

## COMPUTER KNOWLEDGE

### Computer Knowledge:

#### What is Computer?

Computer: A Computer is a General-purpose machine, commonly consisting of digital circuitry, that accepts (inputs), stores, manipulates, and generates (outputs) data as numbers, text, graphics, voice, video files, or electrical signals, in accordance with instructions called a program.

“You can also try the quiz on Computer Knowledge – [Quiz Link](#)”

- Father of the computer - Charles Babbage.
- Father of the modern computer - Alan Turing.
- Basic Architecture of Computer: John Von Neumann (1947-49).
- First Programmer: Lady Ada Lovelace (1880).
- First Electronic Computer: ENIAC (1946) - J.P. Eckert & J.W. Mauchly.
- The first computer for the home user introduced - IBM in 1981.

#### Full form of Computer:

- C - Commonly
- O - Operated
- M - Machine
- P - Particularly
- U – Used for
- T - Technical
- E-Education
- R - Research

#### Characteristics of Computer

- Speed
- Accuracy
- Storage

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- Diligence
- Versatility
- Automation

### Computer - An Introduction

- A computer is a device that can receive process and store data.
- However, all computers have several parts in common:
- Input devices allow data and commands to the computer (Mouse, Keyboard etc.)
- Memory for storing commands and data.
- Central Processing Unit which controls the processing.
- Monitor Process the information in the form of output.

### Types of computers

Computers range in size and capability. There are supercomputers, very large computers with thousands of microprocessors that perform extremely complex calculations.

There are tiny computers embedded in cars, TVs, stereo systems, calculators, and appliances. These computers are built to perform a few number of tasks.

### Desktop computers

1. Desktop computers design is made for use at a desk or table.
2. They are typically larger and more powerful than other types of personal computers.
3. The main component, called the system unit, is usually a rectangular case that sits on or underneath a desk.
4. Other components, such as the monitor, mouse, and keyboard, connect to the system unit.

### Laptops

1. The Laptops are lightweight mobile PCs with a thin screen.
2. Laptops can operate on batteries, so you can take them anywhere.
3. Unlike desktops, laptops combine the CPU, screen, and keyboard in a single case.
4. The screen folds down onto the keyboard when not in use.

### Handheld computers (PDA)

1. Handheld computers, also known as personal digital assistants (PDAs), are battery-power computers small enough to carry almost anywhere.
2. These are useful for scheduling appointments, storing addresses and phone numbers, and playing games.
3. Some have advanced capabilities, such as making telephone calls or accessing the Internet.
4. Instead of keyboards, handheld computers have touch screens that you use with your finger.

### Peripheral Devices

1. The peripheral device connects to a computer system to add functionality. Examples are a mouse, keyboard, monitor, printer and scanner.
2. A computer peripheral is a device that connects to a computer but is not part of the core computer architecture.
3. The core elements of a computer are the central processing unit, power supply, motherboard and the computer case that contains those three components.

### Types of Peripheral Devices

- There are many peripheral devices, but they fall into three general categories:
- Input devices, such as a mouse and a keyboard
- Output devices, such as a monitor and a printer
- Storage devices, such as a hard drive or flash drive

### Computer Knowledge - Main Parts of Computer

#### Hardware

- Computer hardware is what you can physically touch includes the computer case, monitor, keyboard, and mouse.
- It also includes all the parts inside the computer case, such as the hard disk drive, motherboard, video card, and many others.

#### Input Devices

- In computing, an input device is a peripheral (piece of computer hardware equipment) used to provide data and control signals to an information processing system.
- It will control devices such as a computer or information appliance.

**Examples:** keyboards, mice, scanners, digital cameras and joysticks.

#### Keyboard

- A Keyboard is the most fundamental input device for any computer system.
- It helps to enter data in the computer.

#### Mouse

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- A mouse is used to input data by sending a signal to the computer, based on hovering the cursor and selecting with the left mouse button.
- The left mouse acts as an 'enter' button. The right mouse button can be selected and will often pop up a window of choices.
- The scrolling wheel is used to move the view of the screen up or down.
- By moving your mouse to a location in a document, on a digital photo or over a choice of music, you can click the left mouse button to place the cursor.

### Trackballs

- A trackball is an input device used to enter motion data into computers or other electronic devices.
- It serves the same purpose as a mouse but is designed with a moveable ball on the top, which can be rolled in any direction.
- Instead of moving the whole device, you simply roll the moveable ball on top of the trackball unit with your hand to generate motion input.

### Barcode reader

- A barcode reader (or barcode scanner) is an electronic device that can read and output printed barcodes to a computer.
- Like a flatbed scanner, it consists of a light source, a lens and a light sensor translating optical impulses into electrical ones.

### Digital camera

- A camera which produces digital images that can be stored in a computer and displayed on the screen.

### Gamepad

- The gamepad is a handheld controller for video games.

### Joystick

- The joystick is a lever that can be moved in several directions to control the movement of an image on a computer or similar display screen. It mainly used in playing games.

### Microphone

- Micro Phone is an instrument for converting sound waves into electrical energy variations which may then be amplified, transmitted, or recorded.

### Scanner

- The scanner is a device that scans documents and converts them into digital data.

### Webcam

- A webcam is a video camera connected to a computer, allowing its images to be seen by Internet users.

### Optical character recognition (OCR)

- Optical character recognition is the mechanical or electronic conversion of images of typed, handwritten or printed text into machine-encoded text.

### Digitizer

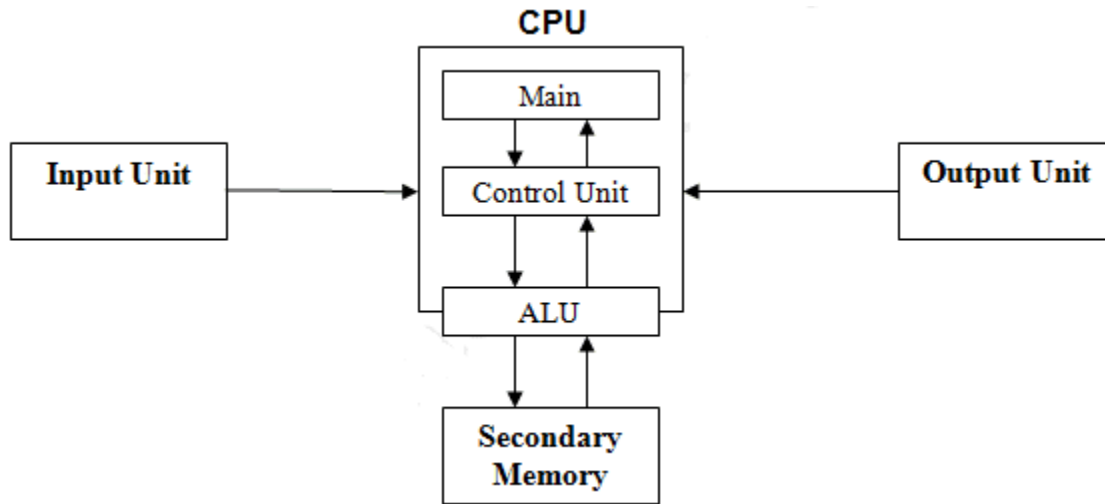
- It converts analogue information into digital form.

### Optical Mark Reading (OMR)

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- Optical Mark Readers reads pencil or pen marks made in pre-defined positions on paper forms as responses to questions or tick list prompts.

### Structure of CPU - Computer Knowledge Basics



### Input and Output devices

#### Input Devices

An input device feeds data to the computer system for processing.

#### Keyboard

- The computer keyboard is to enter text information into the computer.
- The main use of the keyboard is to type commands directing the computer to perform certain actions.

#### Mouse

- A device that controls the movement of the cursor or pointer on a display screen.
- A mouse is a small object you can roll along a hard, flat surface.
- The invention of the mouse is made by Douglas Engelbart of Stanford Research Center in 1963.

### Joystick

- Joysticks and similar game controllers can also be connected to a computer as pointing devices

### Scanner

- A scanner is a device that images a printed page or graphics by digitizing it, producing an image made of tiny pixels of different brightness and colour values which are represented numerically and sent to the computer.
- Scanners not only scan graphics, but they can also scan pages of text.

### MIDI Devices

- MIDI (Musical Instrument Digital Interface) is a system design to transmit information between electronic musical instruments.

### Trackball

- The trackball is sort of like an upside-down mouse, with the ball located on top.
- You use your fingers to roll the trackball, and internal rollers (similar to what's inside a mouse) sense the motion which is transmitted to the computer.
- Trackballs have the advantage over mice in that the body of the trackball remains stationary on your desk.

### Graphics Tablet

- A graphics tablet consists of an electronic writing area and a special "pen" that works with it.
- A graphics tablet allows creating graphical images with motions and actions.



### *Computer Knowledge - Output Devices*

#### Monitor

1. Monitors, commonly called as Visual Display Unit (VDU), are the main output device of a computer.
2. It forms images from tiny dots, known as pixels that make an arrangement in a form of a rectangular form.
3. The sharpness of the image depends upon the number of pixels.

#### Printers

The printer is an output device, which is to print information on paper.

There are two types of printers:

1. Impact Printers
2. Non-Impact Printers

#### Plotters

1. A plotter is a printer that interprets commands from a computer to make line drawings on paper with one or more automated pens.
2. Unlike a regular printer, the plotter can draw continuous point-to-point lines directly from vector graphics files or commands.

#### Projector

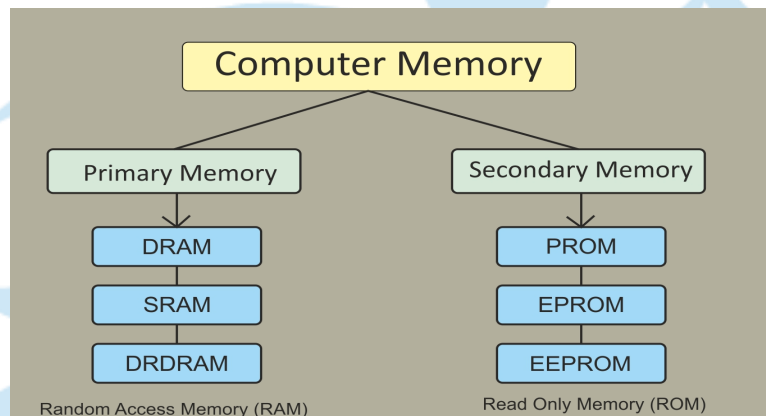
- A projector or image projector is an optical device, which projects an image (or moving images) onto a surface, commonly a projection screen.

### Speakers

1. Speakers are one of the most common output devices with computer systems.
2. Some speakers are designed for work specifically with computers, while others can be hooked up to any type of sound system.

### Memory

Memory is the storage space in the computer where data get the process and instructions required for processing get store. The memory is split into a large number of small parts known as cells. Each location or cell has a unique address which varies from zero to memory size minus one.



### Memory is of three types

- Cache Memory
- Primary Memory
- Secondary Memory

### Cache Memory

Cache memory is a very high-speed semiconductor memory which can speed up CPU. It acts as a buffer between the CPU and main memory.

### Primary Memory (Main Memory)

1. Primary memory holds only those data and instructions on which computer is currently working.
2. It has limited capacity and data is lost when power is switched off.
3. It is generally made up of the semiconductor device.
4. The data and instruction require being processed reside in main memory.

There are two sub-categories ROM and RAM in Primary memory.

#### RAM:

The RAM (random access memory) is the place in a computer where the operating system, application programs, and data in current use are kept.

RAM is much faster to read from and write to than the other kinds of storage in a computer, the hard disk, floppy disk, and CD-ROM.

It has two parts:

- SRAM: Static Random-Access Memory
- DRAM: Dynamic Random-Access Memory.

#### ROM

As the name suggests ROM, stores information that can only be read. Modifying it is impossible or very difficult.

ROM is also a type of non-volatile storage, which means that the information in it stays even if the computer loses power.

This is another type of ROM that is impossible or difficult to change.

- **PROM** - Programmable Read Only Memory.
- **EPROM** - Erasable Programmable Read Only Memory.
- **EEPROM** - Electrically Erasable Programmable Read Only Memory.

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### Abacus

- Abacus is known to be the first mechanical calculating device.
- Which was used to be performed addition and subtraction easily and speedily.
- Abacus is made up of the wooden frame in which rod where fitted across with rounds beads sliding on the rod.

### Pascal Calculator

- In the year 1642, Blaise Pascal a French scientist invented the adding machine called Pascal's calculator, which represents the position of the digit with the help of gears in it.

### Analytical Engine

- A scientist from England known to be Charles Babbage invented such the machine.
- This device is known as Analytical engine and it is the first mechanical computer.
- It includes such feature which we use in today's computer language.
- For this great invention of the computer, Sir Charles Babbage is also known as the father of the computer.

## Generation of computers - Computer Knowledge

### 1st Generation: (1940-1956)

- Vacuum tubes got a use in circuits.
- These computers are very large in size.
- It requires a large amount of electricity.
- They produce more heat.
- They are less revival.
- Ex.: ENIAC, UNIVAC.

### **IInd Generation: (1957-1962)**

- Vacuum tubes got the replacement by transistors in circuits.
- Small size as compared to Ist Generation computers.
- Less amount of heat Generation.
- Less electricity consumption.
- Ex.: IBM 350

### **IIInd Generation: (1963-1972)**

- Transistors got the replacement by I.C. in circuits. (I.C.- Integrated circuits)
- Small size as compared to IInd Generation computer.
- Less amount of heat as compared to IInd Generation computer.
- Less electricity consumption.
- Faster and more accurate than IInd Generation computer.
- Ex.: IBM 360/370

### **IVth Generation: (1973-Present)**

- LSI and LSVI technologies are used.
- LSI- Large-scale integration.
- LSVI-Very large-scale integration.
- Apple-II, STAR 1000

### **Vth Generation: (Present & Beyond)**

- It is based on the technique of Artificial Intelligence (AI).
- The computer can understand spoken words.
- Scientists are constantly working to increase the processing power of computers.
- They are trying to create a computer with real IQ with the help of advanced programming and technologies.
- Ex.: IBM Watson.

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### Classification on working system

#### Digital computer

- The digital computer is the most common type of computer and is used to process information with quantities using digits, usually using the binary number system. Ex - MacBook.

#### Analog Computer

- Analog computer that operates with numbers represented by directly measurable quantities (as voltages or rotations) — compare digital computer, hybrid computer.

#### Hybrid Computer

- Hybrid Computer is a computer that combines the characteristics of a digital computer and an analogue computer by its capacity to accept input and provide output in either digital or analogue form and to process information digitally.

### Software - Computer Knowledge

Computer software is a program or simply software is a series of instructions that directs a computer to perform specific tasks or operations. Computer software consists of computer programs, libraries and related non-executable data (such as online documentation or digital media).

There are two main types of software: systems software and application software.

### Systems Software

1. Systems software includes the programs that dedicate to managing the computer itself, such as the operating system, file management utilities, and disk operating system (or DOS).
2. The operating system manages the computer hardware resources in addition to applications and data.
3. Without systems software installed on our computers, we would have to type the instructions for everything we wanted the computer to do.

### Applications Software

1. Application software, or simply applications, are often called productivity programs or end-user programs.
2. They will enable the user to complete tasks such as creating documents, spreadsheets, databases, and publications, doing online research, sending email, designing graphics, running businesses, and even playing games.
3. Application software is specific to the task which can be as simple as a calculator application or as complex as a word processing application.
4. When you begin creating a document, the word processing software has already set the margins, font style and size, and the line spacing for you.
5. But you can change these settings, and you have many more formatting options available.
6. For example, the word processor application makes it easy to add colour, headings, add pictures or delete, copy, move, and change the document's appearance to suit your needs.

### Bug

A software bug is an error, flaw, failure or fault in a computer program or system that causes it to produce an incorrect or unexpected result, or to behave in unintended ways.

### Virus

Think of a biological virus – the kind that makes you sick. It's persistently nasty, restricts you from functioning normally and often requires something powerful to get rid of it.

A computer virus is very similar. Designed to relentlessly replicate, computer viruses infect your programs and files, alter the way your computer operates or stop it from working altogether.

### How does a computer get a virus?

Even if you're careful you can pick up computer viruses through normal Web activities like:

- Sharing music, files or photos with other users
- Visiting an infected Website.
- Opening spam email or an email attachment
- Downloading free games, toolbars, media players and other system utilities
- Installing mainstream software applications without fully reading license agreements





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### Basic Static GK

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| <a href="#"><u>Chemistry – General &amp; Organic</u></a> | <a href="#"><u>Famous Books and Authors</u></a> | <a href="#"><u>Famous Personalities</u></a> |
| <a href="#"><u>Important Days &amp; Years</u></a>        | <a href="#"><u>General English</u></a>          | <a href="#"><u>Physics Awareness</u></a>    |
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