Topic: The Computer – An Overview

Subject : Computer   **Class: V**

Introduction: Students will learn about the following sub-topics:-

- **Data and Information**
- **Computer and its Characteristics**
- **Limitations of a Computer**
- **Input devices**
- **Output Devices**
- **Processing Device**
- **Motherboard**
- **Working of a Computer**

Explanation:

Computer System

- ➢ **The word Computer is derive from 'compute', which means to calculate.**
- ➢ **A computer is a group of electronic devices which is used to process data.**
                              Or
- ➢ **A computer is an electronic device that accepts data and instructions given by the user, processes them accordingly and gives meaningful results.**
- ➢ **A computer is a combination of Hardware and Software which transform data into information.**

Computer Hardware

- ➢ **It refers to the physical parts of a computer that we can touch and see.**
 Example:- Keyboard , Mouse, Monitor

Computer Software

- ➢ **It refers to the set of instructions (Programs) that tells the computer what to do.**
 Examples:- MS-Word and MS-Excel

Data and Information

Data is any collection of numbers, Characters or other symbols that has been coded into a format that can be input into a computer and processed. In other words data can be defined as a representation of facts, concepts, or instructions collected for

analysis. The main types of data can be input into a computer are numeric, text, date, graphics and sound.

Characteristics of a Computer

- **A computer takes an input , carries out a process upon it and produces the output.**
  Example:-How we can add two numbers ?
  Input   2,3
  Process   2+3=5
  Output   5

- **Computer can process millions of instructions in seconds.**
- **A computer provides a high degree of accuracy.**
- **Computer can work for hours without any break or boredom.**
- **Computer can store large amount of data.**
- **Computers can be used to perform different types of tasks at same time.**
- **Computer does not make mistakes.**
- **Data stored in a computer can be recalled at any time.**
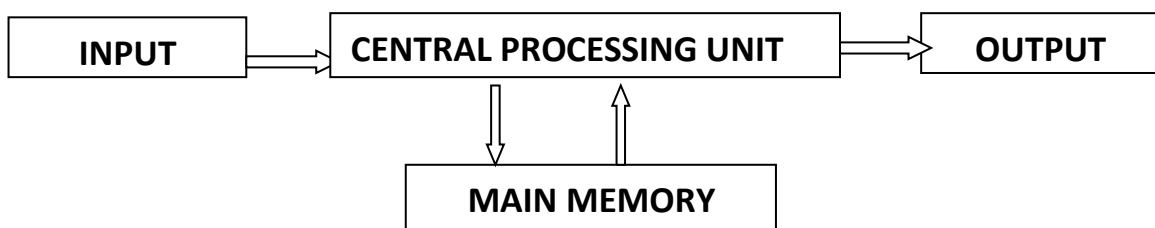
Limitations of a Computer

- **A computer does not have brain like human beings. It cannot take decision on its own.**
- **A computer is not gifted with intelligence as human beings are. It can only work as per instructions given by human beings.**
- **A computer does not possess feeling and emotions.**

Working of a Computer

A computer mainly has four components

- Input –Accepts data through Keyboard and Mouse
- Processing-Process data through CPU
- Output-Produces result/output through Monitor
- Storage-Stores result through Hard disk

Memory is the storage brain of computer which holds the data during processing.

| INPUT | ⟶ | CENTRAL PROCESSING UNIT | ⟹ | OUTPUT |

MAIN MEMORY

Besides these components , some additional parts can also be attached to a computer. These additional parts are known as **peripherals of a computer,** e.g., Printer, Scanner, Web camera etc.

Applications of Computers

Now a days computer are being used in nearly every field of life. For example:-

- ➢ Banks
- ➢ Education
- ➢ Hospitals
- ➢ Entertainment
- ➢ Schools/Colleges

Input Devices

- ➢ The devices through which we enter data and instructions are called **Input Devices**. The most commonly used input device is the keyboard.
- ➢ The other input devices are mouse, trackball and light pen, which do not require typing to input data. They are called **Pointing Devices**. We can select any item on the screen by pointing and clicking on it.

Common Input Devices

Keyboard - It is most commonly used input device. It is used to enter data and instructions into a computer by typing. A standard keyboard has 104 keys. These keys are divided into four groups:

1. Typing Keys (Alphabet Keys and Numeric Keys)
2. Function Keys (F1 to F12)
3. Navigation Keys (Arrow keys, Home, End etc.)
4. Control Keys (Ctrl, Alt etc.)

Sir Christopher Latham Sholes regarded as the inventor of QWERTY Keyboard.

Mouse- It is a pointing device used to insert instructions into the computers. It is a hand held device that controls the pointer on the screen. It has two buttons viz. Left button and right button and one scrolling wheel . With the help of mouse you can draw images, select options and move text and images. The computer mouse is invented by **Dr. Engelbart.** A magic mouse was designed in 2009.

Microphone – Microphone is an input device used to inputting the voice signal into the computer. Microphones are commonly used for live chat. Microphones are also used to record voice into the computer.

Touch Pad – A touch pad is a device for pointing on a computer display screen. It is an alternative to the mouse. A touch pad works by sensing the user's finger movement and downward pressure. Originally incorporated in laptop computers , touch pads are also being made for use with desktop computers.

Light Pen- A light pen is a light sensitive pointing input device commonly used to select or otherwise modify text or data on a screen. Used with CRT monitor, these devices were an early form of manipulating and highlighting data on the screen. It is a costly device. It is mainly used by Engineers, Fashion designers or Architects.

Scanner- This device is used to copies the text and pictures directly into the computer. The most commonly used scanner is the flat bed scanner that has a flat tray with a glass pane and a covering lid (similar to a Photostat machine.

Digital camera- A digital camera is used to take photographs and record videos.

Web Camera- A web camera is a device connected to a computer for capturing still images and live videos.

Bar Code Scanner- It is used to scan the printed bar codes present on the various products . it can be seen in shops , malls etc
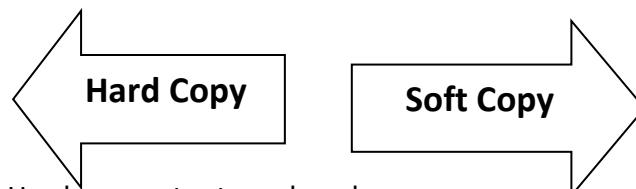
Track Ball- It is similar to mouse and can be used in its place. It has a ball on its top. To move the pointer on the screen roll the ball with your finger.

Output Devices

Output devices are used to display the data that we enter into a computer and the results that we get after processing.

Examples:- Monitor, Printer, Speaker, Headphone

Types of Output

Hard Copy   **Soft Copy**

- Hardcopy output produced on a paper or some material that can be touched and carried for being shown to others.
- The output printed on paper is called Hard Copy Output.
- The output that we get on a monitor is called the Soft Copy Output.

Common Output Devices

Monitor- It is a visual display device to present output information in the form of text, graphics or video on the monitor screen. It looks like a television.
There are three types of monitors:
1. CRT Monitors (Cathode Ray Tube Monitors)
2. LCD Monitors (Liquid Crystal Display)
3. LED Monitors (Light Emitting Diode)

<u>Printer</u>- An output device that produces text and graphics on a physical medium such as paper or transparency film. The most commonly used printers are Dot matrix, Inkjet and Laser Printers.

- **Dot Matrix Printer**- It works like a type-writer and creates the impression by striking on the paper . It is very noisy and do not produce high–quality output.
- **Inkjet Printer**- It sprays droplets of ink on paper to form the text and graphics . it is ideal for business work and personal documents. It can give output both in black and white and in colour.It produces high quality prints.
- **Laser Printer**- It uses beams and dry ink to print. It prints very fast and gives high quality output. It works like a photocopier. The Laser printer is invented by **Gary Starkweather**

<u>Speaker-</u> It is the output device used to listen to music and sound effects from the computer. They may be built into the system unit or connected with cables to CPU.

<u>Processing Device</u>

Central Processing Unit - **CPU** is the brain of a computer where it processes and stores the information, performs calculations and sends the result to the output devices. It performs all the jobs that we order it to do. It is also known as the System Unit.
CPU has mainly three parts:

1. **MU (Memory Unit) :** This stores information temporarily or permanently according to our need.

2. **ALU (Arithmetic and Logical Unit):** This unit performs all arithmetic calculations and logical operations.
3. **CU (Control Unit):** The control unit works like a traffic policeman and manages all operations of a computer.
   Vinod Dham is known as 'Father of Pentium'

<u>Motherboard</u>

The motherboard is sometimes called the system board or main circuit board. Many electronic components are attached to the mother board or are built into it.
The motherboard contains the connectors or slots for attaching additional boards, CPU and memory.

Test Your Knowledge

Multiple Choice Questions:-

Q1. Which output device allows you to hear sound?

   a) Microphone   b) Speakers   c) Monitor

Q2. Which device gives the output onto a paper?

   a) Printer   b) Monitor   c) Speakers

Q3. Who invented the computer mouse?

   a) Dr. Engelbart   b) Vinod Dham   c) Sir Christopher Latham Sholes

Q4. Which device is used to select the objects by directly touching with fingers?

   a) Touch Pad   b) Light Pen   c) Touch Screen

Q5.Who manages all jobs of computer?

   a) CPU   b) Keyboard   c) Mouse

Q6. Who invented the Laser printer?

   a) Charles Babbage   b) Gary Starkweather   c) Vinod Dham

Q7. Who is known as 'Father of Pentium'?

   a) Vinod Dham   b) Dr. Engelbart   c) Rey Johnson

Q8. In which year , a magic mouse was designed?

   a) 2009   b)2007   c)2005

Q9. Who is regarded as the inventor of QWERTY Keyboard?

   a)   Sir Christopher   b) Rey Johnson   c) Bill Gates

Q10. Which unit is called the brain of a computer?

    a) CPU   b) Input Device   c) Output Device

Very Short Questions:-

Q11. Name the three parts of CPU.

Q12. What are the three basic functions of computer system?

Q13. What is Software?

Q14. What is Microphone?

Q15. What is the other name of motherboard?

Q16. What is Output Device?

Q17. What is the use of Light pen?

Q18. Name the types of monitors.

Q19. What is Digital Camera?

Q20. Name any two input and output devices.

Q21. What is the use of Speaker?

Short Questions:-

Q22. What do you understand by Monitor?

Q23. Differentiate between the hard copy and soft copy.

Q24. What is the use of CPU?

Q25. Write any one limitation of a computer.

Long Questions

Q26.What is a printer? Name the types of printers.

Q27.Define the following terms:-

    a) Multifunction Printer
    b) Bar Code Scanner
    c) Track Ball
    d) Hardware
    e) Scanner

Q28. Write any four characteristics of a computer.