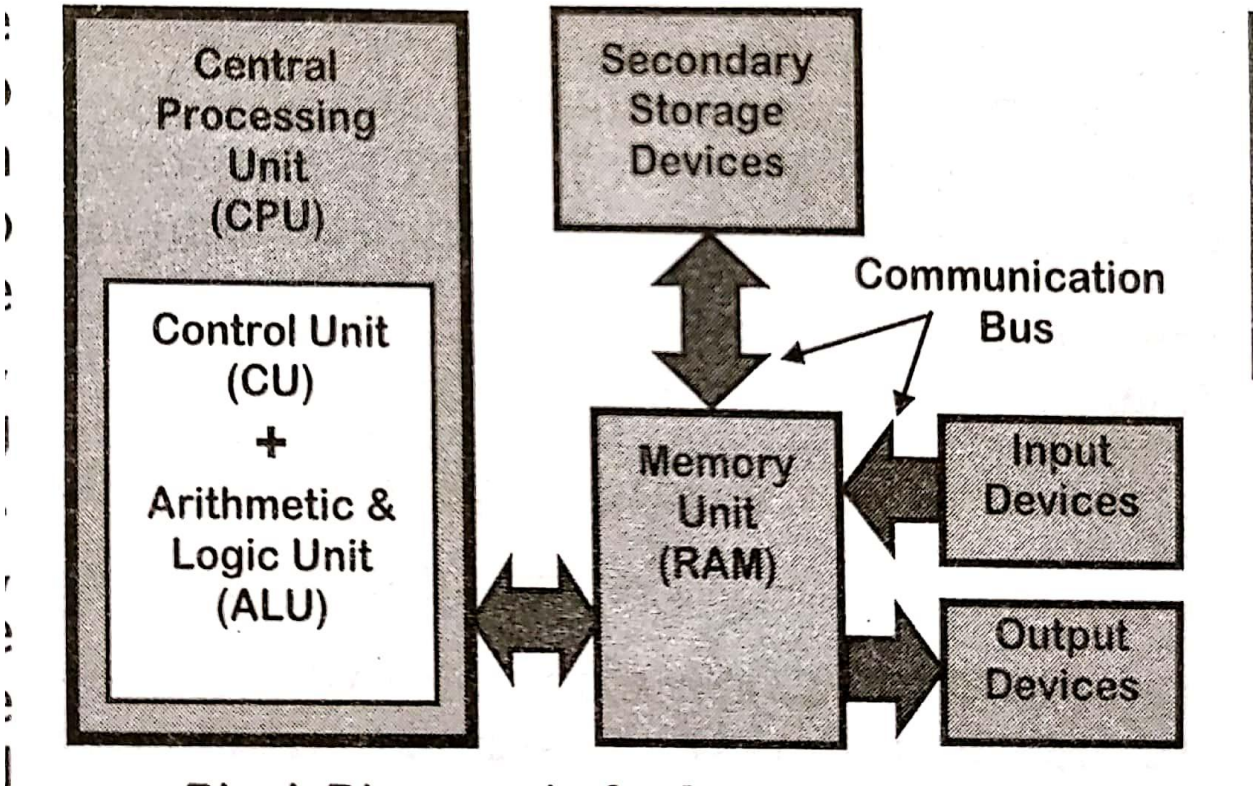
STUDY MATERIAL - 02
TOPIC – EVOLUTION OF COMPUTERS & COMPUTER ORGANIZATION

SUBJECT: COMPUTER APPLICATION **CLASS: XI**
DATE: 27.06.2020

❖ Block Diagram of Computer



❖ Input Devices

Input devices help to interact with the computer and accept data and instructions from the user.

The various types of input devices available are: Keyboard, Mouse, Scanner, Barcode Reader, Touch Screen, Light Pen, OMR, OCR, MICR, Graphic Tablet, Joystick, Microphone.

❑ KEYBOARD:

A keyboard is a peripheral device that enables a user to input text into a computer or any other electronic machinery. A keyboard is an input device and is the most basic way for the user to communicate with a computer. This device is patterned after its predecessor, the typewriter, from which the keyboard inherited its layout, although the keys or letters are arranged to function as electronic switches. The keys include punctuation, alphanumeric and special keys like the Windows key and various multimedia keys, which have specific functions assigned to them.

❑ Mouse:

A mouse is a small handheld input device that controls a computer screen's cursor or pointer in conjunction with the way it is moved on a flat surface. The mouse term name originates from its likeness to a small, corded and elliptical shaped device that looks like a mouse tail. Some mouse devices have integrated features, such as extra buttons that may be programmed and assigned with different commands.

Because the mouse reduces the use of a keyboard, its invention and continuous innovation is considered one of the most important breakthroughs in computer ergonomics.

Based on the way a mouse determines its position on the surface, there are broadly two types of mouse *mechanical mouse* and an *optical mouse.*

❑ Scanner:

A scanner is an electronic device which can capture images from physical items and convert them into digital formats, which in turn can be stored in a computer, and viewed or modified using software applications.

- ❖ **Types:**
- ✓ **Flatbed scanners**
- ✓ **Sheet-fed scanners**
- ✓ **Handheld scanners**
- ✓ **Drum scanners**

Flatbed scanner is the most widely used one

❑ Barcode Reader:

A barcode reader (or barcode scanner) is an optical scanner that can read printed barcodes, decode the data contained in the barcode and send the data to a computer. It is used to scan ready product information from product labels. The information on the barcode usually contains the product ID, price, name of the manufacturer, etc. printed on the labels.

❑ Touch Screen:

It is a special type of display screen where the user can enter data by touching the screen at specific locations. Using a touch screen, the user can directly interact with what is displayed on the screen, rather than indirectly with the mouse.

❑ Light Pen :

Light pen is a point and draw input device which allows a user to point to objects displayed on a CRT screen. it is basically a light sensitive device that uses a photoelectric cell and an optical lens mounted in a pen shaped case. It is similar to a touch screen but has a greater accuracy.

❑ Optical Mark Reader(OMR) :

OMR is the process of gathering information from human beings by recognizing marks on a document.

One of the most familiar applications of optical mark recognition is OMR answer sheets in multiple choice question examinations.

The contrasting reflectivity from the marked and unmarked areas is used to detect the marked areas as they reflect less light than the blank areas of the paper.

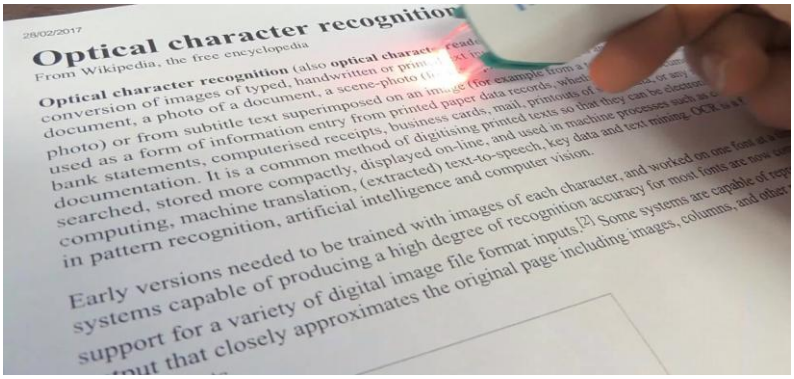
OMR provides a fast and accurate way to collect and input data.

❑ Optical Character Reader(OCR) :

It is a widespread technology to recognise text inside images, such as scanned documents and photos. OCR technology is used to convert virtually any kind of images containing written text (typed, handwritten or printed) into machine-readable text data.

The advantages of using OCR technology are:

- ✓ **Reduced storage area**
- ✓ **Word processing**
- ✓ **Quick data evaluation**



❑ Magnetic Ink Character Reader(MICR) :

It is a character recognition system that uses special ink and characters. When a document that contains this ink needs to be read, it passes through a machine, which magnetizes the ink and then translates the magnetic information into characters.

MICR technology is used by banks. Numbers and characters found on the bottom of checks (usually containing the check number, sort number, and account number) are printed using Magnetic Ink. To print Magnetic Ink need, you need a laser printer that accepts MICR toner.

MICR provides a secure, high-speed method of scanning and processing information.

❑ Graphic Tablet:

It is an input device on which the user can draw anything using a special pen and the image is directly transferred to the computer display and can be saved.

❑ Joystick:

Joystick is another type of input device mainly used in computer games and simulation software to input a move. This work as navigation devices and can have special buttons to input various actions required in a computer game.

❑ Microphone:

Microphones can be used to directly input audio signals like voice or music into the computer with the help of specific software.

❖ Output Devices

The output device present processed data to the user.

The various types of output devices available are:

- **Visual Display Unit (VDU)**
- **Printers**
- **Plotters**

❑ Visual Display Unit (VDU):

A VDU or commonly video monitor is the most widely used output device. There are two types of technologies used to manufacture VDU.

❖CRT Monitor:

The basic component of a Cathode Ray Tube monitor are the electron gun, focusing systems, horizontal and vertical deflection systems and a phosphor coated screen.

- **Characteristics:**
  - **Here power consumption is high.**
  - **Display are either rounded or flat**
  - **Viewing angle is more**
  - **The display are bulky in nature and occupies more space.**

❖LCD

This type of display is popular nowadays. The display is formed using special types of crystals called liquid crystals and hence called Liquid Crystal Display. Here a special arrangement of light polarisers and electrodes are used to form the image on the screen.

- **Characteristics:**
  - **The power consumption is low.**
  - **Displays are always flat.**
  - **Viewing angle is less.**
  - **The displays are thin in nature and occupy less space.**

❑ Printers:

Printer is an output device which is used to produce a permanent copy of the output.

There are broadly two types of printers:

- **Impact Printer**
- **Non impact Printer**

- **Impact Printer**

In impact printers the images produced on a paper by some electromechanical impacts device, which is similar to working of a mechanical typewriter.

❖Dot Matrix printer

They produce images with the help of dots arranged to form the letter, number, line or any other character. They are used for heavy printing jobs and can print for very long time without any break.

❖Daisy wheel printer

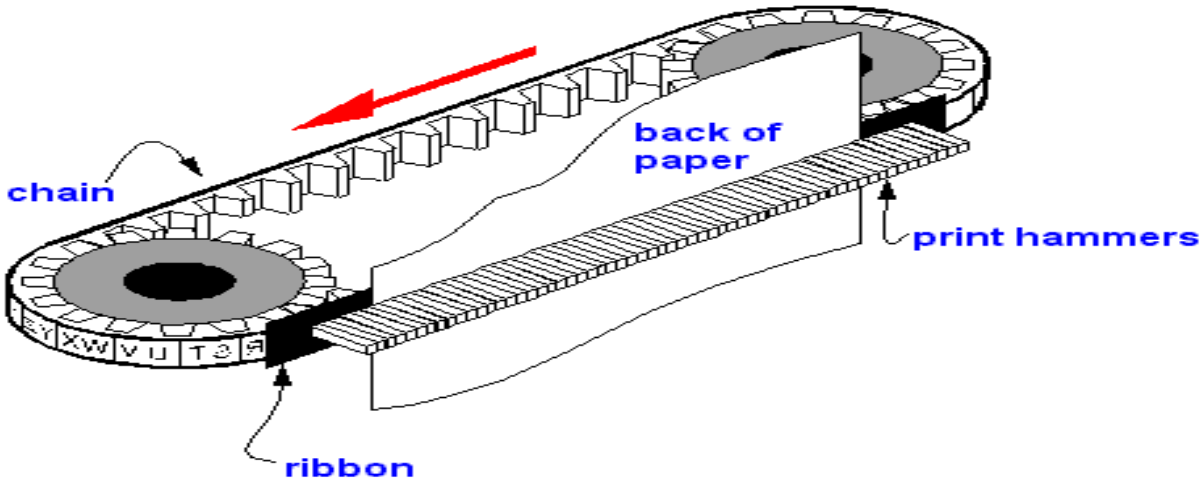
These are character printers where a special type of wheel called the Daisy wheel contains the set of characters used in the printing process. By changing the wheel, one can print using a different set of characters. Such a printer is fast and good for printing basic text. However it cannot be used to print images.

❖Line printer

This type of impact printer is used to print a complete line of text at a time at a very high speed.

❖Chain printer

Here the printing characters are chained together to form a loop. This printer can print from 5 to 40 lines per second.



- **Non impact printers:**

In this type of printers the images produced on paper without the need of any impact hammer on the paper. The printing quality of these printers is better than impact printers.

❖Inkjet printer

These printers have ink in a well - like container(cartridge), which they spray through tiny holes to form the pattern of the character on paper.

❖Laser printer

This non impact printers use dry ink called toner to print text or images on paper. Laser printers are costly, but can print at high speeds of 8 to 15 pages per minute and are suitable for bulk printing jobs of text and images.

❑ Plotters:

A plotter is similar to an inkjet printer but is used for printing on large papers or continuous people roles. These are used for printing engineering drawings like building plans, mechanical drawings, assembly drawings etc.

Depending upon the working, plotter is of two types:

- **drum plotter , where, the paper is rolled over a drum**
- **a flat - bed plotter, where, the plotting pens plot on a flat surface over which the paper is placed**

***

PRITHWISH DE