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My Mission is to Make Computer Learning Simple, Practical & Useful for Everyone.

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THIS BOOK INCLUDES
- Easy Explanation
- Important Points
- Questions & Answers
- Exercises (Practice)
- Perfect for Exams & Daily Use

BUILD STRONG COMPUTER BASICS | ENHANCE YOUR KNOWLEDGE | IMPROVE YOUR FUTURE

Your Success is Our Mission

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Note: This book contains only the *theory part*. The practical section is provided separately in another part of this course.

Chapter 1: Introduction to Computer

1.1 What is a Computer?

A computer is an electronic machine.
It takes data as input, processes it, and gives information as output.

 In simple words:
A computer helps us to do work faster and more accurately.

1.2 Example of Computer Use

- Typing a document in MS Word
- Calculating marks in Excel
- Watching videos
- Using the Internet

1.3 Basic Functions of a Computer

A computer performs five basic functions:

1. **Input** – It takes data from the user
2. **Processing** – It processes the data
3. **Storage** – It stores data
4. **Output** – It gives results
5. **Control** – It controls all operations

1.4 Data and Information

Data:

Data is a collection of raw facts and figures.
Example: Name, marks, roll number

Information:

Information is processed data.
Example: Result sheet, report

1.5 Characteristics of Computer

A computer has the following features:

- **Speed** – Works very fast
- **Accuracy** – Gives correct results
- **Storage** – Stores large amount of data
- **Automation** – Works automatically
- **Versatility** – Can do many types of work

1.6 Applications of Computer

Computers are used in many fields:

- Education
- Banking
- Business
- Hospitals
- Entertainment
- Government offices

1.7 Important Points

- Computer is an electronic device
- It works on input, process, and output
- It cannot think on its own
- It follows instructions

1.8 Questions and Answers

Q1. What is a computer?

Ans: A computer is an electronic machine that processes data and gives information.

Q2. What are the basic functions of a computer?

Ans: Input, Processing, Storage, Output, and Control.

Q3. What is data?

Ans: Data is raw facts and figures.

Q4. What is information?

Ans: Information is processed data.

Q5. Name any two uses of a computer.

Ans: Typing documents and calculating data.

1.9 Exercise (Practice)

Fill in the blanks:

1. A computer is an _____ machine.
2. _____ is processed data.
3. Computer works very fast, this is called _____.

Chapter 2: Parts of Computer

2.1 Introduction

A computer system is made up of different parts.
Each part has its own function and helps the computer to work properly.

 These parts are called **components of a computer system**.

2.2 Main Parts of a Computer

There are four main parts of a computer:

1. Input Unit
2. Central Processing Unit (CPU)
3. Output Unit
4. Storage Unit

2.3 Input Unit

The input unit is used to enter data and instructions into the computer.

 It sends data to the CPU for processing.

Examples of Input Devices:

- Keyboard
- Mouse
- Scanner
- Microphone
- Webcam

2.4 Central Processing Unit (CPU)

The CPU is the brain of the computer.
It processes all data and controls all operations.

 CPU performs calculations and makes decisions.

Parts of CPU:

1. **ALU (Arithmetic Logic Unit)**
   - Performs calculations (addition, subtraction, etc.)
   - Performs logical operations (comparison)
2. **CU (Control Unit)**
   - Controls all parts of the computer
   - Manages input and output operations
3. **Memory Unit**
   - Stores data and instructions

2.5 Output Unit

The output unit shows the result of the processed data.

 It gives information to the user.

Examples of Output Devices:

- Monitor
- Printer
- Speaker
- Projector

2.6 Storage Unit

The storage unit is used to store data and information.

 Data can be stored for future use.

Types of Storage:

1. **Primary Storage**
   - RAM (temporary memory)
   - ROM (permanent memory)
2. **Secondary Storage**
   - Hard Disk
   - SSD
   - Pen Drive

2.7 Block Diagram of Computer

Basic working of computer:

Input → CPU → Output
(Storage works with all units)

2.8 Important Points

- Computer has four main parts
- CPU is the brain of the computer
- Input devices send data
- Output devices show results
- Storage keeps data safe

2.9 Questions and Answers

Q1. What are the main parts of a computer?

Ans: Input Unit, CPU, Output Unit, and Storage Unit.

Q2. What is an input device?

Ans: An input device is used to enter data into the computer.

Q3. What is CPU?

Ans: CPU is the brain of the computer that processes data.

Q4. Name the parts of CPU.

Ans: ALU, Control Unit, and Memory Unit.

Q5. What is an output device?

Ans: An output device shows the result to the user.

2.10 Exercise (Practice)

Fill in the blanks:

1. CPU is the _____ of the computer.
2. Keyboard is an _____ device.
3. Monitor is an _____ device.

Chapter 3: Input and Output Devices

3.1 Introduction

A computer cannot work on its own.
It needs devices to take input and show output.

 These devices are called **Input and Output Devices**.

3.2 Input Devices

Input devices are used to enter data and instructions into the computer.

 They send data to the computer for processing.

3.3 Types of Input Devices

1. Keyboard

A keyboard is the most common input device.
It is used to type letters, numbers, and symbols.

---

2. Mouse

A mouse is used to control the pointer on the screen.
It helps to click, select, drag, and open files.

---

3. Scanner

A scanner is used to scan images and documents.
It converts them into digital form.

---

4. Microphone

A microphone is used to input sound or voice into the computer.

5. Webcam

A webcam is used to capture images and videos.
It is used for video calls and recording.

---

6. Touchpad

A touchpad is used in laptops.
It works like a mouse.

---

7. Trackball

A trackball is similar to a mouse but has a ball on the top.
It is used to move the pointer.

3.4 Output Devices

Output devices are used to show the result of the processed data.

- They receive data from the computer.

3.5 Types of Output Devices

1. Monitor

A monitor is the most common output device.
It displays text, images, and videos.

---

2. Printer

A printer is used to print documents on paper.
This printed output is called **hard copy**.

---

3. Speaker

Speakers are used to produce sound.

---

4. Headphones

Headphones are used to listen to sound privately.

---

5. Projector

A projector is used to display images or videos on a large screen.

3.6 Difference Between Input and Output Devices

Input Devices	Output Devices
Used to enter data	Used to show result
Send data to computer	Receive data from computer
Example: Keyboard, Mouse	Example: Monitor, Printer

3.7 Important Points

- Input devices send data to the computer
- Output devices show results
- Keyboard and mouse are common input devices
- Monitor and printer are common output devices

3.8 Questions and Answers

Q1. What is an input device?

Ans: An input device is used to enter data into the computer.

Q2. Give two examples of input devices.

Ans: Keyboard and Mouse.

Q3. What is an output device?

Ans: An output device shows the result of processed data.

Q4. Give two examples of output devices.

Ans: Monitor and Printer.

Q5. What is a scanner?

Ans: A scanner is an input device used to scan documents and images.

3.9 Exercise (Practice)

Fill in the blanks:

1. Mouse is an _____ device.
2. Printer gives _____ copy.
3. Monitor is an _____ device.

Chapter 4: Memory of Computer

4.1 Introduction

Memory is an important part of a computer.
It is used to store data, instructions, and information.

 Without memory, a computer cannot work properly.

4.2 What is Computer Memory?

Computer memory is the storage space in a computer.
It stores data temporarily or permanently.

 It is similar to the human brain, which stores information.

4.3 Types of Computer Memory

There are two main types of memory:

1. Primary Memory
2. Secondary Memory

4.4 Primary Memory

Primary memory is the main memory of the computer.
It is directly connected to the CPU.

 It is fast but has limited storage capacity.

Types of Primary Memory:

---

1. RAM (Random Access Memory)

- RAM is temporary memory
- Data is lost when power is turned off

- It is used while working on a computer

 Example: Opening a file in MS Word uses RAM

---

2. ROM (Read Only Memory)

- ROM is permanent memory
- Data is not lost when power is turned off
- It stores important instructions

 Example: Booting process of computer

4.5 Secondary Memory

Secondary memory is used to store data permanently.

 It has large storage capacity but is slower than primary memory.

Examples of Secondary Memory:

- Hard Disk
- Solid State Drive (SSD)
- Pen Drive (USB Drive)
- Memory Card

4.6 Difference Between Primary and Secondary Memory

Primary Memory	Secondary Memory
Fast	Slower
Less storage	Large storage
Temporary (RAM)	Permanent
Directly connected to CPU	Not directly connected

4.7 Units of Memory

Memory is measured in units:

- Bit (smallest unit)
- Byte = 8 bits
- Kilobyte (KB) =1024 bytes

- Megabyte (MB) =1024 KB
- Gigabyte (GB) =1024 MB
- Terabyte (TB) =1024 GB

4.8 Important Points

- Memory stores data and information
- RAM is temporary memory
- ROM is permanent memory
- Secondary memory stores large data
- Memory is measured in bytes

4.9 Questions and Answers

Q1. What is computer memory?

Ans: Computer memory is used to store data and information.

Q2. What are the types of memory?

Ans: Primary memory and Secondary memory.

Q3. What is RAM?

Ans: RAM is temporary memory where data is lost when power is off.

Q4. What is ROM?

Ans: ROM is permanent memory where data is not lost.

Q5. Give two examples of secondary memory.

Ans: Hard Disk and Pen Drive.

4.10 Exercise (Practice)

Fill in the blanks:

1. RAM is _____ memory.
2. ROM is _____ memory.
3. Hard disk is a _____ memory device.

Chapter 5: Hardware and Software

5.1 Introduction

A computer system works with the help of two main parts:
Hardware and **Software**.

 Both are important. Without one, the computer cannot work properly.

5.2 What is Hardware?

Hardware means the physical parts of a computer that we can see and touch.

 These are the actual components of a computer.

Examples of Hardware:

- Monitor
- Keyboard
- Mouse
- CPU
- Printer

5.3 What is Software?

Software means a set of instructions or programs given to a computer.

 Software tells the computer what to do.

Examples of Software:

- Operating System (Windows, Linux)
- MS Word
- MS Excel
- Web Browser

5.4 Types of Software

There are mainly two types of software:

1. System Software
2. Application Software

---

1. System Software

System software controls and manages the computer system.

 It helps hardware to work properly.

Examples:

- Operating System (Windows)
- Device Drivers

---

2. Application Software

Application software is used to perform specific tasks.

 It helps users to do their work.

Examples:

- MS Word (typing documents)
- MS Excel (calculations)
- MS PowerPoint (presentations)

5.5 Difference Between Hardware and Software

Hardware	Software
Physical parts	Programs or instructions
Can be touched	Cannot be touched
Examples: Keyboard, Monitor	Examples: MS Word, Windows

5.6 Important Points

- Hardware and software both are necessary
- Hardware cannot work without software

- Software cannot run without hardware
- System software controls the computer
- Application software helps users

5.7 Questions and Answers

Q1. What is hardware?

Ans: Hardware is the physical part of a computer that we can see and touch.

Q2. What is software?

Ans: Software is a set of instructions that tells the computer what to do.

Q3. Name two types of software.

Ans: System software and Application software.

Q4. Give two examples of hardware.

Ans: Keyboard and Monitor.

Q5. Give two examples of software.

Ans: MS Word and Windows.

5.8 Exercise (Practice)

Fill in the blanks:

1. Hardware can be _____ and touched.
2. Software is a set of _____.
3. MS Word is an _____ software.

Chapter 6: Types of Computer

6.1 Introduction

Computers are used for different purposes.
So, they are classified into different types.

 Computers can be classified in two ways:

1. Based on data handling
2. Based on size and performance

6.2 Types of Computer (Based on Data Handling)

There are three types of computers:

1. Digital Computer
2. Analog Computer
3. Hybrid Computer

---

1. Digital Computer

A digital computer works with numbers (0 and 1).

 It is the most commonly used computer.

Examples:

- Desktop computer
- Laptop
- Calculator

---

2. Analog Computer

An analog computer works with continuous data.

 It measures physical values like temperature and pressure.

Examples:

- Thermometer
- Speedometer

---

3. Hybrid Computer

A hybrid computer is a combination of digital and analog computers.

 It has features of both types.

Examples:

- Used in hospitals (monitoring machines)
- Used in scientific research

6.3 Types of Computer (Based on Size)

Computers are also classified based on size and power:

1. Super Computer
2. Mainframe Computer
3. Mini Computer
4. Micro Computer

---

1. Super Computer

- The fastest and most powerful computer
- Used for complex calculations

Uses:

- Weather forecasting
- Scientific research

---

2. Mainframe Computer

- Large and powerful computer
- Used by big organizations

Uses:

- Banks
- Government offices

---

3. Mini Computer

- Medium-sized computer
- Used by small organizations

---

4. Micro Computer

- Small and commonly used computer

Examples:

- Desktop
- Laptop
- Tablet

6.4 Important Points

- Computers are classified in different ways
- Digital computer is most commonly used
- Super computer is the fastest
- Micro computer is used by individuals

6.5 Questions and Answers

Q1. What are the types of computer based on data handling?

Ans: Digital, Analog, and Hybrid computers.

Q2. What is a digital computer?

Ans: A digital computer works with numbers and is the most commonly used type.

Q3. What is an analog computer?

Ans: An analog computer works with continuous data like temperature.

Q4. What is a hybrid computer?

Ans: A hybrid computer combines digital and analog features.

Q5. Name any two types of computers based on size.

Ans: Super computer and Micro computer.

6.6 Exercise (Practice)

Fill in the blanks:

1. _____ computer works with numbers.
2. _____ computer measures continuous data.
3. Super computer is the _____ computer.

Chapter 7: Characteristics and Applications of Computer

7.1 Introduction

Computers are widely used in today's world.
They have many special features and are used in many fields.

 In this chapter, we will learn about the **characteristics** and **applications** of computers.

7.2 Characteristics of Computer

A computer has the following important features:

---

1. Speed

A computer works very fast.
It can perform millions of calculations in a second.

---

2. Accuracy

A computer gives correct results if the input is correct.

 Wrong input will give wrong output (Garbage In, Garbage Out).

---

3. Storage

A computer can store a large amount of data.
Data can be stored for a long time.

---

4. Automation

A computer can work automatically once instructions are given.

---

5. Versatility

A computer can perform many different types of tasks.
Example: typing, calculations, drawing, etc.

---

6. Diligence

A computer can work for long hours without getting tired.

7.3 Applications of Computer

Computers are used in many fields:

---

1. Education

- Online learning
- Exams and results
- Smart classes

---

2. Banking

- Online banking
- ATM services
- Money transfer

---

3. Business

- Billing
- Accounting
- Data management

---

4. Hospitals

- Patient records
- Medical reports
- Diagnosis support

---

5. Entertainment

- Watching movies
- Playing games
- Listening to music

---

6. Government

- Record keeping
- Online services
- Public administration

7.4 Important Points

- Computer works very fast
- It gives accurate results
- It can store large data
- It is used in many fields
- It can work without getting tired

7.5 Questions and Answers

Q1. What is speed in computer?

Ans: Speed means a computer can perform tasks very fast.

Q2. What is accuracy?

Ans: Accuracy means a computer gives correct results.

Q3. What is storage?

Ans: Storage means a computer can store data.

Q4. Name any two applications of computer.

Ans: Education and Banking.

Q5. What is automation?

Ans: Automation means a computer works automatically after instructions.

7.6 Exercise (Practice)

Fill in the blanks:

1. Computer works very _____.
2. Computer gives _____ results.
3. Computer can store large _____.

Chapter 8: Basic Operations of Computer (IPO Cycle)

8.1 Introduction

A computer works in a systematic way.
It follows a cycle to complete any task.

 This cycle is called the **IPO Cycle**.

8.2 What is IPO Cycle?

IPO stands for:

- **I – Input**
- **P – Process**
- **O – Output**

 It shows how a computer works step by step.

8.3 Input

Input is the first step.

 In this step, data and instructions are given to the computer.

Examples:

- Typing using keyboard
- Clicking using mouse

8.4 Processing

Processing is the second step.

 In this step, the computer processes the input data using CPU.

Example:

- Calculating marks
- Sorting data

8.5 Output

Output is the final step.

 In this step, the computer gives the result to the user.

Examples:

- Showing result on monitor
- Printing result on paper

8.6 Storage (Additional Step)

Sometimes, data is stored for future use.

 Storage works with all steps of IPO cycle.

Example:

- Saving a file
- Storing data in hard disk

8.7 IPO Cycle Diagram

Input → Processing → Output
(Storage is connected to all steps)

8.8 Example of IPO Cycle

 Example: Student Result

- Input: Student marks
- Processing: Total and average calculation
- Output: Final result

8.9 Important Points

- IPO cycle shows working of computer
- Input is the first step
- Processing is done by CPU
- Output gives final result
- Storage saves data

8.10 Questions and Answers

Q1. What is IPO cycle?

Ans: IPO cycle is the process of Input, Processing, and Output.

Q2. What is input?

Ans: Input is the data given to the computer.

Q3. What is processing?

Ans: Processing is the work done by CPU on data.

Q4. What is output?

Ans: Output is the result given by the computer.

Q5. Give one example of IPO cycle.

Ans: Student result calculation.

8.11 Exercise (Practice)

Fill in the blanks:

1. IPO stands for _____, _____, _____.

2. CPU does the _____ work.
3. Output gives the _____.

Chapter 9: Generation of Computer

9.1 Introduction

Computers have developed over time.
This development is divided into different stages called **generations**.

 Each generation shows improvement in technology, speed, and size.

9.2 What is Computer Generation?

A computer generation refers to the stage of development of computer technology.

 There are **five generations of computers**.

9.3 First Generation (1940 – 1956)

Technology:

- Vacuum Tubes

Features:

- Very large in size
- High power consumption
- Generated a lot of heat
- Slow speed

Examples:

- ENIAC
- UNIVAC

9.4 Second Generation (1956 – 1963)

Technology:

- Transistors

Features:

- Smaller than first generation
- Less heat
- Faster and more reliable

Examples:

- IBM 1401
- IBM 7094

9.5 Third Generation (1964 – 1971)

Technology:

- Integrated Circuits (IC)

Features:

- Smaller size
- More reliable
- Faster processing

Examples:

- IBM 360
- IBM 370

9.6 Fourth Generation (1971 – Present)

Technology:

- Microprocessors (VLSI)

Features:

- Very small size
- Very fast
- Low cost
- Widely used

Examples:

- Desktop computers
- Laptops

9.7 Fifth Generation (Present & Future)

Technology:

- Artificial Intelligence (AI)

Features:

- Very high speed
- Intelligent systems
- Can learn and make decisions

Examples:

- Robots
- AI-based systems

9.8 Summary Table

Generation	Technology	Features
First	Vacuum Tube	Large, slow
Second	Transistor	Smaller, faster
Third	IC	Reliable
Fourth	Microprocessor	Very fast
Fifth	AI	Intelligent

9.9 Important Points

- Computers developed in five generations
- Each generation is better than the previous one
- Technology improved from vacuum tubes to AI
- Size decreased and speed increased

9.10 Questions and Answers

Q1. What is computer generation?

Ans: It is the stage of development of computer technology.

Q2. How many generations of computers are there?

Ans: There are five generations.

Q3. What technology was used in the first generation?

Ans: Vacuum tubes.

Q4. What is used in the fourth generation?

Ans: Microprocessors.

Q5. What is the fifth generation based on?

Ans: Artificial Intelligence.

9.11 Exercise (Practice)

Fill in the blanks:

1. First generation used _____ tubes.
2. Third generation used _____ circuits.
3. Fifth generation is based on _____.

Chapter 10: Basic Computer Terms and Full Forms

10.1 Introduction

In computers, many short forms (abbreviations) are used.
It is important to understand their full forms and meanings.

 This helps students to learn computer basics easily.

10.2 What are Computer Terms?

Computer terms are words related to computers and technology.

 Example: CPU, RAM, Internet, Software

10.3 Common Full Forms

Basic Terms:

- **CPU** – Central Processing Unit
- **RAM** – Random Access Memory
- **ROM** – Read Only Memory
- **ALU** – Arithmetic Logic Unit
- **CU** – Control Unit

Storage Devices:

- **HDD** – Hard Disk Drive
- **SSD** – Solid State Drive
- **USB** – Universal Serial Bus
- **CD** – Compact Disc
- **DVD** – Digital Versatile Disc

Internet Terms:

- **WWW** – World Wide Web
- **HTTP** – Hyper Text Transfer Protocol

- **HTTPS** – Hyper Text Transfer Protocol Secure
- **URL** – Uniform Resource Locator
- **IP** – Internet Protocol
- **ISP** – Internet Service Provider

Software and System:

- **OS** – Operating System
- **GUI** – Graphical User Interface
- **BIOS** – Basic Input Output System
- **DOS** – Disk Operating System

File Types:

- **PDF** – Portable Document Format
- **HTML** – Hyper Text Markup Language
- **TXT** – Text File
- **DOC** – Document File

Other Important Terms:

- **UPS** – Uninterruptible Power Supply
- **LAN** – Local Area Network
- **WAN** – Wide Area Network
- **MAN** – Metropolitan Area Network

10.4 Important Notes

- Full forms should be remembered correctly
- Do not learn wrong or fake full forms
- These terms are commonly used in exams

10.5 Questions and Answers

Q1. What is CPU?

Ans: CPU stands for Central Processing Unit.

Q2. What is RAM?

Ans: RAM stands for Random Access Memory.

Q3. What is WWW?

Ans: WWW stands for World Wide Web.

Q4. What is PDF?

Ans: PDF stands for Portable Document Format.

Q5. What is LAN?

Ans: LAN stands for Local Area Network.

10.6 Exercise (Practice)

Fill in the blanks:

1. CPU stands for _____.
2. USB stands for _____.
3. WWW stands for _____.

Chapter 11: Operating System (OS)

11.1 Introduction

A computer cannot work without software.
The most important software is the **Operating System (OS)**.

 It acts as a bridge between the user and the computer.

11.2 What is an Operating System?

An Operating System is system software that controls and manages the computer.

 It helps the user to interact with the computer easily.

11.3 Examples of Operating System

- Windows
- Linux
- macOS
- Android

11.4 Functions of Operating System

The operating system performs many functions:

---

1. Process Management

It manages all running programs in the computer.

---

2. Memory Management

It controls the use of memory (RAM).

---

3. File Management

It manages files and folders.

---

4. Device Management

It controls input and output devices like keyboard, mouse, printer.

---

5. Security

It protects the computer using passwords and permissions.

11.5 Types of Operating System

1. Single User OS

Used by one user at a time.
Example: Personal computer

---

2. Multi User OS

Used by many users at the same time.
Example: Servers

11.6 User Interface

Operating systems provide a way to interact with the computer.

Types of Interface:

- **GUI (Graphical User Interface)**
  Uses icons, windows, and menus
  Example: Windows
- **CLI (Command Line Interface)**
  Uses text commands
  Example: DOS

11.7 Importance of Operating System

- It makes computer easy to use
- It controls hardware
- It runs applications
- It manages system resources

11.8 Important Points

- OS is system software
- It is necessary for computer operation
- It manages hardware and software
- It provides user interface

11.9 Questions and Answers

Q1. What is an operating system?

Ans: An operating system is software that manages the computer and allows user interaction.

Q2. Give two examples of OS.

Ans: Windows and Linux.

Q3. What is GUI?

Ans: GUI is a graphical interface using icons and menus.

Q4. What is CLI?

Ans: CLI is a command-based interface.

Q5. What is the function of OS?

Ans: It manages memory, files, devices, and processes.

11.10 Exercise (Practice)

Fill in the blanks:

1. OS stands for _____.
2. Windows is an _____ system.
3. GUI uses _____ and menus.

Chapter 12: Computer Safety and Care

12.1 Introduction

A computer is an important machine.
To use it for a long time, we must take proper care.

 Safety and care help to keep the computer working smoothly.

12.2 Why Computer Care is Important?

- Increases life of computer
- Prevents damage
- Improves performance
- Keeps data safe

12.3 Basic Care of Computer

1. Keep Computer Clean

- Clean keyboard and monitor regularly
- Use a soft cloth

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2. Avoid Dust and Heat

- Keep computer in a clean place
- Do not expose to direct sunlight

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3. Use Proper Power Supply

- Use UPS or stabilizer
- Avoid sudden power cut

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4. Handle Devices Carefully

- Do not hit or drop devices
- Use keyboard and mouse gently

12.4 Computer Safety

1. Use Strong Passwords

- Do not share your password
- Use a mix of letters and numbers

2. Protect from Virus

- Install antivirus software
- Do not open unknown files

3. Safe Internet Use

- Do not visit unsafe websites
- Do not download unknown files

4. Backup Data

- Save important files in pen drive or cloud
- Take regular backup

12.5 What is a Computer Virus?

A computer virus is a harmful program.
It can damage files and slow down the computer.

12.6 Ways to Protect Computer

- Install antivirus
- Update software regularly
- Scan files before opening
- Avoid using unknown USB devices

12.7 Important Points

- Keep computer clean and safe
- Use antivirus software
- Protect your data
- Use computer carefully

12.8 Questions and Answers

Q1. Why is computer care important?

Ans: It increases life and performance of the computer.

Q2. What is a computer virus?

Ans: A virus is a harmful program that damages the computer.

Q3. How can we protect a computer?

Ans: By using antivirus and safe internet practices.

Q4. What is backup?

Ans: Backup means saving a copy of data.

Q5. Why use strong passwords?

Ans: To keep data safe and secure.

12.9 Exercise (Practice)

Fill in the blanks:

1. Virus is a _____ program.
2. Backup means saving _____ of data.
3. We should keep computer _____.

Chapter 13: Number System

□ Objective

After this chapter, students will:

- Understand number system
- Know about binary and decimal numbers
- Convert binary to decimal and decimal to binary

□ 1. What is Number System?

A number system is a way to write numbers.

In computer, different types of number systems are used.

The most common are:

- Decimal Number System
- Binary Number System

□ 2. Decimal Number System (Base 10)

Decimal number system is used in daily life.

It has 10 digits:
0, 1, 2, 3, 4, 5, 6, 7, 8, 9

Example:
345 = (3 x 100) + (4 x 10) + (5 x 1)

□ 3. Binary Number System (Base 2)

Binary number system is used by computers.

It has only 2 digits:
0 and 1

0 means OFF
1 means ON

Example:
1011 is a binary number

□ 4. Binary to Decimal Conversion

To convert binary to decimal, multiply each digit with powers of 2.

Example:
1011 = (1 x 2^3) + (0 x 2^2) + (1 x 2^1) + (1 x 2^0)
= 8 + 0 + 2 + 1
= 11

So, 1011 (binary) = 11 (decimal)

Another Example:

1101 = (1 x 2^3) + (1 x 2^2) + (0 x 2^1) + (1 x 2^0)
= 8 + 4 + 0 + 1
= 13

□ 5. Decimal to Binary Conversion

To convert decimal to binary, divide the number by 2 again and again.

Example: Convert 13 into binary

13 ÷ 2 = 6 remainder 1
6 ÷ 2 = 3 remainder 0
3 ÷ 2 = 1 remainder 1
1 ÷ 2 = 0 remainder 1

Now write the remainders from bottom to top:

= 1101

So, 13 (decimal) = 1101 (binary)

⚡ 6. Power Table of 2

2^0 = 1
2^1 = 2
2^2 = 4
2^3 = 8
2^4 = 16

📝 7. Practice Questions

A. Convert Binary to Decimal

1. 1010 = ?
2. 111 = ?
3. 1001 = ?
4. 1100 = ?

B. Convert Decimal to Binary

1. 5 = ?
2. 8 = ?
3. 10 = ?
4. 15 = ?

📝 8. Extra Questions

1. 10101 = ?
2. 20 = ?
3. 25 = ?

📌 9. Summary

- Number system is a way to write numbers
- Decimal system uses digits 0–9
- Binary system uses only 0 and 1
- Binary to decimal uses power of 2
- Decimal to binary uses division method

Chapter 14: Data and Information

□ Objective

After this chapter, students will:

- Understand data and information
- Know the difference between data and information
- Learn about data processing

□ 1. What is Data?

Data means raw facts and figures.

Data has no meaning when it is not processed.

Data can be in the form of:

- Numbers
- Text
- Symbols

Example:
50, 60, 70 (just numbers, no clear meaning)

Rahul, 85, Class 5 (raw data)

□ 2. What is Information?

Information is processed data.

When data is organized and given meaning, it becomes information.

Example:
Marks of Rahul = 85

Now it gives a clear meaning.

□ 3. Difference Between Data and Information

Data:

- Raw and unorganized
- No clear meaning
- Example: 45, 78, 90

Information:

- Processed and organized
- Has clear meaning
- Example: Average marks = 71

⚙ 4. Data Processing

Data processing means converting data into useful information.

It is done by a computer.

Steps of data processing:

1. Input (enter data)
2. Process (work on data)
3. Output (get result)

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5. Examples of Data Processing

Example 1:
Marks: 50, 60, 70

After calculation:
Average = 60

 Data → Information

Example 2:
Student details entered in computer

After processing:
Report card is generated

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6. Role of Computer

Computer helps to:

- Store data
- Process data
- Give fast and accurate information

□ 7. Practice Questions

A. Fill in the blanks

1. Data means _____ facts.
2. Information is _____ data.
3. Computer is used for _____ data.

B. Short Questions

1. What is data?
2. What is information?
3. What is data processing?

C. Difference

Write difference between data and information

□ 8. Summary

- Data is raw facts
- Information is processed data
- Data processing converts data into information
- Computer helps in fast processing

Chapter 15: Computer Languages

□ Objective

After this chapter, students will:

- Understand computer languages
- Know different types of languages
- Learn basic idea of how computer understands instructions

□ 1. What is Computer Language?

Computer language is a way to give instructions to a computer.

A computer cannot understand human language directly.
It understands only machine language.

□ 2. Types of Computer Languages

There are three main types of computer languages:

- Machine Language
- Assembly Language
- High Level Language

⚙□ 3. Machine Language

Machine language is the basic language of a computer.

It uses only binary numbers:
0 and 1

Example:
101010

Features:

- Directly understood by computer
- Very fast
- Difficult for humans to understand

□ 4. Assembly Language

Assembly language uses simple words instead of numbers.

Example:
ADD, SUB, MOV

Features:

- Easier than machine language
- Uses short codes (mnemonics)
- Needs a translator called assembler

□ 5. High Level Language

High level language is easy for humans to understand.

It uses English-like words.

Examples:
C, C++, Java, Python

Features:

- Easy to read and write
- Machine independent
- Needs a translator (compiler or interpreter)

□ 6. Language Translator

A translator converts one language into another.

Types of translators:

1. Compiler

- Converts whole program at once

2. Interpreter

- Converts line by line

3. Assembler

- Converts assembly language into machine language

□ 7. Why Computer Languages are Important?

- To give instructions to computer
- To create software
- To perform different tasks

□ 8. Practice Questions

A. Fill in the blanks

1. Computer understands only _____ language.
2. Machine language uses _____ and _____.
3. _____ language is easy for humans.

B. Short Questions

1. What is computer language?
2. Name types of computer languages.
3. What is machine language?
4. What is high level language?

C. Difference

Write difference between:

1. Machine language and High level language
2. Compiler and Interpreter

□ 9. Summary

- Computer language is used to give instructions
- Machine language uses 0 and 1
- Assembly language uses short codes
- High level language is easy to understand
- Translators convert languages