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Basic Computer Hardware Notes in PDF

Computer Awareness is tested in almost every exam. Some exams like SBI PO, SBI Clerk, IBPS PO, IBPS Clerk, SSC CGL, Railways RRB etc. require you to have Basic **Computer Knowledge**. One of the oft seen topics in Computers is Hardware. **Basic Computer Hardware** questions are easy to remember and can count for easy marks. Use these **Computer Notes** to familiarize yourself with Basic Computer Hardware. **Download as PDF** for revision later.

About Basic Computer Hardware

Every part of your computer is the result of years of research and development. Parts that were once hand made at a cost of thousands of man-hours are now mass produced for a fraction of a rupee. Computer parts can be divided into two groups, hardware and software.

Hardware is any part of the computer that you can touch. The seeming miles of wires that get tangled on your desk, the CD drive, the monitor are all hardware. Software is a set of electronic instructions consisting of complex codes (Programs) that make the computer perform tasks. Windows is a software, so is any other program that runs on your computer.

While there are thousands of parts even in the smallest computers that make up its hardware, you are not required to know them all. You only need to know about basic computer hardware.

Basic computer hardware consists of the following parts:



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1. CPU (Central Processing Unit)

The CPU is considered the brain of the computer. It performs all types of data processing operations, stores data, intermediate results and instructions (program). It controls the operation of all parts of computer. A CPU has 3 components as listed below.

(A) CU (Control Unit)

The **control unit** (CU) is a component of a computer's central processing unit (CPU) that directs operations of the processor. It tells the computer's memory, arithmetic logic **unit** and input and output devices how to respond to a program's instructions. However, the Control Unit doesn't process any data.

(B) ALU (Arithmetic Logic Unit)

Think of the ALU as the logical part of the brain. When any mathematical calculation or decision/logic needs to be carried out, the instruction is passed on to the ALU. The ALU thinks in bits (i.e. binary digits – '0's and '1's.)

It is made up of a group of memory locations built directly into the CPU called registers. These are used to hold the data (binary information) that are being processed by the current instruction.

(C) Memory

Primary memory is memory that is part of the computer itself and necessary for its functioning. It consists of mainly two types of memories:

(i) Random Access Memory (RAM)



RAM is the internal memory of the CPU for storing data, program and program result. It is read/write memory which stores data until the machine is working. As soon as the machine is switched off, data is erased. RAM is volatile. Volatile means that the data stored in memory is lost when we switch off the computer or if there is a power failure. Hence a backup Uninterruptible Power System (UPS) is often used with computers. There are different types of RAM available. Some of them are described below.

- **Dynamic Random Access Memory (DRAM):** A type of physical memory used in most personal computers. The term dynamic indicates that the memory must be constantly refreshed or it loses its contents. This type of memory is more economical.
- **Static Random Access Memory (SRAM):** A type of memory that is faster and less volatile than DRAM, but requires more power and is more expensive. The term static is derived from the fact that it does not need to be refreshed like DRAM.
- **Synchronous Dynamic Random Access Memory (SDRAM):** A type of DRAM that has a much higher processing speed.

(ii) Read Only Memory (ROM)

The memory from which we can only read but cannot write on it. This type of memory is non-volatile. The information is stored permanently in such memories during manufacture. A ROM, stores such instructions that are required to start a computer. This operation is referred to as bootstrap. The different types of ROM are given below.

- **MROM (Masked ROM):** The very first ROMs were hard-wired devices that contained a pre-programmed set of data or instructions. These kinds of ROMs are known as masked ROMs which are inexpensive. The MROM cannot be programmed by the user.

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- **PROM (Programmable Read only Memory):** PROM is read-only memory that can be modified only once by a user. The user buys a blank PROM and enters the desired contents using a PROM program.
- **EPROM (Erasable and Programmable Read Only Memory):** The EPROM is a type of a PROM which can be programmed by the user multiple times. EPROM is erased by exposing it to ultra-violet light for a duration of up to 40 minutes. Usually, an EPROM eraser achieves this function.
- **EEPROM (Electrically Erasable and Programmable Read Only Memory):** The EEPROM is programmed and erased electrically. It can be erased and reprogrammed about ten thousand times. Both erasing and programming take about 4 to 10 milliseconds.

2. Secondary Storage (External Storage Devices)

Floppy diskettes, hard disk, tapes and optical disks come under the category of external storage devices or ancillary storage devices. These devices are very sensitive to environmental conditions (humidity and temperature) as well as to external magnetic fields and need to be stored carefully. They are not compulsory for the functioning of the computer but are useful for expanding the computer's memory.

(A) Floppy Disk

Floppy disks are primarily used on PCs. Information on a floppy disk is recorded in the magnetized states of particles of iron oxides evenly placed upon concentric circles known as tracks.

(B) Hard Disk





It is a non-removable enclosed magnetic disk included in most PCs. It contains a stack of metal platters, each coated with iron oxide, that spin on a spindle and the entire unit is encased in a sealed chamber.

(C) Magnetic Tape

This is plastic tape, usually made of Mylar that is coated with iron oxide, thereby enabling the introduction (writing); retention (memory) and reading of magnetically recorded information. The best use of tape storage is for data that you do not use very often.

(D) Optical Disc Drive

An optical disc drive (ODD) is a disk drive that uses laser light or electromagnetic waves for reading or writing data to or from optical discs (normally CD-ROM). A CD-ROM is a pre-pressed optical compact disc which contains data. The name is an acronym which stands for "Compact Disc Read-Only Memory". Computers can read CD-ROMs, but cannot write to CD-ROMs which are not writable or erasable.

(E) USB

A USB flash drive, also commonly known as a USB drive, USB stick and a variety of other names. It is a data storage device that includes flash memory with an integrated USB interface. USB flash drives are typically removable and rewritable, and physically much smaller than an optical disc.

(3) Peripherals

Peripheral devices are devices connected to the computer externally. If a peripheral device is disconnected, the computer will still be able to work; only functions performed

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by this peripheral device will not be available. Here are the most used types of peripheral devices:

(A) Keyboard

The most common and very popular input device which helps in inputting data to the computer. It consists of keys that are capable of inputting alphabets, numbers and special characters. You can also navigate using the keyboard and perform shortcut functions.

(B) Mouse

Mouse is the most popular pointing device and cursor-control device having a small palm size box with a round ball at its base which senses the movement of mouse and sends corresponding signals to CPU when the mouse buttons are pressed.

(C) Monitors

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

(D) Printer

Printer is an output device, which is used to print information on paper.

- **Impact Printers:** The impact printers print the characters by striking them on the ribbon which is then pressed on the paper.
- **Non-Impact Printers:** Non-impact printers print the characters without using ribbon. These printers print a complete page at a time so they are also called as Page Printers. Laser Printers, Inkjet Printers.





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(E) Joy Stick

It is a device used to move cursor position on a monitor screen. It is mainly used in Computer Aided Designing (CAD) and playing computer games.

(F) Scanner

A scanner allows you to scan printed material and convert it into a file format that may be used within the PC.

(G) Plotter

A plotter is used to create high-quality visuals on paper. Plotters were used in applications such as computer-aided design, though they have generally been replaced with wide-format conventional printers. A plotter gives a hard copy of the output. It draws pictures on a paper using a pen. It can be used to create presentation-charts, graphics, tables and high quality technical drawings. There are two types of plotter.

- **Drum Plotter:** The paper is placed over the drum that rotates back and forth. A carriage holding one or more pens is mounted horizontally across the drum. The carriage with the pens moves horizontally over the paper. Each pen could be filled with different colours. This plotter has the ability to produce colour pictures.
- **Flat Bed Plotter:** In flat bed plotter, the paper does not move. The carriage holding the pens should provide all motions. Inkjet plotters can also produce large drawings with different colours.

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Computer Abbreviations





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