Computer

In today's computer era the use of computer is increasing continuously in every field of our life.

13.1 What is a Computer?

Computer is a device which converts data into meaningful information. Now you may be thinking what is data?

Names of students studying in a class, age, sex, father's name, height, weight, marks obtained in different subjects, etc, can be called as **Data**. All examination results and separate mark sheets of each student may be drafted in computer with use of these data as meaningful information. In view of the working of computer it is defined as follows -.

Computer receives data as input, store it, works as per our desire i.e. processes it and provides desired results in the form of a print.

13.2   Main parts of computer
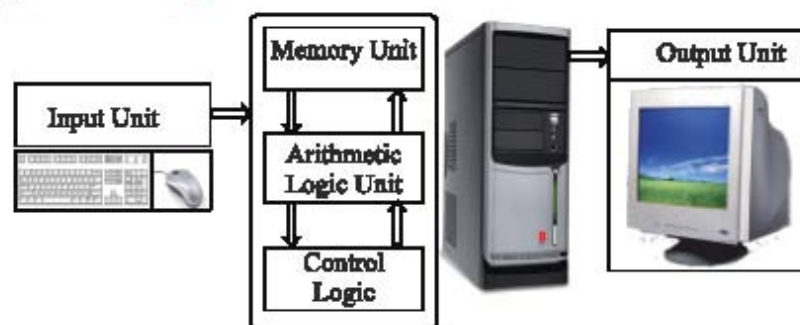
Central Processing Unit (CPU)
Fig. 13.1 Main parts of computer

Computer has been divided into three main parts –

1. Input device
2. Central processing unit
3. Output device

(1) **Input device** – main function of input unit is to put data in the computer.

(2) **Central processing unit** – This is the main part of a computer. It stores data, performs different types of calculations and controls all the actions of computers. It has three parts –

    (1) Memory

    (2) A.L.U (Arithmetic logic unit)

    (3) control unit

1. **Memory** – Memory is that part of computer which stores different types of data and instructions.

2. **A.L.U (Arithmetic logic unit)** – Its main function to perform logical and comparative calculation- addition, subtraction, multiplication, division, etc.

3. **Control device** – It controls all the processes of computer.

(3) **Output unit:** It is used to collect meaningful information from input data in computer.

13.3 Input devices

Input devices are used to insert data into the computer. The examples of few input devices are as follows –

Main Input device

(i) **Key-board :** It is an easy and widespread usable input device, as most data and instruction are inserted into computer through it. All key-board keys are divided into three parts:-

Fig. 13.2 Key-board

    (A) **Alpha-numeric keys** – It includes alphabets (A-Z), Numeric (0-9) and other characters like space bar, <, >, ', *, `, #, @, $, %, ^, &, (,), /, ?, [,], {, }, and special keys- shift, enter, backspace, Tab, Ctrl, Esc, & Alt.

(B) **Numeric keys:** It includes 0-9 numerical characters and other keys like - Num Lock, /, *, -,home, page up , page down, insert and enter.

(C) **Function keys:** There are 12 function keys in the upper part of key board with markings as F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, F13. The function of all keys is differently.

(ii) **Mouse :** It is one of the most popularly used input device. Movement of the ball on the under surface of mouse moves the cursor on the screen. When cursor reaches the desired position then by click of the mouse button on cursor we can choose the instruction that is to be processed. At present , optical mouse that lack a ball are more commonly used.

Fig. 13.3 ; Mouse.

(iii) **Magnetic ink character recognition (MICR) :** MICR technology is used mainly in banking sector where cheques are checked in abundance. In this technique, script is made to emerge by the use of special characters that come out of a special typewriter that uses ink that has magnetic material mixed in it. It is used to check the factuality of records.

Fig. 13.4 Magnetic ink character.

(iv) **Optical character recognition(OCR):** it is used for very high speed reading (appx. 300 page per hour) of printed, typed or handwritten letters with optical or LASER scanner. This technique is mostly used in those institutions where large number of bills are made.

(v) Optical Mark Reading(OMR): OMR is a device which is used to check the presence or absence of pen or pencil mark on a paper. In this, light is thrown on the marked paper and reflected light is checked. This technique checks only boxes at specific places and boxes filled with pencil on printed cards or forms. OMR is highly essential device to check the answer books of an exam.

Fig. 13.5 Optical character recognition.

Fig. 13.6 Optical mark reader.

(vi)   **Scanner:** It is used to store documents or pictures available on any paper into the digital memory of computer. Its working principle is almost similar to zerox machine. It can provide duplicate copy of any document.

Fig. 13.7 Scanner

(vii)   **Touch screen:** It is alternate of key board. The monitor screen is used to give instructions to computer by touching the exact position on screen

Fig. 13.8 Touch screen

(viii)   **Microphone:** Microphone is an input device to feed voice as input.

(ix)   **Web Camera:** The activity of a person we are conversing with, who is in another city or abroad can be viewed on computer screen by web camera.

Fig. 13.9 Microphone

13.4 Output devices:

The instruments or devices are instruments that represent or print meaningful information present in computer. The commonly used output devices are

(i)   Monitor

(ii)   Printer

(iii)   Plotter

(iv)   Speaker

1.   **Monitor :** Monitor or V.D.U.(visual display unit) is the main out-put device. Technically it is of three types.

(i)   CRT Monitor

(ii)   LCD Monitor

(iii)   LED Monitor

(I)   **CRT:** This monitor contains a cathode ray tube. These monitors are big i n size and occupy more space on the table, heavy and consumes more electricity. So now a days they are rarely used.

Fig. 13.10
CRT Monitor

(iii)   **LCD:** A liquid crystal display is set into LCD monitor. Due to its contour it is light weight, occupies less space and also has low electrical consumption.

Fig. 13.11
LCD Monitor

(v)   **LED :** In view of its good picture quality and low electrical consumption this monitor is most preferred choice. Light emitting diode is placed in this monitor

Fig. 13.12
LED Monitor

2.   **Printer:** It is that out-put device by which a hardcopy is taken in printed form. The commonly used printers are –

(i)   LASER Printer

(ii)   Ink-jet printer

(iii)   Dot matrix printer

(iv)   Line printer

(I)   **LASER Printer:** High quality printing work is done by LASER printer. It prints paper with speed. Speed of printing is measured in DPI (dots per inch).

(II)   **Ink-jet printer:** It prints images by spraying the ink on paper. However, the quality of image is low as compared to that of LASER printer. Its printing speed is also lower than LASER printer.

Fig. 13.13 Ink-jet printer.

(iii)   **Dot matrix printer:** It prints image or words in the form of dots form thus known as dot matrix printer. Its printing speed is measured in CPS (characters per second). It is economical, with low sound, low speed of printing and also low quality of printing

Fig. 13.14 Dot matrix printer

(iv)   **Plotter:** Like printer plotter is another type of output device . It is used for printing the huge maps or images on paper.

Fig. 13.15 Plotter

(V)   **Speaker:** It is also a type of output device. It is used to hear music, talks, etc.

13.5 Properties of computer

Computer has the following properties-

Fig. 13.16 Speaker

(i)   **Storage capacity:** Computer has extraordinary capacity to store data. It is measured in bytes. It can store any type of data.

(ii)   **Accuracy:** Computer never makes any error because it works on the principle that as the input so will be the output i.e. if input is wrong then output will also be wrong.

(iii)   **Speed:** Computer can do complicated calculations in a very short time.

(iv)   **Automation:** Computer is an automatic machine which when once started, works accordingly to directions as per the given programme.

(v)   **Diligence:** Computer is an electronic device which can do restless work for long time without any exhaustion.

(vi)   **Wide utility:** The use of computer is increasing day by day. Its utility is increasing in every aspect of life like banking, in education, transportation, printing, etc.

Shakuntala Devi

Shakuntala devi was born in a traditional kannad family at metropolitan city Bangluru the capital of Karnataka on 4th November 1929 . At the age of 6 years she represented her calculation dexterity in a conference at Mysore University. She had the capability to tell the date of any day of past century within fraction of seconds. In 1982 her name was included in "Guinness Book ". Due to these specialities , the people were forced to call her "Human Computer". She could solve very complicated and difficult calculation very easily. Books written like' Sun With Numbers', 'Astrology for You',' Puzzles to Puzzle You', 'Mathability'are universally famous. She had broken the myth that girls are weak in mathematics. In her honour, Google dedicated Google doodle on 4th November 1913. Renowned with the title of "human computer", this famous scientist passed away on 21 April, 2013 in Bangluru.

What have you learnt

- Computer takes data as input, store it. Process and prints the data as per our desire.

- Computer has been divided mainly into three units –
  (i) Input unit
  (ii) Central processing unit
  (iii) Output unit.

- The three parts of central processing unit are-Memory, A. L. U. and Control unit.

- Key-board, mouse, magnetic ink character recognition, optical character recognition, optical mark reading, scanner, touch screen, microphone etc. are input devices.

- Monitor, printer, plotter and speaker etc. are output devices.

- Capacity storage, accuracy, speed, automation, diligence and wide usability are the different properties of computer.

Exercises

Choose the correct answer

1. Which device is not an output device.
   (A) Monitor   (B) Printer
   (C) Key-board   (D) Plotter   ( )

2. The part of central processing unit is-
   (A) Memory   (B) A.L.U.
   (C) Control Unit   (D) All the above   ( )

3. Input device is -
   (A) Key-board   (B) Mouse
   (C) Scanner   (D) all the above   ( )

Fill in the blanks with suitable words

1. All the actions of computer are controlled by..unit.
2. To check the examination answer books, ………………….. device is used.
3. Monitor, Printer, Speaker and plotter are ....devices.
4. ………….. printer speed is measured in CPS.

Short answer type questions

1. Write names of input devices.
2. What is the difference between CRT and LCD monitor ?
3. If you want to purchase a printer, which one will be your choice ? and why ?
4. Define computer on the basis of their functions.

Long answer type questions

1. What are the characteristics of a computer ? Explian it?
2. In how many parts key-board keys can be devided ? Describe them.

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