

# KNOWLEDGE OF COMPUTER APPLICATIONS

## BASIC COMPUTERS

Computer is an electronic device initially designed to perform arithmetic and logical operations. The computer as we know it today had its beginning with a 19th century English mathematics professor named Charles Babbage. He designed the Analytical Engine and it was this design that the basic framework of the computers of today are based on.

Generally speaking, computers can be classified into five generations. Each generation lasted for a certain period of time, and each gave us either a new and improved computer or an improvement to the existing computer.

**FIRST GENERATION (1937 – 1946):** In 1937 the first electronic digital computer was built by Dr. John V. Atanasoff and Clifford Berry. It was called the Atanasoff-Berry Computer (ABC). In 1946 the first general-purpose digital computer, the Electronic Numerical Integrator and Computer (ENIAC) was built. It is said that this computer weighed 30 tons, and had 18,000 vacuum tubes which was used for processing. Computers of this generation could only perform a single task, and they had no operating system.

**SECOND GENERATION (1947 – 1962):** This generation of computers used transistors instead of vacuum tubes which were more reliable. In 1951 the first computer for commercial use was introduced to the public; the Universal Automatic Computer (UNIVAC 1). In 1953 the International Business Machine (IBM) 650 and 700 series computers made their mark in the computer world. During this generation of computers over 100 computer programming languages were developed, computers had memory and operating systems. Storage media such as tape and disk were in use also were printers for output.

**THIRD GENERATION (1963-1971):** The invention of integrated circuit brought us the third generation of computers. With this invention computers became smaller, more powerful more reliable and they were able to run many different programs at the same time. In 1980 Microsoft Disk Operating System (MS-Dos) was born and in 1981 IBM introduced the personal computer (PC) for home and office use. Three years later Apple gave us the Macintosh computer with its icon driven interface and the 90s gave us Windows operating system.

**FOURTH GENERATION (1971-1980):** Computers of fourth generation used Very Large Scale Integrated (VLSI) circuits. VLSI circuits having about 5000 transistors and other circuit elements with their associated circuits on a single chip made it possible to have microcomputers of fourth generation. Fourth generation computers became more powerful, compact, reliable, and affordable. As a result, it gave rise to Personal Computer (PC) revolution. In this generation, time sharing, real time networks, distributed operating systems were used. All the high-level languages like C, C++, DBASE etc., were used in this generation.

**FIFTH GENERATION (1980-TILL DATE):** In the fifth generation, VLSI technology became ULSI (Ultra Large Scale Integration) technology, resulting in the production of microprocessor chips having ten million electronic components. This generation is based on parallel processing hardware and AI (Artificial Intelligence) software. AI is an emerging branch in computer science, which interprets the means and method of making computers think like human beings.

## COMPONENTS OF A COMPUTER

The five main components of a computer are:

1. Input Unit
2. Memory or Storage Unit
3. Arithmetic and Logic Unit
4. Output Unit
5. Control Unit

## **INPUT DEVICES**

Devices we use to give inputs or interact with the computer are called as input devices. These are either wired or wireless. Devices like keyboard, mouse, touchpad, scanners etc are examples of input devices.

## **MEMORY AND STORAGE:**

Each and every bit of data is stored in computer in order to get processed. The data is stored as Binary digits because that's the way computer understands it. Binary digits are made of only 0's and 1's. Memory can be classified into two kinds RAM (Read and Access Memory) and ROM (Read Only Memory)

### **RAM:**

RAM is a volatile memory that allows data to be stored and retrieved in computer but it needs power to keep the data accessible once the system is powered off the data in it will be lost. Since it is random access data fetching is faster in RAM.

### **ROM:**

ROM is non- volatile. CD-ROM's, Hard disks are types of ROM's where data is stored in tracks and sectors. Data fetching is bit slower than RAM.

There are four basic ROM types,

- ❖ **PROM** – Programmable Read Only Memory
- ❖ **EPROM** – Electronically Programmable Read Only Memory
- ❖ **EEPROM** – Electrically Erasable Programmable Read-Only Memory
- ❖ **FLASH MEMORY**

## **ARITHMETIC AND LOGIC UNIT**

This is where arithmetic and logic operations are carried out in the computer according to the operands given. The operands are in machine code which is also called as OP-code. This unit is directly connected with the memory and the I/O devices through Buses (Data Transfer cables).

## **OUTPUT UNIT**

This unit is used to view the responds given out by the system. Monitor, printers are most commonly known output devices. These connections are also either wired or wireless.

## **CONTROL UNIT**

A control unit (CU) handles all processor control signals. It directs all input and output flow, fetches code for instructions from micro-programs and directs other units and models by providing control and timing signals. A CU component is considered the processor brain because it issues orders to just about everything and ensures correct instruction execution.

## **IMPORTANT COMPUTER FACTS**

- ♦ The earlier computers, which were maximum size, were based on vacuum tubes.
- ♦ Early computing machines, like the ENIAC, were actually meant to assist the armed forces.
- ♦ The printers in Pre-1950's were punch cards.
- ♦ An improvement on the ENIAC which pioneered 'stored program' was made possible with the help of the mathematician John von Neumann.
- ♦ Before the 1950's computers were mostly owned by Universities and research labs.
- ♦ The B-programming language was developed by Ken Thompson.
- ♦ Famous people, associated with the ENIAC, EDVAC, UNIVAC computers are Eckert and Mauchly.
- ♦ The first commercially produced and sold computer (1951) was UNIVAC

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- ♦ IBM was provided software for PCs by microsoft.
- ♦ Time sharing, teletyping were associated with mainframe computers.
- ♦ The transformation from heavy computers to PCs was made possible using micro processors.
- ♦ The first micro processor was developed in 1971 by Intel.
- ♦ The term micro denotes 10-6m.
- ♦ The Harvard student who choose to write computer programs and dropped studies was Bill gates.
- ♦ A pentium (P-4) employs roughly 40 million transistors.
- ♦ Mark -1, Apple -1, and collossus were initial desktop computers.
- ♦ Binary digits are briefed as bit.
- ♦ A collection of bits is called byte.
- ♦ C++, is a computer language.
- ♦ The process of eliminating programming faults is called debugging.
- ♦ Starting upon operating system is called booking.
- ♦ A program used to browse the web is called browser.
- ♦ An error in software designing which can even cause a computer to crash is called bug.
- ♦ Click and double click are achieved using the mouse.
- ♦ Java, C, Fortran, Pascal and BASIC are computer programming languages.
- ♦ The device which sends computer data using a phone line is called MODEM.
- ♦ Worm and virus are actually programs.
- ♦ A 'file' is a unit of information.
- ♦ A mega byte has 106 (million) bytes.
- ♦ A small, single-site network is called LAN.
- ♦ A processor that collects several data and sends them over a single line is called bridge.
- ♦ 'Nano' stands for one billion part.
- ♦ http stands for hyper text transfer protocol.
- ♦ The number of bit patterns using n-bit code is  $2^n$ .
- ♦ The part of a computer that works with the data/program is called CPU.
- ♦ To convert a binary number to a decimal we have to express it in power of 2.
- ♦ www stands for world wide web.
- ♦ Mathematics employed in computer is called Boolean algebra.
- ♦ A collection of 8 bits is called byte.
- ♦ The first home computer (1977) which was sold in millions of units was Apple II.
- ♦ PARAM is a super computer.
- ♦ A website containing periodic posts is called blog.

**IMPORTANT QUESTIONS AND ANSWERS – I**

1. BIOS stands for
  - ♦ Basic input output system
2. Refresh rate of monitor is measured in
  - ♦ Hertz (Hz)

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3. CRT stands for
  - ♦ Cathode Ray Tube
4. LCD stands for
  - ♦ Liquid crystal display
5. \_\_\_\_\_ is a type of optical media
  - ♦ CD
6. Expand E-PROM
  - ♦ Electronically Programmable Read Only Memory
7. Nibble describes a bits combination of:
  - ♦ 4 bits
8. Memory in a PC is addressable through:
  - ♦ Byte
9. Basic building block for a digital circuit is:
  - ♦ Logic gate
10. The base of binary number is:
  - ♦ 2
11. ASCII stands for:
  - ♦ American Standard Code for Information Interchange.
12. Who is called the father of computers?
  - ♦ Charles Babbage
13. The digital computer introduced was named as:
  - ♦ Mark I
14. How many generations computer can be classified?
  - ♦ Five
15. IInd generation computers are made of:
  - ♦ Transistors
16. Fifth generation computer consist of:
  - ♦ Artificial Intelligence
17. Computers, Combine both measuring and counting are called:
  - ♦ Hybrid
18. Physical structure of computer is called:
  - ♦ Hardware
19. 'PARAM' is an example of:
  - ♦ Super computer
20. GUI stands for:
  - ♦ Graphical user interface
21. The time taken by CPU to retrieve and interpret the instruction to be executed is called as:
  - ♦ Instruction cycle
22. \_\_\_\_\_ is responsible for all types of calculations.
  - ♦ ALU

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23. \_\_\_\_\_ is an example of real security and privacy risks.
    - ◆ Spam
  24. A process known as \_\_\_\_\_ is used by large retailers to study trends
    - ◆ Datamining
  25. Computers use the \_\_\_\_\_ language to process data.
    - ◆ Binary
  26. Process data into information by working exclusively with:
    - ◆ Numbers
  27. The term bit is short for:
    - ◆ Binary digit
  28. A \_\_\_\_\_ is approximately one billion bytes
    - ◆ One Giga byte
  29. A \_\_\_\_\_ is approximately one million bytes
    - ◆ One Mega byte
  30. The components that process data are located in the:
    - ◆ System unit
  31. The CPU and memory are located on the:
    - ◆ Mother board
  32. Word processing, spread sheet and photo editing are examples of:
    - ◆ Application software
  33. \_\_\_\_\_ is a set of computer programs used on a computer to help perform tasks:
    - ◆ Software
  34. Servers are computers that provide resources to other computers connected to same -----
    - ◆ Network
  35. \_\_\_\_\_ are specially designed computers that perform complex calculations extremely rapidly:
    - ◆ Super computers
  36. DSL is an example of a \_\_\_\_\_ connection:
    - ◆ Broadband
  37. India's first e-book reader is \_\_\_\_\_
    - ◆ Pi
  38. Ken Kuttaraji is known as the father of \_\_\_\_\_
    - ◆ Play station
  39. \_\_\_\_\_ is the science revolving around the use of nano structures to build devices on an extremely small scale:
    - ◆ Nano technology
  40. What is the Shortcut to minimize the current windows ?
    - ◆ Windows + D
  41. What kind of language is "C" ?
    - ◆ Structure Oriented Programming Language
  42. A byte can hold one \_\_\_\_\_ of data.
    - ◆ Character
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43. \_\_\_\_\_ controls the way in which the computer system functions and provides a means by which users can interact with the computer
- ♦ The operating system
44. Two broad categories of software are:
- ♦ System and application
45. The metal or plastic case that holds all the physical parts of the computer is the \_\_\_\_\_
- ♦ System unit
46. A \_\_\_\_\_ is approximately 1,000 bytes
- ♦ One Kilobyte
47. The devices you use to enter data into a computer system are known as \_\_\_\_\_ devices
- ♦ Input
48. The devices on a computer system that let you see the processed information are known as \_\_\_\_\_ devices.
- ♦ Output
49. When you connect to the \_\_\_\_\_ your computer is communicating with server at your service provider.
- ♦ Internet
50. \_\_\_\_\_ are computers that excel at executing many different computer programs at the same time.
- ♦ Mainframes
51. \_\_\_\_\_ is the application of computer systems and techniques to gather legal evidence.
- ♦ Computer forensics
52. \_\_\_\_\_ is the science that attempts to create machines that will emulate the human thought process.
- ♦ Artificial Intelligence
53. Hard disk drives and CD drives are examples of \_\_\_\_\_ devices,
- ♦ Storage
54. \_\_\_\_\_ are computers that supports hundreds or thousands of users simultaneously.
- ♦ Mainframes
55. Surgeons are using \_\_\_\_\_ to guide robots to perform delicate surgery.
- ♦ Computers
56. The statement that creates multiple branches depending on the value of a single variable is \_\_\_\_\_
- ♦ Switch
57. The operator >> is called \_\_\_\_\_
- ♦ Extraction operator
58. A preprocessor directive starts with symbol \_\_\_\_\_
- ♦ #
59. A program written in high level language is called \_\_\_\_\_
- ♦ Source code
60. The break statement would exit only \_\_\_\_\_
- ♦ Current loop
61. How many kinds of loops are there in C++?
- ♦ Three