

PROFICIENT ACADEMY, PUNE



**INFORMATION
TECHNOLOGY**

STD. XI

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Basics of Information Technology

Information Technology has great influence on all aspects of life. Almost all work places and living environments are being computerized.

Definition of Information Technology -

“IT (Information Technology) encompasses all of the technologies that we use in order to create, collect, process, protect and store information. It refers to hardware, software (computer programs), and computer networks”.

Information Communication Technology (ICT) is evolution of IT. It involve transfer and use of all kinds of information.

Data & Information -

One Most Important thing in Information Technology is Information. It is being said that the terms "Data" and "Information" are interchangeable and mean the same thing. However, they are not same and there is a difference between the two words.

What is Data?

Data can be any character, text, word, number or raw facts.

What is Information?

Information is data formatted in a manner that allows it to be utilized by human beings in some significant way.

From Above Definitions we can say that “Information is Always Data” But “Data is not Always Information”. To get Information we have to Arrange or format Data.

Example of Data:

Umbar, 1234, Xyz, MG Road, Calcutta, 9111111111,
84084

Example of Information:

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XYZ, 1234, MG Road, Umbar 84084, Calcutta,
9111111111

So, In above Example the data appears to be a set of random words and numbers. But when that data is interpreted, organized and formatted, one can tell that it is contact information of a person named as XYZ and Data becomes Information.

Need of information -

Information is required to take short term and long term decisions and also to make strategic decisions in an organization.

Various Concepts Used Under IT -

1) Computer -

An electronic device which accepts input from the user, processes it according to the instructions given to it and gives the required result in the form of output, **is a computer**.

The word Computer is derived from a Latin word “computare” which means to “to calculate”, “to count”, “to sum up” or “to think together”.

Computer System –

A computer can process data, images, audio, video and graphics.

A computer performs five major computer operations or functions as follows –

- 1) It accepts data or instructions by way of input.
- 2) It stores data.
- 3) It can process data as required by the user.
- 4) It gives results in the form of output.

2) Computer Architecture –

Computer architecture refers to how a computer system is designed and how it works.

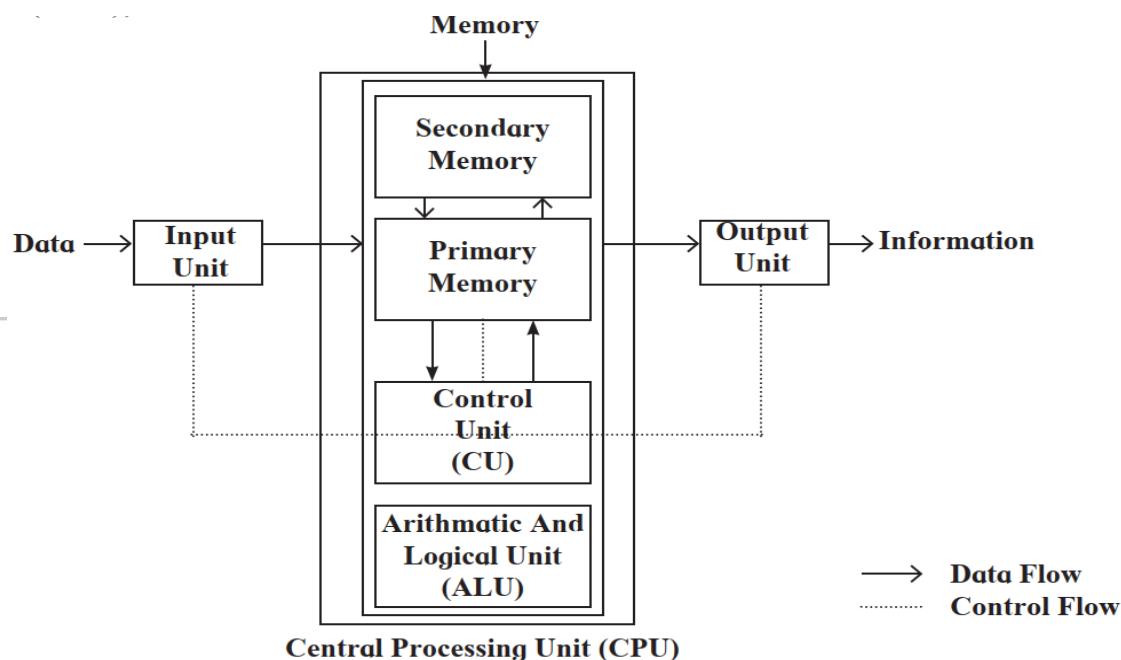
Every computer system has three basic components Input Unit, Central Processing Unit, Output Unit

Following is Block Diagram of Computer Architecture -

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1) Input Unit –

This unit helps users to enter data and commands into a computer system. Data can be in the form of numbers, words, actions, commands, etc. The main function of input devices is to direct commands and data into computer. Computer then uses its CPU to process data and produce output.

For example, a keyboard is an input device that enters numbers and characters.

Examples of Input Devices –

Barcode reader, Magnetic Ink Character Reader (MICR), Optical Character Reader (OCR), Mouse, Touch Screens etc.

2) Central Processing Unit (CPU) –

After receiving data and commands from users, a computer system has to process it according to the instructions provided. Here, it has to rely on a component called the Central Processing Unit (CPU).

CPU contains 3 blocks – Arithmetic Logic Unit (ALU), Control Unit and Memory.

1) Arithmetic and Logic Unit (ALU) –

This part of the CPU performs arithmetic and Logical operations on Data.

It does basic mathematical calculations like addition, subtraction, division, multiplication, etc and Logical operations like AND, OR, NOT, Comparison of data etc.

II) Control Unit –

This unit is the **back bone of computers**. It is **responsible for coordinating tasks between all components of a computer system**.

The control unit collects data from input devices and sends it to processing units depending on type of data. Finally, it further sends processed data to output devices like Display, Speakers, and Printer etc. to facilitate users.

III) Memory –

Once a user enters data using input devices, the computer system stores this data in its memory unit.

Types of Memory –

There are two types of memory

I) Primary Memory II) Secondary Memory

I) Primary Memory –

Primary memory is internal memory of the computer. It is also known as main memory. Primary Memory holds the data and instruction on which computer is currently working.

There are again 2 Types of Primary Memory –

i) Random Access Memory (RAM) ii) Read Only Memory (ROM)

i) RAM –

RAM is known as read /write memory. It is generally referred to as main memory of the computer system.

It is a temporary memory.

The information stored in this memory is lost as the power supply to the computer is switched off. That's why **RAM is also called as “Volatile Memory”**.

ii) ROM –

ROM is a Permanent Type memory.

The content in this memory is not lost when power supply is switched off. Content of ROM is decided by the computer manufacturer and permanently stored at the time of manufacturing.

ROM cannot be overwritten by the computer. It is **also called “Non-Volatile Memory”**.

II) Secondary Memory –

It is an external memory of the computer. It is used to store the huge amount of different programs and information.

The secondary storage devices are:

1. Magnetic (Hard) Disk
2. Magnetic Tapes
3. Pen Drive
4. Flash memory
5. Optical Disk (CD, DVD)
6. SSD etc.

Units of Memory –

Bit It is a binary digit that holds either 0 or 1 single digit.

Nibble A group of 4 bits is called a nibble,
Example – 1010

Byte A group of 8 bits or we can say 2 Nibbles is called a byte.
Example – 1010 0011

Different Units of Memory	
Data Measurement	Size
Bit	Single Binary Digit (1 or 0)
1 Byte	8 Bits
1 KiloByte (KB)	1,024 Bytes
1 MegaByte (MB)	1,024 KiloBytes
1 GigaByte (GB)	1,024 MegaBytes
1 TeraByte (TB)	1,024 GigaBytes
1 PetaByte (PB)	1,024 TeraBytes
1 ExaByte (EB)	1,024 PetaBytes

3) Output Unit –

The third and final component of a computer system is the output unit. After processing of data, it is converted into a format which human can understand. After conversion, the output unit displays this data to users.

Examples of output devices are –

Monitors, Screens, Printers, Speakers etc.

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