

INFORMATION AND COMMUNICATION TECHNOLOGY SKILLS

Class IX , Ch-3 Information and Communication

Technology Skills: I (IT #402)

Session 5: Basic Computer
Operations

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Learning outcome of this Session

After completing this session, you will be able to

- start and shut down a computer.
- identify the various keys on a keyboard and their associated functions.
- use a mouse.
- type simple words.

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Introduction

A computer system is a programmable machine designed to store and retrieve information and perform arithmetic and logical operations to produce meaningful results in desired format. It consists of three main units: Input Unit, Central Processing Unit (CPU) and Output Unit. Different computers have different ways in which the input, processing and output units are connected.

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Parts of a computer

A desktop computer has the following hardware:

- Keyboard is the device which is used for input of data, therefore it is the input device
 - Central Processing Unit (CPU) is the data processing unit and
 - Monitor is the device where we can see the output, therefore, it is an output unit
- Desktop Computer Parts of a Desktop Computer.



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Parts of a Desktop Computer

Parts of a Desktop Computer:

Input unit helps the user to enter raw data and instructions into the computer system, central processing unit performs the required operations as per given instructions and the output unit produces meaningful results in the desired format for the user The

CPU is further divided into three parts:

- I. Control unit (CU)
- II. Arithmetic and logic unit (ALU) and
- III. Memory unit (MU)

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Parts of a Desktop Computer

- **Control unit** acts as a receptionist and a manager of a company It receives each and every instruction from user and coordinates between different parts to perform various operations.
- **Arithmetic and logic unit** acts as an accountant of a company, which performs all the mathematical and logical calculations.
- The **memory unit** acts as a temporary store of a company, where small amount of data is stored while other operations are being performed

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Input Device

- An **input device** is used to enter information into the computer A keyboard is an input device used to enter letters, numbers and control functions
- **Microphone** is an input device that is connected to the computer to record sound
- A **web camera** is a device used to record videos. Many computers come with built in microphones and webcams
- **Scanner** is used to copy and store documents in a computer in digital (computer-readable) format.

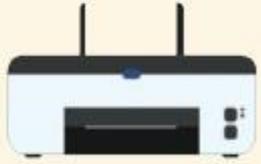
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Output Device

- Output devices bring information from the computer to the user. If you want to calculate the percentage marks, you input all your marks using a keyboard, the computer calculates using the formula and you see the results on a monitor screen.
- **Monitor** is the output device on which the computer displays the output information.
- **Printer** is an output device which gives us the hard copy of the information processed by the computer.

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Common Peripheral Devices

				
<p>Keyboard: It is used to provide input to the computer on what to do, which could be in the form of typed letters, numbers, and symbols.</p>	<p>Mouse: We use it to go to different parts of the screen on the monitor.</p>	<p>Microphone: It is used to record voice on the computer, and communicate.</p>	<p>Projector: It is used to project images or video from computer on a screen.</p>	<p>INPUT DEVICE</p>
				
<p>Monitor: It displays all the visual output that CPU produces after processing the input.</p>	<p>Speakers: It plays back all the sound-based output.</p>	<p>Scanner: It is a device that scans/ captures a paper image, document and converts it to digital file on computer.</p>	<p>Printer: It helps to print out the visual output on the paper, as displayed on the monitor.</p>	<p>OUTPUT DEVICE</p>

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- ❑ In large retail stores, a peripheral device commonly found is the barcode reader or barcode scanner.
- ❑ It is used for recording the items purchased in order to create the receipt/bill.
- ❑ In offices and homes, we use a peripheral device known as scanner, and it is used to convert the information on a paper document into a digital information document.



Barcode scanning

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Central Processing Unit

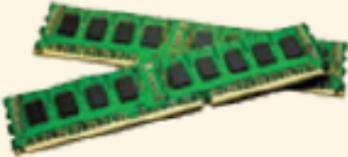
- The **Central Processing Unit (CPU)** of the computer as shown in the Figure, is like our brain.
- How does our brain work? Our eyes see (input) a mathematical problem and sends the details to the brain. The brain thinks (process) and gets the result while the hand writes it on paper (output).
- In a similar way, the CPU also processes information received from the keyboard and gives the output to the monitor or the printer Just as our brain can understand arithmetic and logical information, the CPU can also solve mathematical and logical problems.

There are 3 main parts of the CPU.

- **Control unit:** It acts like a receiver and a manager of a company. It receives inputs from user and controls different parts to do the operations required.
- **Processing unit:** It acts as an accountant of a company and performs all the mathematical and logical calculations.
- **Memory unit:** It acts as the storage room of a company, where data is stored temporarily (RAM) as well as for a long time (ROM).

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Types of Memory Storage Devices

RAM	ROM	Flash Memory
		
<ul style="list-style-type: none"> • When you are doing tasks on your computer, you use RAM 	<ul style="list-style-type: none"> • Permanently stores information 	<ul style="list-style-type: none"> • Can permanently store information
<ul style="list-style-type: none"> • Temporarily stores information • Information is lost when computer is switched off • Information can be changed easily. 	<ul style="list-style-type: none"> • Information is stored when computer is off • Information cannot be changed easily • It is mainly used when starting the computer. 	<ul style="list-style-type: none"> • Information is not lost when computer is switched off • Information can be changed on easily. It is mainly used in removable storage devices (like USB), and its usage is based on user's needs.

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Motherboard

- Motherboard, also referred to as a system board, is the main circuit board inside a computer. It connects input, processing and output devices.

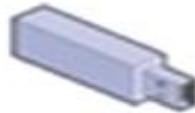
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Storage devices

- These storage devices are used to store digital information.
- The commonly used storage devices are USB flash drive, hard disk, CD, DVD, etc.
- They mainly differ in their storage capacity (how much data they can store).



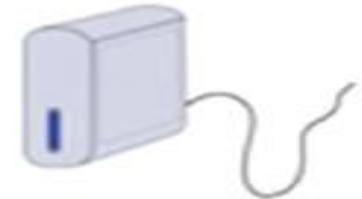
Compact Disc



USB Flash Drive



DVD



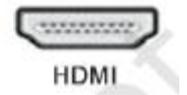
External Hard Disk

- Data is stored in the form of bits and bytes. Bit (Binary Digit, represented by 0 or 1) is the smallest storage unit.
- Eight bits combined together form a byte, which in turn represents a character (numerals/letters/symbols).
 - 8 bits make a byte and 1024 bytes make a kilobyte (KB).
 - 1024 KB make 1 megabyte (MB)
 - 1024 megabyte make 1 gigabyte (GB)
 - 1024 gigabyte make 1 terabyte (TB)

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Ports and connections

- The slots or channels into which we connect the mouse/keyboard/external hard disk wires are called ports.
- There are several types of ports that you can use to connect a computer to an external devices and networks. These are:
- Universal serial bus or the USB port which connects peripheral devices, such as a mouse or a keyboard or a printer to a computer using the cable.
- Display port which connects the monitor, or any display unit, to the computer using the cable. These can be of different types, like Video Graphics Array (VGA) and High Definition Multimedia Interface (HDMI), depending on the requirement.
- Audio ports help to connect microphone, speakers, and headphones to a computer system. Often, the speaker and headphone port is called the line out port, i.e., it is meant for sound output.
- Ethernet port is used for connecting the system to high speed Internet cable.
- Power port is used for connecting the computer system to the power supply.



RGB Display port (Left) and HDMI port (Right)



Ethernet Port



Power Port

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Quick Recap of this Session

In this session, you have learnt about the basic parts of a computer and the use of input and output devices. You have also learnt about the functions of the Central Processing Unit and the difference between Random Access Memory and Read Only Memory. You have also learnt about the different ports and connections on a computer.

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Home Assignment

A. Multiple choice questions

1. Which of the following units make up the CPU? Choose and tick all the correct options.
 - a) Processing Unit
 - b) Input Unit
 - c) Memory Unit
 - d) Control Unit
 - e) Output Unit
2. Which of the following are names of ports in a computer? Choose and tick all the correct options.
 - a) (a) HDMI
 - b) (b) Input
 - c) (c) VGA
 - d) (d) USB
 - e) (e) Ethernet

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Home Assignment

A. Multiple choice questions

3. There is a talent contest in your town. For participating in the audition, you have to send a recording of a song. What would you connect to your computer to record your song?
- a) Keyboard
 - b) Microphone
 - c) Scanner
 - d) Mouse

B. Short answer questions

Write the purpose of the I/O devices

Input/Output device	Purpose
Mic/microphone	
Scanner	
Camera	
Barcode Reader	
Printer	
Speaker	

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THANKING YOU

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