Touchscreen

2. Processing Devices

The main processing component is the CPU.

CPU stands for:

Central Processing Unit

It is commonly called the brain of the computer, although technically it is the main processor that executes instructions.

3. Output Devices

Used to display or produce results.

Examples:

- Monitor
- Printer
- Speaker
- Projector
- Headphones

4. Storage Devices

Used to store data and programs.

Examples:

- Hard Disk Drive
- SSD
- Pen Drive
- Memory Card
- CD/DVD

8. CPU — Central Processing Unit

CPU is responsible for executing instructions and performing processing operations.

The major components of a CPU are:

1. ALU

Arithmetic Logic Unit

It performs:

Arithmetic operations

- Addition
- Subtraction

- Multiplication
- Division

Logical operations

- Greater than
- Less than
- Equal to
- AND
- OR
- NOT

2. CU

Control Unit

It controls and coordinates different operations of the computer.

It:

- Fetches instructions
- Decodes instructions
- Controls execution
- Coordinates other components

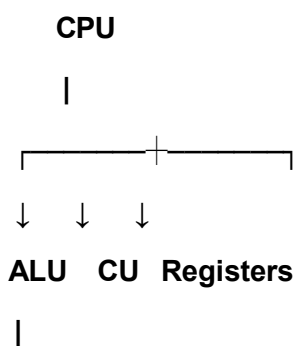
3. Registers

Registers are very fast, small storage locations associated with the processor.

They temporarily hold:

- Data
- Instructions
- Addresses
- Intermediate results

CPU Block



Arithmetic s

Logical Operations

G. Software

Software is a set of programs/instructions used to operate a computer and perform specific tasks.

Software is broadly divided into:

- 1. System Software**
 - 2. Application Software**
-

G.1 System Software

System software controls and manages computer hardware and provides a platform for application software.

Examples

- Windows**
- Linux**
- macOS**
- Android**
- Device drivers**
- Utility programs**

Operating System

An Operating System (OS) is system software that manages computer hardware and software resources and provides an interface for users.

Examples:

- Windows 11**
- Linux**
- Android**
- macOS**

Functions of Operating System

- Memory management**
 - File management**
 - Process management**
 - Device management**
 - Security**
 - User interface**
 - Resource management**
-

10. Application Software

Application software is designed to perform specific tasks for users.

Examples

Software Purpose

MS Word Word processing

MS Excel Spreadsheet/calculation

PowerPoint Presentation

Photoshop Image editing

CorelDRAW Graphic designing

Tally Prime Accounting

AutoCAD Engineering/designing

VLC Multimedia

Chrome Web browsing

Types of Application Software

General-Purpose Software

Used by many types of users.

Examples:

- **Word processors**
- **Spreadsheets**
- **Presentation software**
- **Web browsers**

Special-Purpose Software

Designed for a specific purpose.

Examples:

- **Railway reservation software**
- **Banking software**
- **Hospital management software**
- **Payroll software**

11. Firmware

Firmware is software permanently or semi-permanently stored in a hardware device to control its basic functions.

Examples:

- **BIOS/UEFI firmware**
- **Firmware in routers**

- Firmware in printers
- Firmware in smart devices

Firmware acts as a bridge between hardware and higher-level software.

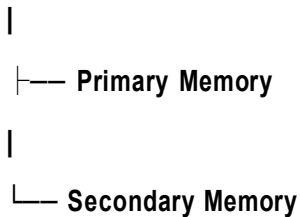
12. Memory

Memory is used to store:

- Data
- Instructions
- Programs
- Results

Computer memory is broadly divided into:

Memory



13. Primary Memory

Primary memory is directly accessible by the CPU and is used during processing.

Major types:

1. RAM
2. ROM
3. Cache Memory

13.1 RAM

RAM = Random Access Memory

RAM temporarily stores data and programs that the CPU is currently using.

Characteristics

- Fast
- Read/write memory
- Usually volatile
- Used during active processing

Volatile Memory

When power is switched off, data stored in RAM is normally lost.

Example:

If you are working on a document and the computer suddenly loses power before saving, unsaved data may be lost.

14. Types of RAM

SRAM

Static Random Access Memory

Features:

- Very fast
- Expensive
- Does not require constant refreshing like DRAM
- Commonly used for cache memory

DRAM

Dynamic Random Access Memory

Features:

- Less expensive than SRAM
 - Higher density
 - Requires periodic refreshing
 - Commonly used as main system memory
-

15. ROM

ROM = Read Only Memory

ROM is non-volatile memory that retains stored information when power is removed.

It is used for firmware and other essential startup instructions.

Types of ROM

PROM

Programmable Read Only Memory

Can generally be programmed once.

EPROM

Erasable Programmable Read Only Memory

Can be erased, traditionally using ultraviolet light, and programmed again.

EEPROM

Electrically Erasable Programmable Read Only Memory

Can be electrically erased and reprogrammed.

16. Cache Memory

Cache is a very fast memory located close to or integrated with the CPU.

It stores frequently needed data and instructions so the CPU can access them quickly.

Levels of Cache

- L1 Cache – Very fast, usually smallest
- L2 Cache – Larger than L1, generally slower than L1
- L3 Cache – Larger and generally slower than L1/L2

Memory Speed Concept

A simplified hierarchy is:

CPU Registers

↓

L1 Cache

↓

L2 Cache

↓

L3 Cache

↓

RAM

↓

SSD/HDD

Generally, moving downward means larger capacity but slower access.

17. Secondary Memory

Secondary memory is used for long-term storage of data.

It is generally non-volatile.

Examples:

- HDD
 - SSD
 - Pen Drive
 - Memory Card
 - CD/DVD
 - External Hard Drive
-

18. HDD

HDD = Hard Disk Drive

It uses magnetic disks/platters to store data.

Advantages

- **Large storage capacity**
- **Lower cost per GB**
- **Suitable for bulk storage**

Disadvantages

- **Slower than SSD**
 - **Contains moving mechanical parts**
 - **More sensitive to physical shock**
-

19. SSD

SSD = Solid State Drive

SSD uses flash memory and has no moving mechanical platters.

Advantages

- **Faster**
- **Quiet**
- **Lower access latency**
- **More resistant to physical shock than HDD**
- **Faster boot and application loading**

Disadvantage

Usually more expensive per GB than HDD, although prices vary.

20. Input Devices

Input devices allow users to enter data and instructions into a computer.

20.1 Keyboard

A keyboard is used to enter:

- **Letters**
- **Numbers**
- **Symbols**
- **Commands**

Important Keyboard Keys

- **Alphabet keys**

- **Number keys**
- **Function keys**
- **Control keys**
- **Navigation keys**
- **Arrow keys**
- **Numeric keypad**

Function Keys

F1 to F12

Their functions depend on the operating system and software.

21. Mouse

A mouse is a pointing device used to interact with graphical user interfaces.

Common mouse operations:

- **Click**
 - **Double-click**
 - **Right-click**
 - **Drag and drop**
 - **Scroll**
-

22. Scanner

A scanner converts physical documents or images into digital form.

Example:

A printed photograph can be scanned and stored as a digital image.

23. Microphone

A microphone is an input device used to capture sound.

Uses:

- **Voice recording**
 - **Video calls**
 - **Speech recognition**
 - **Online classes**
-

24. Webcam

A webcam captures images and video and sends them to the computer.

Uses:

- Video conferencing
 - Online classes
 - Video recording
 - Live streaming
-

25. Joystick

A joystick is mainly used to control movement in:

- Computer games
 - Simulators
 - Training systems
-

26. Touchscreen

A touchscreen allows the user to interact directly by touching the display.

It can act as both:

Input + Output device

Examples:

- Smartphones
 - Tablets
 - ATMs
 - Information kiosks
-

27. Output Devices

Output devices present processed information to the user.

27.1 Monitor

A monitor displays text, graphics, images and video.

Important terms:

Resolution

The number of pixels used to display an image.

Example:

1G20 × 1080

means:

- 1G20 pixels horizontally

- 1080 pixels vertically

This is commonly called Full HD (1080p).

Common Display Technologies

- LCD
 - LED
 - OLED
-

28. Printer

A printer produces output on paper.

Printers are mainly divided into:

1. Impact printers
 2. Non-impact printers
-

Impact Printer

Prints by physically striking an ink ribbon against paper.

Examples:

- Dot Matrix
- Daisy Wheel
- Line Printer

Dot Matrix Printer

Uses a print head containing pins.

Advantages:

- Can print multipart forms
 - Useful for certain continuous stationery applications
-

Non-Impact Printer

Does not physically strike the paper.

Examples:

- Inkjet
- Laser

Inkjet Printer

Sprays tiny droplets of ink onto paper.

Suitable for:

- Photos

- Colour documents
- Home use

Laser Printer

Uses laser technology and toner.

Advantages:

- Fast
 - Good text quality
 - Suitable for high-volume printing
-

2G. Speaker

Speakers produce sound output.

Examples:

- Music
 - Voice
 - Alerts
 - Video sound
-

30. Projector

A projector displays computer output on a large screen or wall.

Used in:

- Classrooms
 - Meetings
 - Training institutes
 - Presentations
-

31. Input vs Output Devices

Input Device	Output Device
Keyboard	Monitor
Mouse	Printer
Scanner	Speaker
Microphone	Projector
Webcam	Headphones
Joystick	Plotter

Both Input and Output

Some devices can perform both functions.

Examples:

- Touchscreen
 - Multifunction printer
 - Network interface devices
-

32. Storage Units

Computers use different units to measure digital data.

Basic Units

Unit	Meaning
Bit	Binary digit
Nibble	4 bits
Byte	8 bits
KB	Kilobyte
MB	Megabyte
GB	Gigabyte
TB	Terabyte
PB	Petabyte

Important

1 Byte = 8 bits

A bit can have one of two binary values:

0 or 1

For storage specifications, decimal prefixes are commonly used by manufacturers:

- 1 kB = 1,000 bytes
- 1 MB = 1,000 kB
- 1 GB = 1,000 MB
- 1 TB = 1,000 GB

In computing, binary-based units such as KiB, MiB, GiB, TiB are also used:

- 1 KiB = 1,024 bytes
 - 1 MiB = 1,024 KiB
 - 1 GiB = 1,024 MiB
-

33. Types of Computers

Computers can be classified in different ways.

Based on Size/Performance

1. Supercomputer

Extremely powerful computers used for complex scientific calculations.

Applications:

- **Weather forecasting**
- **Scientific research**
- **Space research**
- **Simulations**

2. Mainframe Computer

Large, powerful systems designed to handle huge volumes of transactions and many users.

Used by:

- **Banks**
- **Government organizations**
- **Large enterprises**

3. Minicomputer

A historical category of mid-range multi-user computers. Modern systems are generally described using other categories such as servers and workstations.

4. Microcomputer

Personal computers designed for individual users.

Examples:

- **Desktop**
 - **Laptop**
 - **Tablet**
-

34. Desktop Computer

A desktop is designed to remain at a fixed location.

Advantages:

- **Upgradeable**
 - **Powerful configurations available**
 - **Large display options**
 - **Suitable for offices and labs**
-

35. Laptop

A laptop is a portable computer with integrated:

- **Display**
- **Keyboard**
- **Touchpad**
- **Battery**

Advantages:

- **Portable**
 - **Battery powered**
 - **Compact**
-

36. Tablet

A tablet is a portable touchscreen computer.

Examples of uses:

- **Reading**
 - **Education**
 - **Internet**
 - **Video**
 - **Drawing**
-

37. Smartphone

A smartphone is a mobile computing device that combines communication, computing, Internet access, multimedia and many other functions.

38. Analog, Digital and Hybrid Computers

Analog Computer

Processes continuously varying physical quantities.

Examples of quantities:

- **Temperature**
- **Pressure**
- **Speed**

Digital Computer

Processes information in discrete form, generally using binary digits.

Examples:

- Desktop
- Laptop
- Smartphone

Hybrid Computer

Combines characteristics of analog and digital computing.

Used in specialized areas such as certain scientific, industrial and medical systems.

3G. Generations of Computers

Computer generations describe major stages in the development of computer technology.

Generation	Main Technology	Approx. Period
First	Vacuum Tubes	1G40s–1G50s
Second	Transistors	Late 1G50s–1G60s
Third	Integrated Circuits	1G60s–1G70s
Fourth	Microprocessors	From 1G70s
Fifth	AI/advanced computing concepts Broadly associated with modern era	

First Generation

Technology:

Vacuum Tubes

Characteristics:

- Very large
- High power consumption
- Produced considerable heat
- Less reliable than later generations

Examples:

- ENIAC
- UNIVAC I

Second Generation

Technology:

Transistors

Advantages:

- Smaller
- Faster
- More reliable

- Lower power consumption

Third Generation

Technology:

Integrated Circuits (ICs)

Many electronic components were integrated into small chips.

Fourth Generation

Technology:

Microprocessors

A CPU was integrated onto a single chip.

This led to the development of modern personal computers.

Fifth Generation

Often associated with:

- Artificial Intelligence
- Natural Language Processing
- Parallel processing
- Advanced computing technologies

The term "fifth generation" is less precise than the earlier generations and is used differently in different textbooks.

40. Booting

Booting is the process of starting or restarting a computer and loading the operating system into memory.

Types

Cold Boot: Starting a computer from a powered-off state.

Warm Boot: Restarting a computer without completely powering it off.

41. BIOS and UEFI

BIOS

BIOS = Basic Input/Output System

It is firmware used during system startup to initialize hardware and begin the boot process.

UEFI

UEFI = Unified Extensible Firmware Interface

It is the modern firmware interface used on most current PCs and generally provides more capabilities than traditional BIOS.

42. Ports and Connectors

Ports are interfaces used to connect external devices.

Common ports:

USB

Universal Serial Bus

Used to connect:

- **Keyboard**
- **Mouse**
- **Pen drive**
- **External drives**
- **Smartphones**
- **Printers**

HDMI

Used mainly to transmit:

- **Digital video**
- **Digital audio**

Ethernet

Used for wired networking.

Audio Jack

Used for:

- **Headphones**
- **Speakers**
- **Microphones**

43. File and Folder

File

A file is a collection of related data stored under a particular name.

Examples:

Report.docx

Photo.jpg

Salary.xlsx

Video.mp4

Folder

A folder is used to organize files and other folders.

Example:

Computer Course

└─ Word

└─ Excel

└─ PowerPoint

└─ Notes

44. Common File Extensions

Extension File Type

.docx Word document

.xlsx Excel workbook

.pptx PowerPoint presentation

.txt Text file

.jpg / .jpeg Image

.png Image

.mp3 Audio

.mp4 Video

.pdf Portable Document Format

.zip Compressed archive

.exe Windows executable program

45. Computer Network

A computer network is a collection of connected computers and devices that communicate and share resources.

Examples

- LAN
- MAN
- WAN

LAN

Local Area Network

Covers a small area such as:

- Computer lab
- Office
- School

MAN

Metropolitan Area Network

Covers a larger area such as a city or metropolitan region.

WAN

Wide Area Network

Covers a large geographical area.

The Internet is the world's largest interconnected network.

46. Internet

The Internet is a global network of interconnected computer networks.

Common Internet services:

- World Wide Web
 - Email
 - Online banking
 - Video conferencing
 - Cloud services
 - Online shopping
 - Social media
-

47. Computer Virus

A computer virus is a type of malicious software that can replicate by attaching itself to files or programs and may cause unwanted effects.

Other types of malware include:

- Worm
- Trojan
- Ransomware
- Spyware
- Adware

Protection

- Use updated security software
- Keep the operating system updated
- Avoid suspicious downloads
- Don't open unknown attachments
- Use strong passwords

- **Maintain backups**
-

48. Backup

A backup is an additional copy of important data kept so it can be restored if the original is lost, damaged, corrupted, or deleted.

Backup media/services may include:

- **External HDD**
 - **External SSD**
 - **USB storage**
 - **Network storage**
 - **Cloud storage**
-

4G. Cloud Computing

Cloud computing provides computing resources such as:

- **Storage**
- **Servers**
- **Databases**
- **Software**
- **Processing**

over a network, typically the Internet.

Examples of cloud services include online storage and web-based applications.

50. Quick Revision

Important Full Forms

Short Form Full Form

CPU	Central Processing Unit
ALU	Arithmetic Logic Unit
CU	Control Unit
RAM	Random Access Memory
ROM	Read Only Memory
BIOS	Basic Input/Output System
UEFI	Unified Extensible Firmware Interface
HDD	Hard Disk Drive

Short Form Full Form

SSD	Solid State Drive
USB	Universal Serial Bus
HDMI	High-Definition Multimedia Interface
LAN	Local Area Network
MAN	Metropolitan Area Network
WAN	Wide Area Network
OS	Operating System
IC	Integrated Circuit
AI	Artificial Intelligence
PDF	Portable Document Format

51. Important Differences

RAM vs ROM

RAM	ROM
Volatile	Non-volatile
Read/write	Primarily used for persistent instructions/firmware
Used during active processing	Stores firmware/startup-related instructions
Contents normally lost when power is removed	Contents retained without power

HDD vs SSD

HDD	SSD
Magnetic storage	Flash storage
Mechanical parts	No moving parts
Generally slower	Generally faster
Usually cheaper per GB	Usually costlier per GB
More sensitive to shock	Generally more shock resistant

Hardware vs Software

Hardware	Software
Physical components	Programs/instructions
Can be touched	Cannot be physically touched

Hardware

Software

Keyboard, mouse, monitor Windows, Word, Excel

Can physically wear out Can be corrupted or deleted

Input vs Output

Input

Output

Enters data into computer Presents results

Keyboard

Monitor

Mouse

Printer

Scanner

Speaker

Microphone

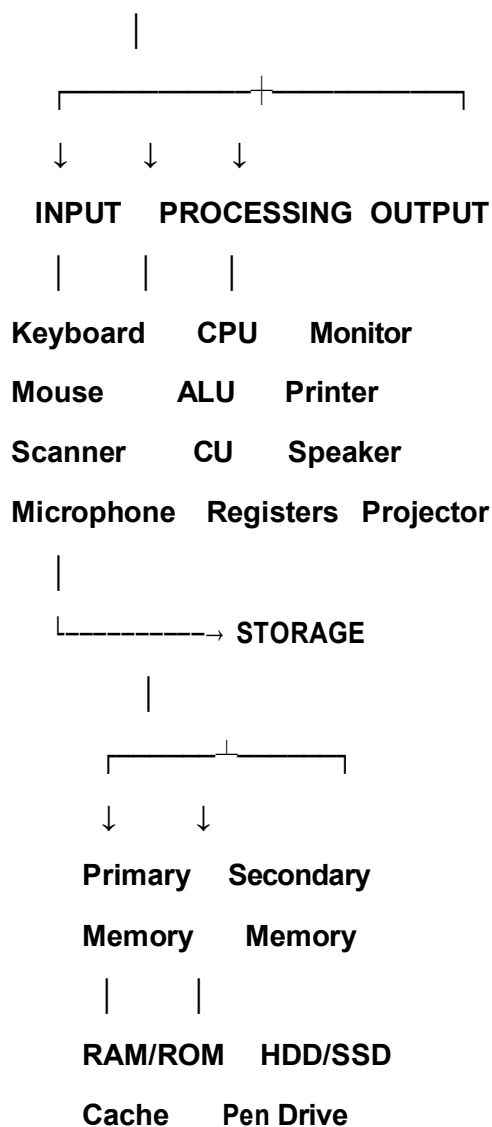
Projector

52. One-Line Definitions for Exams

1. **Computer:** An electronic programmable device that processes data to produce information.
2. **Data:** Raw facts and figures.
3. **Information:** Processed and meaningful data.
4. **Hardware:** Physical components of a computer.
5. **Software:** Programs/instructions that tell a computer what to do.
6. **CPU:** Main processor that executes instructions.
7. **ALU:** Performs arithmetic and logical operations.
8. **CU:** Controls and coordinates computer operations.
- G. **RAM:** Fast, volatile working memory used during processing.
10. **ROM:** Non-volatile memory used to retain persistent instructions such as firmware.
11. **Cache:** High-speed memory used to reduce CPU access time to frequently needed data/instructions.
12. **Input Device:** Device used to enter data and instructions.
13. **Output Device:** Device used to present processed information.
14. **HDD:** Magnetic storage device using rotating platters.
15. **SSD:** Flash-based storage device with no moving parts.
16. **Operating System:** Software that manages computer resources and provides an interface for users.
17. **Bootting:** Process of starting a computer and loading the operating system.
18. **Network:** A group of connected devices that communicate and share resources.
- 1G. **Internet:** A global network of interconnected networks.
20. **Backup:** A copy of data kept for recovery.

★ Chapter Summary

COMPUTER



Exam Tip: Chapter 1 से सबसे ज्यादा पूछे जाने वाले topics हैं Computer definition, characteristics, hardware/software, CPU–ALU–CU, RAM/ROM, primary vs secondary memory, input/output devices, HDD vs SSD, generations, storage units और important full forms.

LibreOffice Writer

Chapter 1: Introduction to LibreOffice Writer

1.1 What is LibreOffice Writer?

LibreOffice Writer is a powerful word-processing application of the LibreOffice suite. It is used to create, edit, format, save, print, and share text-based documents.

It is similar to Microsoft Word, but LibreOffice Writer is free and open-source software.

1.2 Uses of Writer

Writer can be used for:

- Letters and applications
- Reports
- Resumes/CVs
- Books and notes
- Projects
- Question papers
- Certificates
- Notices
- Brochures
- Invoices
- Forms
- Business documents
- Mail Merge
- PDF documents

1.3 Advantages

- Free and open source
- Available for Windows, Linux and macOS
- Supports Microsoft Word formats
- Can export documents to PDF
- Provides powerful formatting tools
- Supports tables, images and charts
- Supports styles and templates
- Supports Mail Merge
- Supports Track Changes
- Supports automatic spell checking

Chapter 2: Starting LibreOffice Writer

Method 1

Start → LibreOffice → Writer

Method 2

Open LibreOffice and select:

File → New → Text Document

Method 3

If Writer is installed, double-click an existing .odt document.

Chapter 3: Writer Interface

When Writer opens, the main components are:

3.1 Title Bar

Displays the name of the current document.

Example:

Student_Notes.odt – LibreOffice Writer

3.2 Menu Bar

Contains commands organized into menus:

- File
- Edit
- View
- Insert
- Format
- Styles
- Table
- Form

- Tools
- Window
- Help

3.3 Standard Toolbar

Contains frequently used commands such as:

- New
- Open
- Save
- Print
- Undo
- Redo

3.4 Formatting Toolbar

Used for:

- Font
- Font size
- Bold
- Italic
- Underline
- Alignment
- Font color
- Highlight
- Bullets
- Numbering

3.5 Ruler

The ruler helps set:

- Margins
- Indents
- Tab stops
- Paragraph positions

3.6 Document Area

The main area where text and other objects are created.

3.7 Sidebar

Provides quick access to:

- Properties
- Styles
- Gallery
- Navigator
- Page settings

3.8 Status Bar

Displays information such as:

- Current page
- Number of pages
- Word count
- Language
- Zoom level
- Selection information

Chapter 4: Creating and Managing Documents

4.1 New Document

File → New → Text Document

Shortcut:

Ctrl + N

4.2 Open Document

File → Open

Shortcut:

Ctrl + O

4.3 Save Document

File → Save

Shortcut:

Ctrl + S

4.4 Save As

Use:

File → Save As

Shortcut:

Ctrl + Shift + S

Save As is useful when you want to:

- Change the file name
- Change the location
- Change the file format

Chapter 5: Writer File Formats

The default Writer format is:

.odt

ODT = OpenDocument Text

Other commonly supported formats include:

Extension Purpose

.odt LibreOffice Writer

.docx Microsoft Word

.doc Older Word format

.rtf Rich Text Format

.txt Plain text

.html Web document

.pdf Portable Document Format

Important

For normal LibreOffice work, ODT is the native format.

For sharing with MS Word users, DOCX may be useful.

Chapter 6: Entering and Editing Text

6.1 Typing Text

Click inside the document area and start typing.

The cursor indicates the current typing position.

6.2 Selecting Text

Text can be selected using:

- Mouse
- Keyboard
- Shift + Arrow keys

Select All

Ctrl + A

6.3 Cut

Ctrl + X

Removes selected content and places it on the clipboard.

6.4 Copy

Ctrl + C

Copies selected content.

6.5 Paste

Ctrl + V

Inserts clipboard content.

6.6 Undo

Ctrl + Z

Reverses the previous action.

6.7 Redo

Ctrl + Y

Repeats/reapplies an undone action.

Chapter 7: Character Formatting

Character formatting changes the appearance of individual characters or selected text.

Important Formatting Options

- Font Name
- Font Size
- Bold
- Italic
- Underline

- Strikethrough
- Superscript
- Subscript
- Font Color
- Highlight
- Character spacing

7.1 Bold

Shortcut:

Ctrl + B

Example:

Important Notice

7.2 Italic

Shortcut:

Ctrl + I

Example:

Important Information

7.3 Underline

Shortcut:

Ctrl + U

Example:

Important

7.4 Font Size

Common sizes:

- 10 pt
- 11 pt
- 12 pt
- 14 pt
- 16 pt
- 18 pt
- 24 pt
- 32 pt

For normal body text, 11–12 pt is generally suitable.

Chapter 8: Paragraph Formatting

Paragraph formatting controls the appearance and position of an entire paragraph.

Important options:

- Alignment
- Indentation
- Line spacing
- Paragraph spacing
- Borders
- Background
- Tabs
- Bullets
- Numbering

Chapter 9: Paragraph Alignment

Four common alignments are:

Left Align

Ctrl + L

Text starts from the left margin.

Center Align

Ctrl + E

Text is centered.

Right Align

Ctrl + R

Text is aligned to the right.

Justify

Ctrl + J

Text is aligned with both left and right margins.

Chapter 10: Indentation

Indentation controls the distance of a paragraph from the page margins.

Types include:

- Before text
- After text
- First-line indent
- Hanging indent

Example

A first-line indent is commonly used in paragraphs.

A hanging indent is useful for:

- Bibliographies
- References
- Lists

Chapter 11: Line Spacing

Line spacing determines the vertical space between lines.

Common options:

- Single
- 1.15
- 1.5
- Double

For academic documents, 1.5 or double spacing may be used depending on requirements.

Chapter 12: Bullets and Numbering

Bullets are useful for unordered lists.

Example:

- Computer
- Printer
- Scanner
- Keyboard

Numbering is useful when order is important:

1. Start Writer
2. Create document
3. Type content
4. Save document

Writer also supports multilevel lists.

Example:

1. Computer
 - 1.1 Hardware
 - 1.2 Software
2. Internet
 - 2.1 Browser
 - 2.2 Search Engine

Chapter 13: Find and Replace

This is one of the most useful Writer features.

Find

Ctrl + F

Used to search for specific text.

Find & Replace

Ctrl + H

Example:

Suppose a document contains:

Libre Office

and you want:

LibreOffice

Use Find & Replace to replace all occurrences.

Advantages

- Saves time
- Reduces manual editing
- Useful for large documents

Chapter 14: Page Formatting

Page formatting controls the overall appearance of the page.

Important settings include:

- **Page size**
 - **Orientation**
 - **Margins**
 - **Columns**
 - **Header**
 - **Footer**
 - **Page background**
-

Chapter 15: Page Size

Common page sizes:

- **A4**
- **A5**
- **Letter**
- **Legal**

For most Indian office and academic documents:

A4 is commonly used.

Chapter 16: Page Orientation

Two main orientations:

Portrait

Page is taller than it is wide.

Commonly used for:

- **Letters**
- **Reports**
- **Resumes**

Landscape

Page is wider than it is tall.

Useful for:

- **Wide tables**
 - **Charts**
 - **Presentations**
 - **Large forms**
-

Chapter 17: Margins

Margins are the blank spaces around the page.

Four basic margins:

- **Top**
- **Bottom**
- **Left**
- **Right**

Margins provide space between the document content and page edges.

Chapter 18: Header and Footer

Header

Content displayed at the top of pages.

Examples:

- **Company name**
- **Document title**
- **Chapter name**

Footer

Content displayed at the bottom.

Examples:

- **Page number**
- **Copyright**
- **Website**
- **Date**

Headers and footers can be different for different page styles.

Chapter 19: Page Numbers

Page numbers are useful for long documents.

They can be placed in:

- Header
- Footer

Example:

Page 1

Page 2

Page 3

For professional reports, page numbering is normally combined with a footer or header.

Chapter 20: Tables

Writer provides powerful table functionality.

Insert Table

Table → Insert Table

Shortcut:

Ctrl + F12

A table consists of:

- Rows
- Columns
- Cells

Example:

Roll No. Name Marks

1 Rahul 85

2 Priya 91

3 Amit 78

Table Operations

You can:

- Insert rows
 - Delete rows
 - Insert columns
 - Delete columns
 - Merge cells
 - Split cells
 - Adjust row height
 - Adjust column width
 - Apply borders
 - Apply background
 - Align text
-

Chapter 21: Images

Images can make documents more attractive and informative.

Insert Image

Insert → Image

After inserting an image, you can:

- Resize
 - Crop
 - Rotate
 - Move
 - Align
 - Wrap text
 - Change position
-

Chapter 22: Text Wrapping

Text wrapping controls how text behaves around an image or object.

Common concepts include:

- No Wrap
- Before
- After
- Parallel
- Through
- Optimal

For reports, Wrap/Parallel can be useful when text needs to flow around an image.

Chapter 23: Shapes

Writer can insert various shapes:

- Rectangle
- Circle
- Arrow
- Line
- Callout
- Flowchart symbols

Shapes are useful for:

- Diagrams
- Flowcharts
- Notices
- Certificates
- Educational material

Chapter 24: Hyperlinks

A hyperlink connects text or an object to another location.

It can point to:

- Website
- Email address
- Another document
- Location within the document

Shortcut:

Ctrl + K

Example:

Z-Tech Computer Institute

can be linked to the institute website.

Chapter 25: Styles

Styles are predefined formatting instructions.

Instead of manually formatting every heading, we can apply a style.

Important styles include:

- Title
- Subtitle
- Heading 1
- Heading 2
- Heading 3
- Text Body

Advantages of Styles

- Consistent formatting
- Faster editing
- Easy document redesign
- Required for automatic Table of Contents
- Useful for long documents

Chapter 26: Table of Contents

A Table of Contents can be automatically generated using heading styles.

Example:

Table of Contents

1. Introduction 1
2. Computer Fundamentals 3
3. Hardware 7
4. Software 12

Basic Process

1. Apply Heading 1/2/3 styles.
2. Place cursor where TOC is required.
3. Insert Table of Contents.
4. Writer generates it automatically.

If headings change later, the TOC can be updated.

Chapter 27: Footnotes and Endnotes

Footnote

Additional information displayed at the bottom of the page.

Endnote

Additional information displayed at the end of the document or section.

They are commonly used in:

- Research papers
 - Books
 - Academic documents
 - References
-

Chapter 28: Sections

Sections allow different parts of a document to have different settings.

They can be used for:

- Different formatting
 - Protected content
 - Columns
 - Special document structures
-

Chapter 29: Columns

Text can be divided into multiple columns.

Example:

Newspaper-style layout

Column 1 | Column 2

Columns are useful for:

- Newsletters
 - Brochures
 - Magazines
 - Pamphlets
-

Chapter 30: Templates

A template is a pre-designed document structure.

Examples:

- Resume template
- Letter template
- Report template
- Invoice template

Templates save time because formatting is already prepared.

Chapter 31: Mail Merge

Mail Merge is an advanced Writer feature used to create multiple personalized documents from a common template and a data source.

Example

Suppose an institute wants to create certificates for 100 students.

Instead of typing each student's name manually, Mail Merge can automatically insert:

- Student Name
- Registration Number
- Course
- Date
- Grade

Basic Mail Merge Process

Main Document → Data Source → Merge Fields → Merge → Individual Documents

This is particularly useful for:

- Certificates
 - Letters
 - Invitations
 - Notices
 - Address labels
-

Chapter 32: Spell Checking

Writer can identify spelling errors.

Shortcut:

F7

Spell checking can help find:

- Incorrect spelling
- Possible grammatical errors
- Typing mistakes

The language can be changed according to the document.

Chapter 33: AutoCorrect

AutoCorrect automatically corrects certain common typing mistakes.

For example, commonly misspelled words can be automatically corrected.

It can also be customized to create your own automatic replacements.

Chapter 34: Word Count

Word Count provides information about:

- Words
- Characters
- Characters including spaces
- Paragraphs
- Pages

This is useful for:

- Assignments
 - Articles
 - Reports
 - Essays
-

Chapter 35: Track Changes

Track Changes records modifications made to a document.

It can show:

- Insertions
- Deletions
- Formatting changes

Useful for:

- Reviewing documents
- Collaborative editing
- Teachers checking student work
- Editing reports

Changes can later be:

- Accepted
 - Rejected
-

Chapter 36: Comments

Comments allow reviewers to add notes without changing the original text.

Useful for:

- Suggestions
 - Corrections
 - Questions
 - Review work
-

Chapter 37: Navigator

The Navigator helps move quickly through a long document.

It can display:

- Headings
- Tables
- Images
- Sections
- Bookmarks
- Hyperlinks

It is especially useful for large reports and books.

Chapter 38: Bookmarks

A bookmark identifies a specific location in a document.

Bookmarks can be used to create internal links.

For example:

[Click here to go to Chapter 5](#)

The link can take the user directly to the bookmarked location.

Chapter 39: Cross-References

Cross-reference allows one part of a document to refer dynamically to another part.

For example:

See Figure 3

If the figure numbering changes, the cross-reference can be updated automatically.

Chapter 40: Protecting Documents

Writer provides options for protecting content.

Protection can help prevent unauthorized editing of selected content or document sections.

For sensitive documents, additional file-level security and strong passwords should also be considered.

Chapter 41: Printing

To print:

File → Print

Shortcut:

Ctrl + P

Before printing, check:

- Page size
 - Orientation
 - Margins
 - Number of pages
 - Printer
 - Number of copies
-

Chapter 42: Export to PDF

Writer can export a document as PDF.

PDF is useful because it preserves the document's layout for sharing and printing.

Typical workflow:

File → Export as PDF

Chapter 43: Useful Keyboard Shortcuts

Shortcut	Function
Ctrl + N	New document
Ctrl + O	Open
Ctrl + S	Save
Ctrl + Shift + S	Save As
Ctrl + P	Print
Ctrl + A	Select All
Ctrl + C	Copy
Ctrl + X	Cut
Ctrl + V	Paste
Ctrl + Z	Undo
Ctrl + Y	Redo
Ctrl + F	Find
Ctrl + H	Find & Replace
Ctrl + B	Bold
Ctrl + I	Italic
Ctrl + U	Underline
Ctrl + L	Left Align
Ctrl + E	Center
Ctrl + R	Right Align
Ctrl + J	Justify
Ctrl + K	Hyperlink

Shortcut	Function
Ctrl + F12	Insert Table
F7	Spell Check
Ctrl + Enter	Page Break

Chapter 44: Professional Document Creation Workflow

A good Writer workflow is:

- 1. Create document**
↓
 - 2. Set page size and margins**
↓
 - 3. Create headings using Styles**
↓
 - 4. Enter content**
↓
 - 5. Format paragraphs**
↓
 - 6. Insert tables/images**
↓
 - 7. Add header/footer**
↓
 - 8. Add page numbers**
↓
 - 9. Create Table of Contents**
↓
 - 10. Spell Check**
↓
 - 11. Review document**
↓
 - 12. Save as ODT**
↓
 - 13. Export as PDF**
-

. Create a New Document

Menu: File → New → Text Document

Shortcut: Ctrl + N

Steps:

- 1. Open LibreOffice Writer.**
- 2. Click File.**
- 3. Select New.**
- 4. Select Text Document.**
- 5. A new blank document will appear.**
- 6. Start typing your content.**

Practice:

Type: Welcome to Z-Tech Computer Institute

2. Open an Existing Document

Menu: File → Open

Shortcut: Ctrl + O

Steps:

- 1. Click File.**
- 2. Click Open.**
- 3. Browse to the folder containing the document.**
- 4. Select the .odt or .docx file.**
- 5. Click Open.**

Result: The selected document opens in Writer.

3. Save a Document

Menu: File → Save

Shortcut: Ctrl + S

Steps:

1. Click File → Save.
2. If this is the first save, the Save dialog box appears.
3. Select the folder.
4. Enter the file name.
5. Make sure the file type is ODF Text Document (.odt).
6. Click Save.

Practice:

Save the document as:

Writer_Practical_01.odt

4. Save As DOCX

Menu: File → Save As

Shortcut: Ctrl + Shift + S

Steps:

1. Click File → Save As.
2. Enter the file name.
3. Open the File Type drop-down.
4. Select Word 2007–365 (*.docx).
5. Click Save.
6. If Writer displays a format confirmation, choose the option to keep the Word format.

Result: The document is saved as a .docx file.

5. Bold Text

Shortcut: Ctrl + B

Steps:

1. Type:
LibreOffice Writer
2. Select the text.
3. Click Bold (B) on the toolbar.
4. Or press Ctrl + B.

Result:

LibreOffice Writer

Practice:

Type three lines and make only the headings bold.

6. Change Font

Steps:

1. Select the required text.
2. Click the Font Name box.
3. Type/select a font such as Liberation Sans.
4. Press Enter.

Result: Selected text changes to the chosen font.

7. Change Font Size

Steps:

1. Select the text.
2. Click the Font Size box.
3. Type 18.
4. Press Enter.

Result: Selected text becomes 18 pt.

Practice:

Make the document title 20 pt and body text 12 pt.

8. Text Alignment

Left Align

Shortcut: Ctrl + L

Center

Shortcut: Ctrl + E

Right

Shortcut: Ctrl + R

Justify

Shortcut: Ctrl + J

Steps:

1. Select the paragraph.
2. Click the required alignment button.
3. Observe the paragraph position.

Practice:

- Heading → Center
 - Body → Justify
 - Date → Right
-

9. Bullets

Steps:

1. Type:

MS Word

MS Excel

PowerPoint

LibreOffice

2. Select all four lines.
3. Click the Toggle Unordered List button.
4. Bullets will be added.

Result:

- MS Word
 - MS Excel
 - PowerPoint
 - LibreOffice
-

10. Numbering

Steps:

1. Type:

Open Writer

Type text

Format text

Save document

2. Select all four lines.
3. Click Toggle Ordered List.

Result:

1. Open Writer
 2. Type text
 3. Format text
 4. Save document
-

11. Insert a Table

Menu: Table → Insert Table

Shortcut: Ctrl + F12

Steps:

1. Place the cursor where you want the table.
2. Press Ctrl + F12.
3. The Insert Table dialog box appears.
4. Enter 4 columns.
5. Enter 5 rows.
6. Click Insert.
7. Enter your data.

Practice:

Roll No.	Name	Course	Marks
----------	------	--------	-------

1	Rahul	Excel	85
---	-------	-------	----

2	Priya	Tally	90
---	-------	-------	----

3	Amit	AutoCAD	78
---	------	---------	----

12. Insert an Image

Menu: Insert → Image

Steps:

1. Place the cursor on the required page.

2. Click Insert.
3. Select Image.
4. Browse to the image.
5. Select the image.
6. Click Open.
7. Resize the image using the corner handles.

Practice:

Insert the Z-Tech Institute logo into a document.

13. Insert Header

Steps:

1. Go to Insert.
2. Choose Header and Footer.
3. Select Header.
4. Select the required page style.
5. A header area appears at the top.
6. Click inside it.
7. Type:

Z-Tech Computer Institute

14. Insert Footer

Steps:

1. Go to Insert → Header and Footer.
2. Select Footer.
3. Choose the page style.
4. Click inside the footer.
5. Type the required information.

Example:

www.ztechmanagement.in

15. Insert Page Number

Steps:

1. First create a footer.
2. Click inside the footer.
3. Go to Insert → Page Number.
4. A page number will be inserted.
5. Align it left, center, or right as required.

Practice:

Create a 5-page document and put the page number at the bottom center.

16. Find & Replace

Shortcut: Ctrl + H

Example: Replace Libre Office with LibreOffice.

Steps:

1. Press Ctrl + H.
 2. In Find, type:
Libre Office
 3. In Replace, type:
LibreOffice
 4. Click Find Next to check occurrences.
 5. Click Replace for one occurrence.
 6. Click Replace All to replace all occurrences.
 7. Close the dialog.
-

17. Insert Hyperlink

Shortcut: Ctrl + K

Steps:

1. Type:
Z-Tech Computer Institute
2. Select the text.
3. Press Ctrl + K.
4. Enter the website address.

5. Click Apply/OK.

Now clicking the hyperlink can open the website.

18. Insert Page Break

Shortcut: Ctrl + Enter

Steps:

1. Place the cursor where the new page should begin.
2. Press Ctrl + Enter.
3. Writer starts a new page.

Practice:

Create:

- Page 1 – Cover Page
 - Page 2 – Introduction
 - Page 3 – Course Details
-

19. Apply Heading Style

Steps:

1. Type:
Introduction to Computers
2. Select the heading.
3. Open the Styles menu/sidebar.
4. Select Heading 1.
5. The heading formatting is applied.

For a subheading, use Heading 2.

This is important because automatic Table of Contents depends on heading styles.

20. Create Table of Contents

First create headings using Heading 1, Heading 2, etc.

Steps:

1. Place the cursor on the page where the TOC should appear.
2. Go to Insert → Table of Contents and Index → Table of Contents, Index or Bibliography.
3. Select Table of Contents.
4. Click Insert.

Writer automatically creates the Table of Contents.

How I suggest we prepare your complete LibreOffice Writer course

Instead of giving you only theory, I can structure the entire Writer course as practical lab notes like this:

PART A – BASIC

1. New Document
2. Open
3. Save
4. Save As
5. Close
6. Select Text
7. Cut/Copy/Paste
8. Undo/Redo
9. Find/Replace

PART B – FORMATTING

10. Font
11. Font Size
12. Bold/Italic/Underline
13. Font Color
14. Highlight
15. Superscript/Subscript
16. Alignment
17. Indentation
18. Line Spacing
19. Paragraph Spacing
20. Bullets/Numbering

PART C – PAGE DESIGN

21. Page Size

- 22. Margins
- 23. Orientation
- 24. Page Break
- 25. Header
- 26. Footer
- 27. Page Number
- 28. Columns
- 29. Page Border
- 30. Background

PART D – OBJECTS

- 31. Table
- 32. Table Formatting
- 33. Image
- 34. Image Crop
- 35. Image Wrap
- 36. Shapes
- 37. Text Box
- 38. Hyperlink
- 39. Chart
- 40. Special Character

PART E – ADVANCED

- 41. Styles
- 42. Templates
- 43. Table of Contents
- 44. Footnotes
- 45. Endnotes
- 46. Bookmarks
- 47. Cross References
- 48. Sections
- 49. Track Changes
- 50. Comments
- 51. Navigator
- 52. Mail Merge

PART F – PROFESSIONAL PRACTICALS

- 53. Resume
- 54. Application
- 55. Business Letter
- 56. Notice
- 57. Certificate
- 58. Invoice
- 59. Project Report
- 60. Mail Merge – 100 Certificates

Chapter 45: Practical Projects for Students

For a complete Writer course, students should practice these projects:

Practical 1 – Application

Create a leave application with proper formatting.

Practical 2 – Resume

Create a professional CV using:

- Tables
- Headings
- Formatting
- Bullets
- Borders

Practical 3 – Business Letter

Create a business letter with:

- Letterhead
- Header
- Footer
- Date
- Subject

- Signature

Practical 4 – Certificate

Create a course certificate using:

- Page borders
- Shapes
- Text boxes
- Images/logo
- Different fonts
- Alignment

Practical 5 – Project Report

Create a 10-page report containing:

- Cover page
- Table of Contents
- Headings
- Images
- Tables
- Page numbers
- Header/Footer
- References

Practical 6 – Mail Merge

Create certificates for 50 students using a spreadsheet/database as the data source.

Important Exam Questions

1. What is LibreOffice Writer?
2. What is the default file extension of Writer?
3. What is the difference between .odt and .docx?
4. What is a paragraph?
5. What is character formatting?
6. What is paragraph formatting?
7. What is a style?
8. What is Mail Merge?
9. What is a Header and Footer?
10. What is a Table of Contents?
11. What is Track Changes?
12. What is the use of Navigator?
13. What is the difference between footnote and endnote?
14. What is a template?
15. What is the difference between Save and Save As?
16. What is text wrapping?
17. What is a hyperlink?
18. How can a document be exported as PDF?
19. What is the use of Find & Replace?
20. What is the difference between a page break and a paragraph break?

Spreadsheet

LibreOffice Calc / Microsoft Excel

Cell Addressing, Formulas, Functions and Charts

1. What is a Spreadsheet?

A **spreadsheet** is application software used to store, organize, calculate, analyze, and present data in a tabular form.

Examples of Spreadsheet Software

- **Microsoft Excel**
- **LibreOffice Calc**
- Google Sheets
- Apple Numbers

Common Uses

Spreadsheets are used for:

- Preparing marksheets
 - Salary calculation
 - Invoices
 - Budgets
 - Accounts
 - Attendance records
 - Stock management
 - Data analysis
 - Financial calculations
 - Charts and reports
-

2. Microsoft Excel

Microsoft Excel is spreadsheet software developed by Microsoft.

It is commonly used for:

- Data entry
- Calculations
- Data analysis
- Financial modeling
- Charts
- Reporting

Common File Formats

- .xlsx — Excel Workbook
 - .xls — Older Excel Workbook
 - .csv — Comma-Separated Values
-

3. LibreOffice Calc

LibreOffice Calc is the spreadsheet application included in LibreOffice.

It provides features for:

- Data entry
- Formulas
- Functions
- Formatting
- Charts
- Data analysis
- Printing

Native File Format

.ods — OpenDocument Spreadsheet

Calc can also open and save many Excel formats.

4. Excel vs Calc

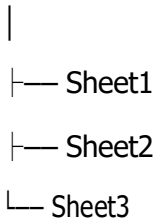
Microsoft Excel	LibreOffice Calc
Developed by Microsoft	Part of LibreOffice
Commercial/Microsoft 365 product	Free and open source
.xlsx	.ods
Formulas and functions	Formulas and functions
Charts	Charts
Data analysis tools	Data analysis tools
PivotTables	Pivot Tables
Macros/VBA	Macros supported through LibreOffice's macro system

5. Workbook

A **workbook** is a spreadsheet file containing one or more worksheets.

Example:

Workbook



In Excel, a workbook is commonly saved as an .xlsx file.

6. Worksheet

A **worksheet** is an individual spreadsheet page inside a workbook.

It contains:

- Rows
- Columns
- Cells

Example:

Workbook



Worksheet



Rows + Columns



Cells

7. Row

A **row** is a horizontal arrangement of cells.

Rows are identified by numbers.

Example:

- 1
 - 2
 - 3
 - 4
 - 5
-

8. Column

A **column** is a vertical arrangement of cells.

Columns are identified by letters.

Example:

A B C D E

After Z, spreadsheet columns continue as:

AA, AB, AC, ...

G. Cell

A **cell** is the intersection of a row and a column.

Example:

Column B

↓

B

|

Row 3 —————→ B3

Therefore:

Column + Row = Cell Address

Example:

B3

10. Cell Address

A **cell address** uniquely identifies a cell in a worksheet.

Examples:

- A1
- B5
- C10
- D25

Example

If a value is entered at the intersection of:

- Column C
- Row 5

its address is:

C5

11. Active Cell

The **active cell** is the currently selected cell.

It is usually identified by a visible border.

Example:

A1 B1 C1

A2 [B2] C2

A3 B3 C3

Here **B2** is the active cell.

12. Cell Range

A **range** is a group of cells.

Example:

A1:C5

means all cells from:

A1 through C5

It includes:

A1 B1 C1

A2 B2 C2

A3 B3 C3

A4 B4 C4

A5 B5 C5

13. Types of Cell References

There are three important types of cell references:

1. Relative Reference
 2. Absolute Reference
 3. Mixed Reference
-

14. Relative Cell Reference

A **relative reference** changes when a formula is copied to another cell.

Example:

=A2+B2

If this formula is copied one row down, it becomes:

=A3+B3

Key Point

Relative references change according to the new location.

15. Absolute Cell Reference

An **absolute reference** remains fixed when a formula is copied.

The \$ symbol is used.

Example:

=A\$1

Here:

- Column A is fixed
- Row 1 is fixed

If the formula is copied, the reference remains:

\$A\$1

16. Mixed Cell Reference

A **mixed reference** fixes either the row or the column.

Fixed Column

=A\$1

Column A is fixed, but the row can change.

Fixed Row

=A\$1

Row 1 is fixed, but the column can change.

17. Relative vs Absolute vs Mixed

Reference Example What is Fixed?

Relative	A1	Nothing
Absolute	\$A\$1	Row and column
Mixed	\$A1	Column
Mixed	A\$1	Row

18. Example of Cell Addressing

Consider:

A B C

Product Price Quantity

A	B	C
Pen	10	5
Book	50	3
Bag	500	2

The cell addresses are:

A1 = Product

B1 = Price

C1 = Quantity

A2 = Pen

B2 = 10

C2 = 5

1G. Data Entry

A spreadsheet cell can contain different types of data.

Common types include:

- Text
- Numbers
- Dates
- Times
- Percentages
- Formulas
- Logical values

Example

Data	Example
Text	Anil
Number	500
Date	13/08/2026
Percentage	75%
Formula	=A1+B1
Logical	TRUE

20. Formula

A **formula** is an expression used to perform calculations.

A formula normally begins with:

=

Example

=A1+B1

If A1 contains 100 and B1 contains 50:

Result = 150

21. Arithmetic Operators

Operator	Meaning	Example
+	Addition	=A1+B1
-	Subtraction	=A1-B1
*	Multiplication	=A1*B1
/	Division	=A1/B1
^	Power	=A1^2
%	Percentage	=A1*10%

22. Order of Operations

Spreadsheet formulas follow mathematical precedence rules.

For example:

=10+5*2

Result:

20

because multiplication is performed before addition.

To control the order, use parentheses:

=(10+5)*2

Result:

30

23. Basic Formulas

Addition

=A1+B1

Subtraction

=A1-B1

Multiplication

=A1*B1

Division

=A1/B1

Percentage

=A1*10%

24. Functions

A **function** is a predefined formula that performs a specific calculation.

Examples:

- SUM
 - AVERAGE
 - COUNT
 - MAX
 - MIN
 - IF
-

25. SUM Function

The **SUM** function adds numbers.

Syntax

=SUM(A1:A10)

This adds all values from A1 to A10.

Example

A

10

20

30

40

Formula:

=SUM(A1:A4)

Result:

100

26. AVERAGE Function

The **AVERAGE** function calculates the arithmetic mean.

Syntax

=AVERAGE(A1:A5)

Example:

10, 20, 30

Average:

20

27. COUNT Function

COUNT counts cells containing numbers.

Example

=COUNT(A1:A10)

It counts numeric entries in the specified range.

28. COUNTA Function

COUNTA counts non-empty cells.

Example:

=COUNTA(A1:A10)

It counts cells containing values, including text.

29. MAX Function

MAX returns the largest value.

=MAX(A1:A10)

Example:

10

50

30

80

20

Result:

80

30. MIN Function

MIN returns the smallest value.

=MIN(A1:A10)

Example:

10

50

30

80

20

Result:

10

31. IF Function

The **IF** function performs a logical test and returns one result when the condition is TRUE and another when it is FALSE.

Syntax

=IF(condition, value_if_true, value_if_false)

Example

=IF(B2>=40,"Pass","Fail")

If B2 is 65:

Pass

If B2 is 30:

Fail

32. Common Spreadsheet Functions

Function Purpose		Example
SUM	Adds values	=SUM(A1:A10)
AVERAGE	Calculates average	=AVERAGE(A1:A10)
COUNT	Counts numbers	=COUNT(A1:A10)
COUNTA	Counts non-empty cells	=COUNTA(A1:A10)
MAX	Largest value	=MAX(A1:A10)
MIN	Smallest value	=MIN(A1:A10)
IF	Logical test	=IF(A1>=40,"Pass","Fail")

33. AutoFill

AutoFill allows users to copy formulas, values, or patterns into adjacent cells.

Example:

A1 = 1

A2 = 2

Select both and drag the fill handle downward.

The spreadsheet can continue:

1

2

3

4

5

6

34. Copying a Formula

Suppose:

A2 = 10

B2 = 20

C2 = =A2+B2

If the formula in C2 is copied to C3, relative references adjust according to the new position.

This is why understanding relative and absolute references is important.

35. Formatting Cells

Spreadsheet software allows cells to be formatted using:

- Font
- Font size
- Bold
- Italic
- Font color
- Background/fill
- Borders
- Alignment
- Number format

36. Number Formatting

Numbers can be displayed as:

- General
- Number
- Currency
- Accounting
- Percentage
- Date
- Time
- Scientific

Example

The value:

0.75

can be displayed as:

75%

when percentage formatting is applied.

37. Merging Cells

Merge Cells combines two or more adjacent cells into one larger cell.

Example:

Before:

A1 | B1 | C1

After:

A1—————C1

It is often used for titles and headings.

38. Sorting

Sorting arranges data in a specific order.

Examples:

Ascending

10

20

30

40

50

Descending

50

40

30

20

10

Text can also be sorted alphabetically.

3G. Filtering

Filtering displays only rows that meet selected criteria.

Example:

Suppose a table contains:

Name	Course	Marks
------	--------	-------

Ravi	Excel	80
------	-------	----

Amit	Tally	65
------	-------	----

Neha	Excel	90
------	-------	----

Priya	Python	75
-------	--------	----

A filter can display only students whose course is **Excel**.

40. What is a Chart?

A **chart** is a graphical representation of data.

Charts make numerical information easier to understand.

Examples:

- Column Chart
- Bar Chart
- Line Chart
- Pie Chart
- Area Chart

- Scatter Chart
-

41. Why Use Charts?

Charts help to:

- Compare values
 - Identify trends
 - Show proportions
 - Present data visually
 - Make reports easier to understand
-

42. Column Chart

A **Column Chart** displays data using vertical bars.

Example:

Course Students

Excel 40

Tally 30

Python 25

A column chart can visually compare student counts.

43. Bar Chart

A **Bar Chart** displays data using horizontal bars.

It is useful when category names are long.

44. Line Chart

A **Line Chart** is commonly used to show trends over an ordered sequence, especially time.

Example:

Month Sales

January 20,000

February 25,000

March 30,000

April 28,000

A line chart can show how sales changed over time.

45. Pie Chart

A **Pie Chart** represents parts of a whole.

Example:

Course Enrollment

Excel 40%

Tally 30%

Python 20%

Other 10%

The percentages should represent meaningful portions of the same total.

46. Scatter Chart

A **Scatter Chart** shows the relationship between two numerical variables.

Example:

- Study hours vs marks
- Advertising cost vs sales
- Height vs weight

Each observation is represented as a point.

47. Main Parts of a Chart

A chart can contain:

- Chart Title
 - Horizontal/X-axis
 - Vertical/Y-axis
 - Data Series
 - Data Points
 - Legend
 - Gridlines
 - Axis Titles
-

48. Chart Title

The **Chart Title** describes what the chart represents.

Example:

Monthly Sales Report — 2026

4G. Axis

Most charts have axes.

X-axis

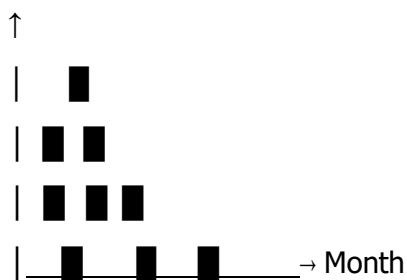
Usually the horizontal axis.

Y-axis

Usually the vertical axis.

Example:

Sales



50. Data Series

A **data series** is a set of related data points plotted in a chart.

Example:

Jan 20

Feb 30

Mar 40

These values can form one data series.

51. Legend

A **legend** identifies different data series in a chart.

For example:

■ 2025 Sales

■ 2026 Sales

52. Creating a Chart in Excel

Typical procedure:

1. Enter data into the worksheet.
2. Select the data range.
3. Go to **Insert**.

4. Select a chart type.
 5. Choose the required chart.
 6. Add or edit the chart title.
 7. Format the chart if necessary.
-

53. Creating a Chart in LibreOffice Calc

Typical procedure:

1. Enter the data.
 2. Select the data range.
 3. Choose **Insert** → **Chart**.
 4. Select the chart type.
 5. Configure data ranges and labels.
 6. Add titles if required.
 7. Finish and format the chart.
-

54. Example Spreadsheet

Consider the following student marks:

Student English Computer Maths Total

Ravi	70	80	75	=SUM(B2:D2)
Amit	65	72	68	=SUM(B3:D3)
Neha	90	88	95	=SUM(B4:D4)
Priya	78	85	80	=SUM(B5:D5)

Total for Ravi

=SUM(B2:D2)

Result:

225

55. Percentage Formula

If the maximum marks are 300:

=E2/300*100

Or:

=E2/300

and format the cell as **Percentage**.

56. Grade Formula

A nested IF formula can be used to assign grades.

Example:

=IF(F2>=80,"A",IF(F2>=60,"B",IF(F2>=40,"C","D")))

This creates a simple grade system.

57. Relative Reference Example

Suppose:

A2 = 100

B2 = 200

C2 = =A2+B2

Copy C2 to C3.

The formula changes from:

=A2+B2

to:

=A3+B3

58. Absolute Reference Example

Suppose:

B2 = 500

E1 = 10%

To calculate 10% of B2:

=B2*\$E\$1

When copied downward:

=B3*\$E\$1

=B4*\$E\$1

=B5*\$E\$1

The B reference changes, but \$E\$1 remains fixed.

5G. Common Spreadsheet Errors

Spreadsheet applications display error messages when a formula cannot be evaluated correctly.

Common errors include:

#DIV/0!

Division by zero or a blank cell where a zero is effectively used as the divisor.

#VALUE!

Wrong type of value used in an operation.

#REF!

Invalid cell reference.

#NAME?

Unrecognized function/name or incorrectly entered formula name.

#N/A

A value is not available, commonly returned by lookup-related formulas when no match is found.

60. Relative vs Absolute Reference — Exam Question

Question:

What is the difference between relative and absolute cell references?

Answer:

A **relative reference** changes when a formula is copied to another location.

Example:

A1

An **absolute reference** remains fixed when the formula is copied.

Example:

\$A\$1

61. Important Keyboard Shortcuts

Shortcut Function

Ctrl + N New workbook

Ctrl + O Open

Ctrl + S Save

Ctrl + P Print

Ctrl + C Copy

Ctrl + X Cut

Ctrl + V Paste

Ctrl + Z Undo

Ctrl + Y Redo

Shortcut Function

Ctrl + A Select all

Ctrl + F Find

Ctrl + H Find and Replace

Ctrl + B Bold

Ctrl + I Italic

Ctrl + U Underline

F2 Edit active cell in Excel

Ctrl + 1 Format Cells in Excel

Alt + = AutoSum in Excel

Note: Some keyboard shortcuts differ between Excel and LibreOffice Calc.

62. Important Full Forms

Short Form Full Form

XLS	Excel Spreadsheet format
XLSX	Excel Open XML Workbook
ODS	OpenDocument Spreadsheet
CSV	Comma-Separated Values
PDF	Portable Document Format

63. Important One-Line Definitions

1. **Spreadsheet:** Software used to organize, calculate, analyze and present data.
2. **Workbook:** A spreadsheet file containing one or more worksheets.
3. **Worksheet:** A single spreadsheet page.
4. **Row:** A horizontal collection of cells.
5. **Column:** A vertical collection of cells.
6. **Cell:** Intersection of a row and a column.
7. **Cell Address:** The location of a cell, such as A1.
8. **Range:** A group of cells, such as A1:C10.
9. **Formula:** An expression used to perform a calculation.
10. **Function:** A predefined formula that performs a specific operation.
11. **Relative Reference:** A reference that changes when copied.

12. **Absolute Reference:** A reference that remains fixed when copied.
 13. **Mixed Reference:** A reference in which either the row or column is fixed.
 14. **Chart:** A graphical representation of data.
 15. **Data Series:** A group of related values represented in a chart.
 16. **Legend:** Identifies data series in a chart.
 17. **Sorting:** Arranging data in a specified order.
 18. **Filtering:** Displaying only records that meet specified conditions.
-

64. Important Exam Questions

Very Short Answer Questions

1. What is a spreadsheet?
 2. What is Microsoft Excel?
 3. What is LibreOffice Calc?
 4. What is a workbook?
 5. What is a worksheet?
 6. What is a cell?
 7. What is a cell address?
 8. What is a cell range?
 9. What is a formula?
 10. What is a function?
 11. What is a relative reference?
 12. What is an absolute reference?
 13. What is a mixed reference?
 14. What is a chart?
 15. What is a data series?
 16. What is a legend?
 17. What is sorting?
 18. What is filtering?
-

65. Short Answer Questions

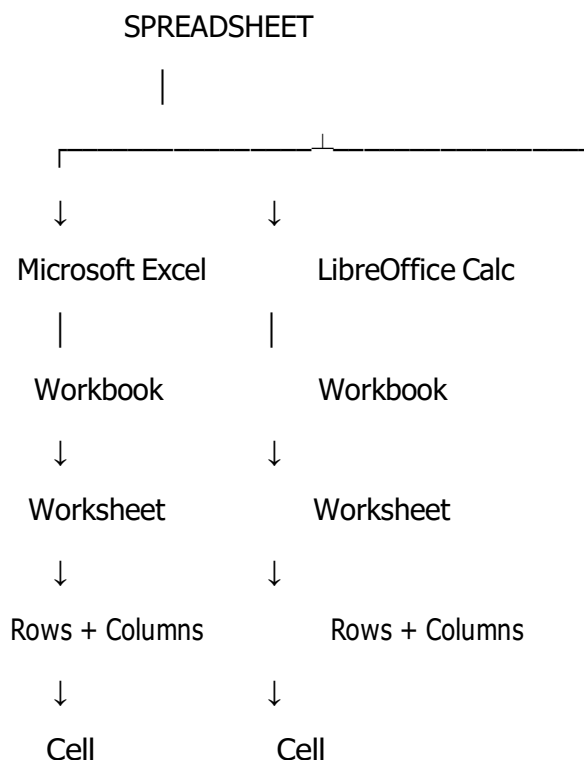
1. Explain the difference between a workbook and a worksheet.
2. Explain rows, columns and cells.
3. Explain different types of cell references.
4. Explain relative cell referencing with an example.

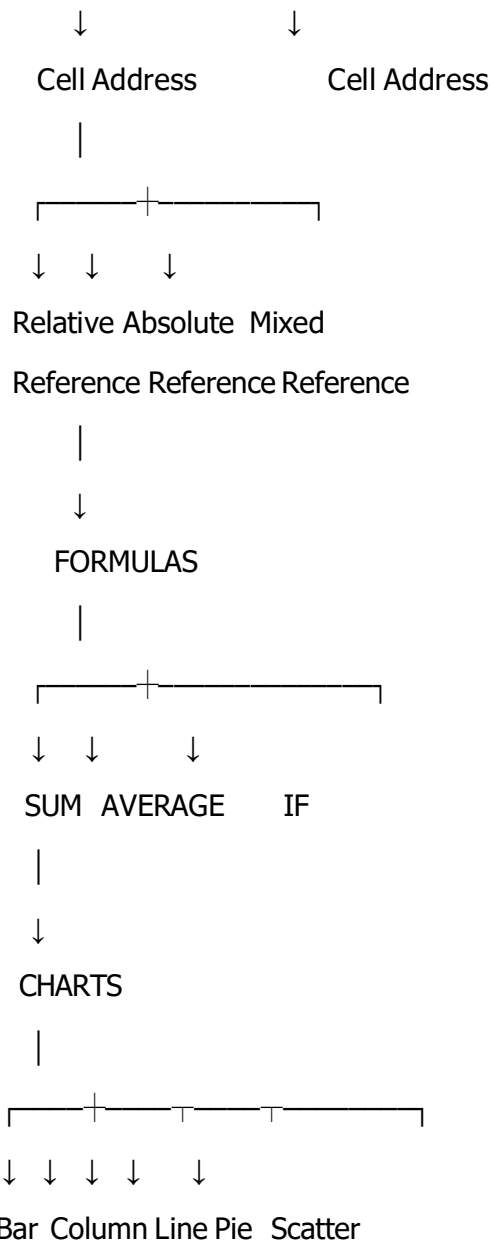
5. Explain absolute cell referencing with an example.
 6. Explain the SUM, AVERAGE, COUNT, MAX and MIN functions.
 7. Explain the IF function with an example.
 8. Explain the different types of charts.
 9. Explain the difference between a column chart and a bar chart.
 10. Explain the difference between a formula and a function.
 11. Explain sorting and filtering.
 12. Explain the major parts of a chart.
-

66. Long Answer Questions

1. **What is a spreadsheet? Explain its features and applications.**
 2. **Explain LibreOffice Calc and Microsoft Excel.**
 3. **Explain cell addressing and the different types of cell references with examples.**
 4. **What is a formula? Explain arithmetic operators and common spreadsheet functions.**
 5. **Explain relative, absolute and mixed references with suitable examples.**
 6. **What is a chart? Explain different types of charts and their uses.**
 7. **Explain the procedure for creating a chart in Excel/Calc.**
 8. **Explain sorting and filtering in a spreadsheet.**
 9. **Explain common spreadsheet errors and their causes.**
-

★ Chapter 6 Quick Revision





★ Must Remember

Workbook → Collection of worksheets

Worksheet → Spreadsheet page

Cell → Intersection of row and column

Cell Address → Column + Row, e.g. B5

Range → Group of cells, e.g. A1:C10

Relative Reference → Changes when copied

Absolute Reference → \$A\$1, remains fixed

Mixed Reference → \$A1 or A\$1

Formula → Starts with =

SUM → Adds values

AVERAGE → Calculates average

COUNT → Counts numeric cells

MAX → Finds largest value

MIN → Finds smallest value

IF → Performs a logical test

Column Chart → Vertical bars

Bar Chart → Horizontal bars

Line Chart → Shows trends

Pie Chart → Shows parts of a whole

Scatter Chart → Shows relationship between two numerical variables

Excel → .xlsx

Calc → .ods

LibreOffice Impress

1. Introduction to LibreOffice Impress

LibreOffice Impress is a **presentation software** included in the LibreOffice Suite. It is used to create attractive and professional **slide presentations**.

It is similar to **Microsoft PowerPoint** and can be used to create presentations for education, business, training, meetings, seminars, and projects.

Common Uses of Impress

Impress can be used to create:

- Educational presentations
 - Business presentations
 - Project presentations
 - Training materials
 - Seminar presentations
 - Product presentations
 - Photo slideshows
 - Company profiles
 - Sales presentations
 - School/college projects
-

2. Main Features of Impress

LibreOffice Impress provides many useful features:

Text

- Add and format text
- Change font and font size
- Bold, Italic and Underline
- Text alignment
- Bullets and numbering

Images

- Insert pictures
- Resize and crop images
- Rotate images
- Apply image formatting

Shapes

- Rectangle
- Circle
- Arrow
- Lines
- Callouts
- Flowchart shapes

Tables and Charts

- Create tables
- Insert charts
- Display numerical data graphically

Animation

Apply effects to objects such as:

- Text
- Images
- Shapes
- Charts

Slide Transition

Add effects when moving from one slide to another.

Examples:

- Fade
 - Wipe
 - Push
 - Dissolve
-

3. Impress File Format

The default Impress file format is:

.odp – OpenDocument Presentation

Example:

Computer_Course.odp

Other formats can also be used:

Extension Format

.odp	OpenDocument Presentation
.pptx	Microsoft PowerPoint Presentation
.ppt	Older PowerPoint Presentation
.pdf	Portable Document Format

4. Starting LibreOffice Impress

Method 1

Start → LibreOffice → LibreOffice Impress

Method 2

Open LibreOffice and select:

File → New → Presentation

5. Impress Start Center

When Impress is opened, we can:

- Create a new presentation
- Select a template
- Open an existing presentation
- Choose a presentation layout

A presentation consists of multiple **slides**.

6. Impress Window – Main Components

The main parts of the Impress window are:

1. Title Bar

Displays the name of the current presentation.

2. Menu Bar

Contains commands such as:

File, Edit, View, Insert, Format, Slide, Slide Show, Tools, Window, Help

3. Standard Toolbar

Contains commonly used commands such as:

- New
- Open
- Save
- Print
- Undo
- Redo

4. Formatting Toolbar

Used for formatting text and objects.

5. Slides Pane

Usually appears on the left side and displays thumbnails of all slides.

6. Workspace

The central area where the current slide is created and edited.

7. Sidebar

Provides access to:

- Properties
- Master Slides
- Styles
- Animation
- Slide Transition

8. Status Bar

Displays information about the current presentation and selected objects.

7. What is a Slide?

A **slide** is a single page or screen of a presentation.

For example, a presentation about computers might contain:

1. Title Slide
2. Introduction to Computers

3. Hardware
4. Software
5. Operating System
6. Internet
7. Conclusion

All these slides together form a **presentation**.

8. Creating a New Slide

To create a new slide:

Slide → New Slide

Shortcut:

Ctrl + M

A new slide is added after the currently selected slide.

9. Slide Layout

A **slide layout** determines where different objects are placed on a slide.

Common layouts include:

- Title Slide
- Title and Content
- Title Only
- Two Content
- Comparison
- Blank Slide

Changing Layout

Select the slide and choose the required layout from the **Properties/Sidebar**.

10. Adding Text

Text can be entered inside a placeholder or text box.

To insert a Text Box:

Insert → Text Box

Then click on the slide and type the required text.

11. Formatting Text

Text can be formatted using:

- Font Name
- Font Size
- Bold
- Italic
- Underline
- Font Color
- Alignment
- Bullets
- Numbering

Example

Computer Fundamentals

can be formatted as:

- Font: Liberation Sans
 - Size: 32 pt
 - Bold
 - Center aligned
-

12. Inserting an Image

To insert a picture:

Insert → Image

Then:

1. Select the image.
2. Click **Open**.
3. Resize or reposition the image.

Image Operations

We can:

- Resize
- Crop

- Rotate
- Move
- Copy
- Delete

13. Inserting Shapes

Shapes can be inserted using the **Shape tools** on the toolbar.

Examples:

- Rectangle
- Ellipse
- Triangle
- Arrow
- Star
- Callout

Shapes can be used to create diagrams, flowcharts and attractive presentations.

14. Inserting a Table

To insert a table:

Insert → **Table**

Select the required number of:

- Columns
- Rows

Tables are useful for displaying structured information.

Example

Course	Duration	Fee
MS Office	3 Months	₹3000
Tally	2 Months	₹2500
AutoCAD	3 Months	₹4000

15. Inserting a Chart

Charts are useful for presenting numerical information visually.

Common chart types include:

- Column
- Bar
- Pie
- Line
- Area

Example

A student performance presentation can use a **Column Chart** to show marks in different subjects.

16. Themes and Master Slides

Master Slide

A **Master Slide** controls the common appearance of multiple slides.

It can contain:

- Background
- Logo
- Font style
- Footer
- Page number
- Common design elements

This is useful when we want all slides to have a consistent design.

17. Slide Background

The background of a slide can be changed using the **Properties** panel.

Background may include:

- Color
- Gradient
- Image
- Pattern

A simple background is generally better for professional presentations.

18. Slide Transition

A **slide transition** is the visual effect that occurs when one slide changes to the next.

Examples:

- Fade
- Wipe
- Push
- Dissolve

Applying a Transition

1. Select the slide.
 2. Open **Slide Transition** in the Sidebar.
 3. Select an effect.
 4. Set duration if required.
 5. Apply to the selected slide or all slides.
-

19. Animation

Animation adds movement effects to objects on a slide.

Objects that can be animated include:

- Text
- Images
- Shapes
- Charts

Examples of animation types:

- Entrance
- Emphasis
- Exit
- Motion paths

Important Difference

Transition = effect between slides

Animation = effect on objects within a slide

20. Hyperlink

A hyperlink can be used to connect text or an object to:

- A website
- Another slide
- An email address
- A file

Shortcut:

Ctrl + K

Example:

www.ztechmanagement.in

can be inserted as a hyperlink.

21. Slide Show

A slide show displays the presentation in full-screen mode.

Start from Beginning

Slide Show → Start from First Slide

Shortcut:

F5

Start from Current Slide

Shift + F5

During the presentation:

- **Right Arrow** → Next slide
 - **Left Arrow** → Previous slide
 - **Esc** → Exit slide show
-

22. Saving a Presentation

Use:

File → Save

Shortcut:

Ctrl + S

Save the presentation using the .odp format when working primarily in LibreOffice.

Example:

23. Exporting as PDF

A presentation can be converted into PDF.

Use:

File → Export as PDF

PDF is useful for:

- Sharing
- Printing
- Emailing
- Online distribution

24. Printing a Presentation

Use:

File → Print

You can print:

- One slide per page
- Multiple slides per page
- Notes
- Handouts

25. Important Keyboard Shortcuts

Shortcut	Function
----------	----------

Ctrl + N	New presentation
-----------------	------------------

Ctrl + O	Open
-----------------	------

Ctrl + S	Save
-----------------	------

Ctrl + P	Print
-----------------	-------

Ctrl + M	New slide
-----------------	-----------

Ctrl + C	Copy
-----------------	------

Ctrl + X	Cut
-----------------	-----

Ctrl + V	Paste
-----------------	-------

Ctrl + Z	Undo
-----------------	------

Ctrl + Y	Redo
-----------------	------

Ctrl + K	Hyperlink
-----------------	-----------

F5	Start slide show
-----------	------------------

Shift + F5	Start from current slide
-------------------	--------------------------

Esc	Exit slide show
------------	-----------------

Delete	Delete selected object
---------------	------------------------

26. Good Presentation Design Rules

For a professional presentation:

1. Keep text **short and clear**.
2. Use large, readable fonts.
3. Avoid putting too much information on one slide.
4. Use suitable images.
5. Maintain consistent fonts and design.
6. Use animations sparingly.
7. Use high contrast between text and background.
8. Use charts and diagrams where appropriate.
9. Keep the presentation visually balanced.
10. Always check the presentation in **Slide Show mode** before presenting.

27. Practical Exercise

Create a presentation: "Z-Tech Computer Institute"

Create **6 slides**:

Slide 1:

Title – Z-Tech Computer Institute

Subtitle – Advanced Computer Training

Slide 2:

About the Institute

Slide 3:

Courses Offered

- MS Office
- Tally Prime
- Advanced Excel
- AutoCAD
- Photoshop/CorelDRAW
- Python

Slide 4:

Why Choose Z-Tech?

- Practical Training
- Experienced Trainer
- Industry-oriented courses
- Certificate

Slide 5:

Insert an image and a course-fee table.

Slide 6:

Contact Information and Thank You

Practical Skills to Practice

While making this presentation, students should practice:

New Slide → Layout → Text → Formatting → Image → Shape → Table → Design → Animation → Transition → Slide Show → Save → PDF Export

Email, Social Networking s e-Governance

Email Protocols, Social Media Platforms and Digital Governance Services

1. Introduction

The Internet has changed the way people:

- Communicate
- Share information
- Conduct business
- Access government services
- Learn and work
- Connect with other people

Three important areas are:

1. **Email**
 2. **Social Networking**
 3. **e-Governance**
-

Part A: Email

2. What is Email?

Email = Electronic Mail

Email is an Internet-based service used to send and receive electronic messages.

An email can contain:

- Text
- Images
- Documents

- PDF files
- Spreadsheets
- Links
- Other attachments

Example

Sender



Internet



Mail Server



Receiver

3. Email Address

An email address identifies a mailbox or account used for email communication.

Example

student@example.com

It generally contains:

student @ example.com

| |

| └─ Domain

└──────── Username/local part

Parts

student → Local part/username

@ → Separator

example.com → Domain

4. Features of Email

Email provides:

- Fast communication
- Global communication
- File attachments
- Multiple recipients
- Forwarding

- Replying
 - Address books/contacts
 - Search
 - Folders/labels
 - Spam filtering
-

5. Advantages of Email

- Fast
 - Low cost
 - Convenient
 - Paperless
 - Can send files
 - Can communicate internationally
 - Messages can be stored and searched
 - Suitable for personal and business communication
-

6. Disadvantages of Email

- Spam and unwanted messages
 - Phishing attacks
 - Malware attachments
 - Account compromise
 - Requires Internet/network access
 - Miscommunication can occur
 - Large attachments may be restricted
-

7. Components of an Email

A typical email contains:

To

The main recipient.

Cc

Cc = Carbon Copy

Used to send a copy to additional recipients.

Bcc

Bcc = Blind Carbon Copy

Recipients in Bcc are generally hidden from other recipients in the email's recipient list.

Subject

A short description of the email.

Body

The main message.

Attachment

A file sent along with the email.

8. To, Cc and Bcc

Example:

To: student@example.com

Cc: teacher@example.com

Bcc: manager@example.com

To

Main recipient.

Cc

Other recipients who should receive a visible copy.

Bcc

Recipients who should receive a copy without their addresses being shown to other recipients through the normal recipient fields.

G. Email Attachments

An **attachment** is a file sent with an email.

Examples:

- PDF
- Word document
- Excel file
- Image
- ZIP file

Example:

Email

└─ Message

└─ Attachment

└─ Resume.pdf

10. Email Folders

Email services commonly provide folders or labels for organizing messages.

Examples:

- Inbox
- Sent
- Drafts
- Spam/Junk
- Trash/Bin
- Archive

11. Inbox

The **Inbox** contains received emails.

12. Sent

The **Sent** folder contains messages that have been sent successfully or saved as sent messages, depending on the email system.

13. Drafts

Drafts contains messages that have been started but not yet sent.

14. Spam/Junk

The **Spam/Junk** folder contains messages that the email service identifies as potentially unwanted or suspicious.

Users should check it occasionally because legitimate messages can sometimes be filtered incorrectly.

15. Email Protocols

Email communication uses several protocols.

Important protocols include:

1. SMTP
2. POP3
3. IMAP

16. SMTP

SMTP = Simple Mail Transfer Protocol

SMTP is primarily used for **sending and relaying email**.

Simple Example

Email Client



SMTP



Mail Server



Recipient Mail Server

17. POP3

POP3 = Post Office Protocol version 3

POP3 is used to retrieve email from a mail server.

Traditionally, POP3 is associated with downloading messages to a mail client, although modern configurations may provide additional options.

Important Feature

POP3 is generally designed around downloading messages rather than keeping a fully synchronized mailbox across multiple devices.

18. IMAP

IMAP = Internet Message Access Protocol

IMAP allows users to access and synchronize email stored on a mail server.

Advantages

- Emails can remain on the server
 - Synchronization across devices
 - Folders and message status can be synchronized
 - Convenient for users with multiple devices
-

19. SMTP vs POP3 vs IMAP

Protocol Main Purpose

SMTP Sending/relaying email

POP3 Retrieving/downloading email

IMAP Accessing and synchronizing email on the server

Easy Way to Remember

SMTP → Send

POP3 → Download

IMAP → Synchronize

20. Email Security

Email security is very important.

Common threats

- Phishing
 - Spam
 - Malware
 - Fake attachments
 - Identity theft
 - Account takeover
 - Business email compromise
-

21. Phishing

Phishing is a fraudulent attempt to trick users into revealing sensitive information or performing an unsafe action.

Attackers may pretend to be:

- Banks
- Government organizations
- Companies
- Friends
- Delivery services
- Online platforms

Warning Signs

- Urgent requests
 - Suspicious links
 - Unexpected attachments
 - Incorrect domain names
 - Requests for passwords or OTPs
 - Threatening messages
-

22. Safe Email Practices

1. Use a strong, unique password.
 2. Enable multi-factor authentication.
 3. Check the sender's address.
 4. Do not open suspicious attachments.
 5. Do not click unknown links.
 6. Never share OTPs or passwords.
 7. Keep software updated.
 8. Report suspicious messages.
 9. Verify financial requests independently.
-

Part B: Social Networking

23. What is Social Networking?

Social networking is the use of online platforms to connect with people, communicate, share content, and build communities.

Examples include platforms such as:

- Facebook
- Instagram
- LinkedIn
- X
- YouTube
- WhatsApp

The features and availability of platforms can change over time.

24. Social Media vs Social Networking

Social Media

A broader term for platforms used to create, share, and consume digital content.

Social Networking

Focuses more specifically on connecting and interacting with people or communities.

In everyday usage, the two terms are often used interchangeably.

25. Major Social Networking Platforms

Facebook

Used for:

- Social connections

- Groups
 - Pages
 - Events
 - Photos
 - Videos
 - Community discussions
-

Instagram

Used primarily for:

- Photos
 - Videos
 - Stories
 - Reels
 - Messaging
 - Creator/business content
-

LinkedIn

A professional networking platform.

Used for:

- Professional profiles
 - Job searching
 - Recruitment
 - Business networking
 - Professional content
 - Company pages
-

X

A platform used for:

- Short-form posts
 - News and discussion
 - Public conversations
 - Media sharing
 - Communities
-

YouTube

A video-sharing platform used for:

- Educational videos
 - Entertainment
 - Tutorials
 - Live streams
 - Shorts
 - Business promotion
-

WhatsApp

A messaging platform used for:

- Text messages
 - Voice calls
 - Video calls
 - Group communication
 - File sharing
 - Status updates
-

26. Uses of Social Networking

Social networks can be used for:

- Communication
 - Education
 - Business promotion
 - Marketing
 - Job opportunities
 - Professional networking
 - News and information
 - Community building
 - Customer support
-

27. Advantages of Social Networking

1. Communication

People can communicate quickly.

2. Networking

Users can connect with professionals and communities.

3. Education

Educational content can be shared.

4. Business

Businesses can promote products and services.

5. Employment

Professionals can discover job opportunities.

6. Information Sharing

News and information can spread rapidly.

28. Disadvantages of Social Networking

- Privacy risks
- Cyberbullying
- Fake accounts
- Misinformation
- Online scams
- Excessive use
- Identity theft
- Phishing
- Reputation damage

2G. Social Media Safety

Use Privacy Settings

Control who can see your content.

Avoid Oversharing

Do not unnecessarily share:

- Home address
- Financial details
- Passwords
- OTPs
- Private documents

Verify Information

Do not automatically trust viral posts.

Use Strong Authentication

Enable MFA when available.

Think Before Posting

Online content may be copied, shared, or archived by others.

30. Digital Footprint

A **digital footprint** is the record of information and activities a person leaves online.

It may include:

- Social media posts
- Comments
- Photos
- Videos
- Reviews
- Website activity
- Public profiles

Important

Think before posting because online content may have long-term consequences.

31. Cyberbullying

Cyberbullying is bullying or harassment carried out using digital technologies.

Examples:

- Threatening messages
- Abusive comments
- Spreading embarrassing content
- Repeated online harassment

What to Do

- Do not engage unnecessarily
 - Save evidence
 - Block the offender
 - Report the account
 - Inform a trusted person or appropriate authority
-

Part C: e-Governance

32. What is e-Governance?

e-Governance = Electronic Governance

e-Governance is the use of information and communication technologies to provide government services, information, communication, and administrative processes digitally.

Simple Definition

e-Governance means using digital technology to make government services and interactions more accessible and efficient.

33. Objectives of e-Governance

Main objectives include:

- Faster service delivery
 - Transparency
 - Efficiency
 - Better accessibility
 - Reduced paperwork
 - Improved communication
 - Easier access to information
 - Better record management
-

34. Types of e-Governance

Four commonly discussed categories are:

1. G2C
 2. G2B
 3. G2G
 4. G2E
-

35. G2C

G2C = Government to Citizen

Government services provided directly to citizens.

Examples:

- Certificates
 - Tax services
 - Utility services
 - Online applications
 - Public information
-

36. G2B

G2B = Government to Business

Government services provided to businesses.

Examples:

- Business registrations
 - Licenses
 - Tax services
 - Compliance services
 - Government procurement
-

37. G2G

G2G = Government to Government

Digital communication and information exchange between government departments or agencies.

Examples:

- Data sharing
 - Departmental communication
 - Digital records
 - Administrative systems
-

38. G2E

G2E = Government to Employee

Digital services provided by government organizations to their employees.

Examples:

- Employee portals
 - Payroll information
 - Leave management
 - Service records
-

3G. Digital Governance in India

India provides many government services through online portals and digital platforms.

Examples include:

- **DigiLocker**
- **UMANG**
- **Aadhaar-related online services**
- **Income Tax e-Filing**

- **GST Portal**
- **Passport services**
- **EPFO services**
- **e-District services**
- **National Scholarship Portal**
- **Digital education services**

Availability and features of individual services can change over time.

40. DigiLocker

DigiLocker is a digital document and credential platform provided by the Government of India.

It can be used to:

- Access digital documents
 - Store/access documents
 - Share verified digital documents where supported
 - Access certain government-issued credentials
-

41. UMANG

UMANG = Unified Mobile Application for New-age Governance

UMANG provides access to various government services through a unified digital platform.

Services available through UMANG can include areas such as:

- Government schemes
 - Utility services
 - Employment-related services
 - Education
 - Health
 - Other citizen services
-

42. Aadhaar Online Services

Aadhaar-related online services can provide facilities such as:

- Aadhaar information management
- Authentication-related services
- Downloading supported documents
- Status checking
- Updates or requests, depending on available services

Users should use only official government portals for Aadhaar services.

43. Income Tax e-Filing

The Income Tax Department provides online services for taxpayers.

Users can perform supported activities such as:

- Income tax return filing
 - Tax payment
 - Return/status checking
 - Downloading tax documents
 - Viewing tax-related information
-

44. GST Portal

The **Goods and Services Tax (GST) Portal** provides online GST-related services.

Businesses and taxpayers can use supported services for:

- GST registration
 - Return filing
 - Tax payment
 - Viewing GST information
 - Downloading certificates/documents
-

45. Passport Services

Government passport services provide online facilities for activities such as:

- Passport application
 - Appointment scheduling
 - Application status
 - Document-related information
-

46. EPFO

EPFO = Employees' Provident Fund Organisation

EPFO provides online services related to provident fund and employee accounts.

Depending on the service, users may access:

- Account information
- Claims
- Passbook

- Service-related information
-

47. e-District Services

e-District services are digital citizen services offered through state/UT government systems.

Depending on the state, services may include:

- Certificates
 - Applications
 - Status tracking
 - Revenue-related services
 - Welfare-related services
-

48. Benefits of e-Governance

1. Convenience

Citizens can access many services online.

2. Time Saving

Reduces the need for repeated visits to government offices.

3. Transparency

Digital records can improve tracking and visibility.

4. Accessibility

Services can be available beyond traditional office hours.

5. Reduced Paperwork

Digital documents and workflows reduce physical paperwork.

6. Faster Processing

Digital workflows can speed up many administrative processes.

49. Limitations of e-Governance

- Internet connectivity problems
 - Digital literacy requirements
 - Cybersecurity threats
 - Privacy concerns
 - Technical failures
 - Language/accessibility challenges
 - Digital divide
-

50. Digital Divide

The **digital divide** is the gap between people who have access to digital technologies and those who do not.

It may result from:

- Lack of Internet access
 - Lack of devices
 - Cost
 - Lack of digital skills
 - Poor connectivity
 - Accessibility barriers
-

51. Digital Literacy

Digital literacy is the ability to use digital devices, applications, and online services safely and effectively.

Examples:

- Using email
 - Searching the Internet
 - Filling online forms
 - Using digital payments
 - Managing passwords
 - Recognizing phishing
 - Using government portals
-

52. Digital Payment

Digital payments allow money to be transferred electronically.

Examples in India include:

- UPI
- Internet banking
- Debit cards
- Credit cards
- Mobile banking

UPI

UPI = Unified Payments Interface

It enables supported bank accounts to make digital payments through participating applications and services.

53. Online Government Service Process

A typical digital government service may follow this process:

Citizen



Government Portal/App



Registration/Login



Online Application



Upload Documents



Verification



Application Processing



Status Tracking



Digital Certificate/Service

54. Safe Use of e-Governance Services

When using government services online:

1. Use the official government website or app.
2. Check the website address carefully.
3. Look for secure HTTPS connections.
4. Never share OTPs unnecessarily.
5. Never share passwords.
6. Avoid unknown links claiming to provide government services.
7. Download documents only from trusted portals.
8. Log out from shared computers.
9. Keep copies of application/reference numbers.
10. Use official contact information when assistance is needed.

55. Email vs Social Networking

Email	Social Networking
Mainly used for electronic messaging	Used for social communication and content sharing
More suitable for formal communication	Often more conversational
Supports attachments	Supports posts, photos, videos, etc.
Uses email addresses	Uses profiles/accounts
SMTP/IMAP/POP3 are important protocols	Uses platform-specific technologies and Internet protocols

56. e-Governance vs Traditional Governance

e-Governance	Traditional Governance
Uses digital technology	Relies more heavily on physical processes
Online applications	Paper-based applications may be used
Digital records	Physical records may be used
Remote access to many services	Often requires office visits
Faster digital communication	More manual communication
Reduced paperwork	More paperwork

57. Important Full Forms

Short Form Full Form

Email	Electronic Mail
SMTP	Simple Mail Transfer Protocol
POP3	Post Office Protocol version 3
IMAP	Internet Message Access Protocol
Bcc	Blind Carbon Copy
Cc	Carbon Copy
G2C	Government to Citizen
G2B	Government to Business
G2G	Government to Government
G2E	Government to Employee
UPI	Unified Payments Interface
UMANG	Unified Mobile Application for New-age Governance

Short Form Full Form

EPFO	Employees' Provident Fund Organisation
GST	Goods and Services Tax
OTP	One-Time Password
MFA	Multi-Factor Authentication

58. Important One-Line Definitions

1. **Email:** An Internet-based service for sending and receiving electronic messages.
 2. **Email Address:** An identifier used to send and receive email.
 3. **SMTP:** Protocol mainly used for sending and relaying email.
 4. **POP3:** Protocol used for retrieving email from a mail server.
 5. **IMAP:** Protocol used to access and synchronize email stored on a mail server.
 6. **Attachment:** A file sent along with an email.
 7. **Social Networking:** Online interaction and relationship-building through digital platforms.
 8. **Social Media:** Digital platforms used to create, share, and consume content.
 9. **Digital Footprint:** The record of information and activities associated with a person's online activity.
 10. **e-Governance:** Use of digital technology to provide and manage government services and processes.
 11. **G2C:** Government services provided to citizens.
 12. **G2B:** Government services provided to businesses.
 13. **G2G:** Digital interaction between government departments/agencies.
 14. **G2E:** Digital services provided by government organizations to employees.
 15. **Digital Literacy:** Ability to use digital technologies safely and effectively.
 16. **Digital Divide:** Gap in access to digital technology and services.
-

5G. Important Exam Questions

Very Short Answer Questions

1. What is email?
2. What is an email address?
3. What is SMTP?
4. What is POP3?
5. What is IMAP?
6. What is an email attachment?
7. What is Cc?

8. What is Bcc?
 9. What is social networking?
 10. Give four examples of social networking platforms.
 11. What is digital footprint?
 12. What is e-Governance?
 13. What is G2C?
 14. What is G2B?
 15. What is G2G?
 16. What is G2E?
 17. What is DigiLocker?
 18. What is UMANG?
 19. What is digital literacy?
 20. What is the digital divide?
-

60. Short Answer Questions

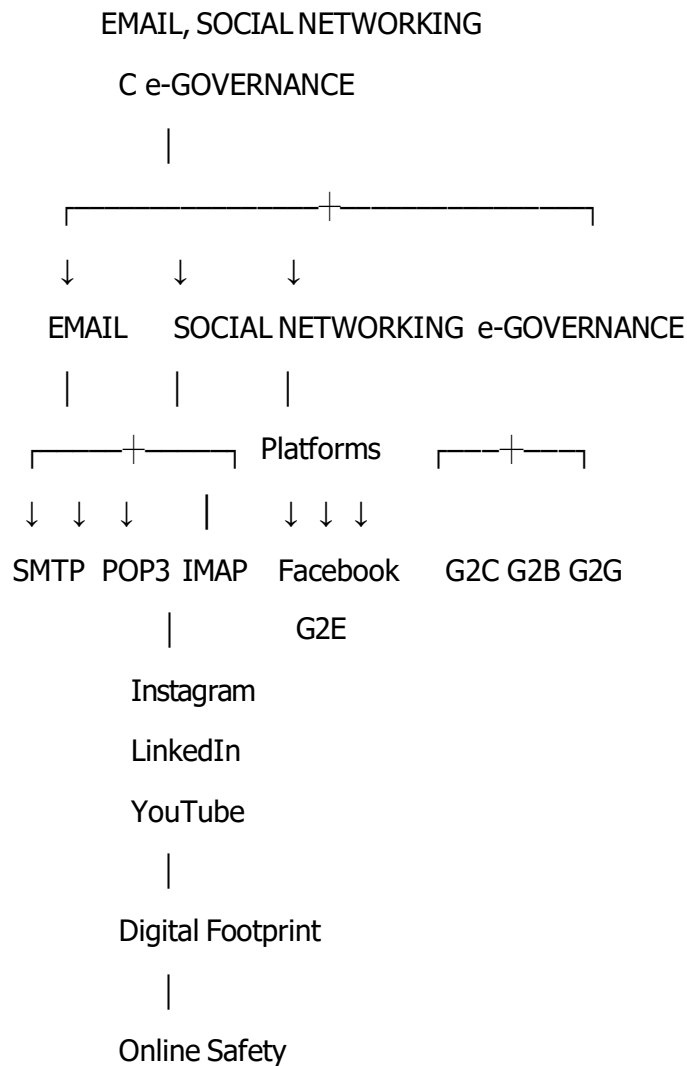
1. Explain the main features of email.
 2. Explain SMTP, POP3 and IMAP.
 3. Differentiate between Cc and Bcc.
 4. Explain email attachments.
 5. Explain the advantages and disadvantages of social networking.
 6. Explain major social networking platforms.
 7. Explain digital footprint.
 8. Explain e-Governance and its objectives.
 9. Explain G2C, G2B, G2G and G2E.
 10. Explain the benefits of e-Governance.
 11. Explain digital literacy.
 12. Explain the digital divide.
 13. Explain safe use of government online services.
-

61. Long Answer Questions

1. **What is email? Explain its features, components and advantages.**
2. **Explain SMTP, POP3 and IMAP protocols in detail.**
3. **What is social networking? Explain its uses, advantages, disadvantages and safety measures.**
4. **What is e-Governance? Explain its objectives, types and benefits.**

5. Explain important digital governance services available in India.
6. Explain G2C, G2B, G2G and G2E with suitable examples.
7. Explain the importance of digital literacy in accessing online government services.
8. Explain the security precautions that should be followed while using email, social media and e-Governance services.

★ Chapter 7 Quick Revision



★ Must Remember

Email → Electronic Mail

SMTP → Sending/relaying email

POP3 → Retrieving email

IMAP → Accessing and synchronizing email

Cc → Carbon Copy

Bcc → Blind Carbon Copy

Social Networking → Connecting and interacting online

Digital Footprint → Record of online activities

e-Governance → Digital delivery and management of government services

G2C → Government → Citizen

G2B → Government → Business

G2G → Government → Government

G2E → Government → Employee

DigiLocker → Digital documents and credentials platform

UMANG → Unified government services platform

UPI → Unified Payments Interface

Digital Literacy → Ability to use digital technology safely and effectively

Digital Divide → Gap in access to digital technology

Key Concept

Email is mainly for electronic communication, social networking is mainly for online interaction and content sharing, while e-Governance uses digital technology to provide government services to citizens, businesses and other stakeholders.