

## **Practical 1**

**Aim :** Assembling of Computer

### **Summary:**

Computer is a Latin word which means to calculate.

- C = Common
- O = Operating
- M = Machine
- P = Particularly
- U = Used for
- T = Technological
- E = Engineering
- R = Research

### **1. First Generation(1940-1956):**

The technology behind the primary generation computers was a fragile glass device, which was called vacuum tubes. These computers were very heavy and really large in size. These weren't very reliable and programming on them was a really tedious task as they used high-level programming language and used no OS. First-generation computers were used for calculation, storage, and control purpose. They were too bulky and large that they needed a full room and consume lot of electricity.

- Main first generation computers are:
  - i) ENIAC: Electronic Numerical Integrator and Computer, built by J. Presper Eckert and John V. Mauchly was a general-purpose computer. It had been very heavy, large, and contained 18,000 vacuum tubes.
  - ii) EDVAC: Electronic Discrete Variable Automatic Computer was designed by von Neumann. It could store data also as instruction and thus the speed was enhanced.
  - iii) UNIVAC: Universal Automatic Computer was developed in 1952 by Eckert and Mauchly.

## 2. Second Generation(1956-1963):

Second-generation computers used the technology of transistors rather than bulky vacuum tubes. Another feature was the core storage. A transistor may be a device composed of semiconductor material that amplifies a sign or opens or closes a circuit.

Main electronic component	- Transistor.
Programming language-	- Machine language and assembly language.
Memory	- Magnetic core and magnetic tape/disk.
Input/output devices	- Magnetic tape and punched cards.
Power and size	- Smaller in size, low power consumption, and generated less heat (in comparison with the first generation computers).
Examples of second Generation	- PDP-8, IBM1400 series, IBM 7090 and 7094, UNIVAC - CDC 3600 etc.

## 3. Third Generation(1964-1971):

During the third generation, technology envisaged a shift from huge transistors to integrated circuits, also referred to as IC. Here a variety of transistors were placed on silicon chips, called semiconductors. The most feature of this era's computer was the speed and reliability. IC was made from silicon and also called silicon chips.

Main electronic component	-Integrated circuits (ICs)
Programming language	-High-level language
Memory	-Large magnetic core, magnetic tape/disk
Input / output devices	-Magnetic tape, monitor, keyboard, printer, etc.
Examples of third generation	- IBM 360, IBM 370, PDP-11, NCR 395, B6500, UNIVAC 1108, etc.

## 4. Fourth Generation(1971-present):

In 1971 First microprocessors were used, the large scale of integration LSI circuits built on one chip called microprocessors. The most advantage of this technology is that one microprocessor can contain all the circuits required to perform arithmetic, logic, and control functions on one chip. This generation provided the even smaller size of computers, with larger capacities. That's not enough, then Very Large Scale Integrated (VLSI) circuits replaced LSI circuits. The Intel 4004chip, developed in 1971, located all the components of the pc from the central processing unit and memory to input/ output controls on one chip and allowed the dimensions to reduce drastically.

Main electronic component	- Very large-scale integration (VLSI) and the on a single microchip).
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Memory etc.)	- Semiconductor memory (such as RAM, ROM,
Input/output devices	- pointing devices, optical scanning, keyboard, monitor, printer, etc.
Examples of fourth generation etc.	-IBM PC, STAR 1000, APPLE II, Apple Macintosh

## 5. Fifth Generation(1980-present):

The technology behind the fifth generation of computers is AI. It allows computers to behave like humans. It is often seen in programs like voice recognition, area of medicines, and entertainment. Within the field of games playing also it's shown remarkable performance where computers are capable of beating human competitors. The speed is highest, size is that the smallest and area of use has remarkably increased within the fifth generation computers. Though not a hundred percent AI has been achieved to date but keeping in sight the present developments, it is often said that this dream also will become a reality very soon.

Main electronic component	- Based on artificial intelligence, uses the Ultra Large-scale Integration (ULSI) technology and parallel processing method (ULSI has millions of transistors on a single microchip and Parallel processing method use two or more microprocessors to run tasks simultaneously).
Language	- Understand natural language (human language).
Size	- Portable and small in size.
Input / output device	- Trackpad (or touchpad), touchscreen, pen, speech input (recognize voice/speech), light scanner, printer, keyboard, monitor, mouse, etc.
Example of fifth generation	- Desktops, laptops, tablets, smartphones, etc.

## Generation Of Computers 1st To 5th

