



Certified Data Entry Operator Sample Material

V-Skills Certifications

A Government of India
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V-Skills



1. COMPUTER APPRECIATION

1.1 Introduction - What is Computer?

Computer is an electronic device, which is used for computing and processing the data. The word computer is derived from compute; meaning to calculate, thus it is a machine, which can perform arithmetical operations at a higher speed.

Characteristics of computer

Speed - Computer can perform tasks in seconds and speed is measured in nanoseconds.

Consistency - Computer can work without getting tired and with same speed and accuracy.

Versatility - A computer can perform various types of jobs by multitasking.

Remembrance power - A computer can retain each and every information for a long period.

Malfunction - Just like any machine, it is subject to occasional breakdown or malfunction.

Wrong output - It cannot correct wrong instructions so; wrong input results in wrong output.

No feelings - Computer is a machine hence, it is free from emotional and sentimental feelings.

Classification of Computers

Super Computer - Most powerful computer to solve complex problems by parallel processing.

Mainframe Computer - It serves frequent access of many computers (100+) like HP 9000.

Personal Computer - It is most popular as small in size and uses CPU from Intel or AMD.

1.2 Commonly Used Computer Terms

Hardware - Physical components e.g. monitor, keyboard, mouse, chips, wires, buses etc.

Software - Instructions, programs for specific task but they cannot be touched.

Firmware - Software replaced for hardware and stored in read-only memory as in BIOS.

Units of a computer system

Input Unit - Data is accepted from the user by it like keyboard, mouse etc.

Output Unit - Data output and feedback is given by it like printer, monitor etc.

Storage Unit - Stores data and results of processing like hard disk, optical disk, pen drive, etc.

Central Processing Unit - Both control unit and arithmetic logical unit are called CPU.

Arithmetic Logical Unit - It is responsible for arithmetic and logical computations.

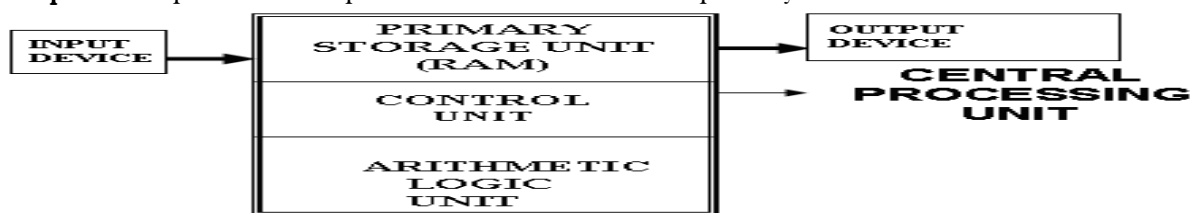
Control Unit - It maintains order by controlling flow of information.

1.3 Basic Operations of a Computer - Input, Process and Output

Input - The process of entering the data and instruction to computer for processing.

Process - It refers to processing in CPU on the data, as per the given instructions.

Output - The process of output of the data from the computer system to user.



Block Diagram of a Computer

1.4 Representation of information

Data - It is meaningless and is raw fact as number, character etc. like count of items sold.

Information - It is meaningful and processed data like which product sells most.

Binary Number System - It uses two symbols to represent data, i.e. 0 and 1 and its base is 2.

Memory Size (Bit, Byte, KB, MB) -

Unit	Equals
1 Bit	0 or 1
1 Nibble	4 bits
1 Byte	8 bits

Unit	Equals
1 KB	1024 bytes
1 MB	1024 KB
1 GB	1024 MB

ASCII - Computer stores data in a coded form usually the American standard code for information technology (ASCII) is used, which can represent 256 different symbols by using 8 bits.

1.5 Input, Output and Storage Devices

Input Devices

Keyboard - It is like a typewriter keyboard with 101 keys arranged in 5 groups as

Alphanumeric - A-Z, 0-9 plus some more characters.

Modifier - Shift, Ctrl (control key), Alt (alternate key).

Function - The function keys (F1, F2....F12) to give the special commands.

Cursor movement - Arrow keys to the position of cursor on the screen.

Special purpose- Used for specific function like esc, print screen, scroll lock & pause.

Mouse - A pointing device used to position the pointer, to create graphics, for click and drag-and-drop. Ball or optical mouse is connected by PS/2 port or USB port to computer.

Scanners - It converts printed image to electronic by shining light and sensing the intensity of the reflection. It is of various types like

Bar code reader - It is used for reading bar codes on products.

Optical Character Recognition (OCR) - It translate image to text by OCR software.

Optical Mark Reader (OMR) - It recognize marks by pencil or pen and used in answer sheets.

Magnetic Ink Character Recognition (MICR) - It is used in banks to process cheques.

Touch Screens, Voice Recognition Devices are also some other input devices.

Output Devices

Monitor - It is similar to television giving a soft copy output. Earlier monochrome or Colour CRT monitors were used but now LED & LCD. It is divided into rows and columns called resolution like 640 x 480, etc. with intersection of row and column is called a pixel (Picture Element).

Printers - It produces hard copy output on paper and is classified as impact & non-impact.

Impact Printers - They print on paper by impacting the paper like dot matrix printer.

Dot matrix printer- It prints dots onto page and available in 80 and 132 columns.

Non- Impact Printers- They print on paper by not impacting the paper like laser or inkjet printer.

Ink jet Printer It uses nozzles which spray jets of ink onto the paper from ink cartridge.

Laser Printer It is expensive with faster and high print quality. They directly scan laser beam on the roller which fuses ink to the paper.

Plotters - It plots big size drawings on to the sheets for engineering drawings, maps, etc.

Storage Devices

It consists of primary and secondary memory.

Primary Storage Devices - It is internal storage and consists of cache, ROM & RAM.

RAM (Random Access Memory) - It is read/write volatile memory storing temporary data in MB.

ROM (Read Only Memory) - It stores data permanently which can only be read so it is non-volatile. It stores programs for booting the computer, like BIOS (Basic Input & Output System).

Cache - It is used for speeding up the data supply to CPU and stores frequently used data in KB.

Secondary Storage Devices - It is usually external storage and consists of tape, disk & flash.

Magnetic Tape - It is similar to an audiocassette having plastic strip for storage in a cartridge. It is slow in data access but, input and output speeds are high. Its capacity is up to 5120 GB.

Disk Drives - It is circular in shape having track and sectors. The disk surface is divided in concentric circles called tracks which are further subdivided into sectors. Greater the number of tracks so, more is the storage capacity of the disk.

Hard Disk Drive - It is used for mass storage with direct access. It is non-volatile in sizes like 3.5", 5.5" and 8". It has disk platters on a spindle, with read/write head having 250-1024 GB capacity.

Optical Disk - Laser beam burns disk surface to write and low power reflected beam to read. It has speed rating or data transfer speed where 1X refers to 150 Kbps. CD-ROM and DVD are examples with 700 MB and 4.3 GB capacity. Blue ray is upcoming technology with 50 GB data.

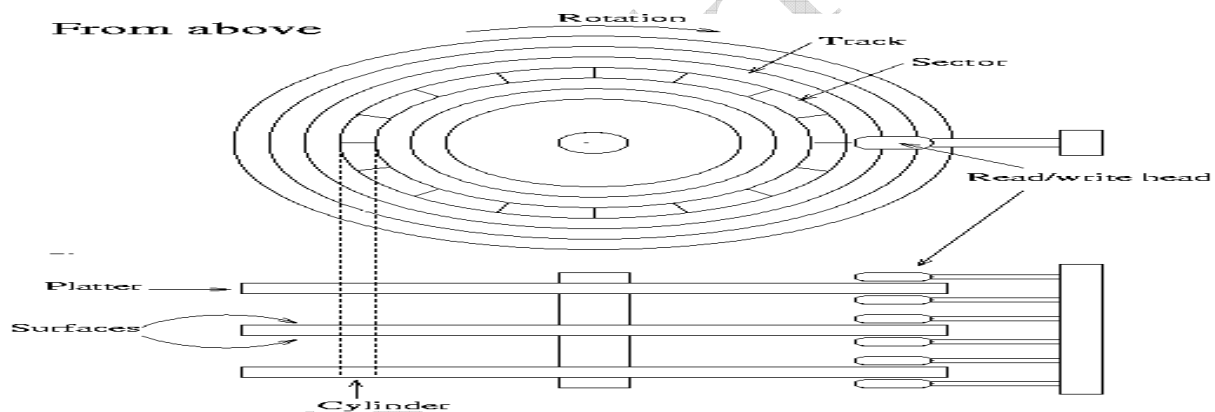


Figure - Hard Disk

Flash Memory - It uses semiconductor memory and is used in USB drives, memory cards, etc.

Data can be read or written to it and device can be detached to transfer or move data.

Central Processing Unit (C.P.U) - It executes given commands and consists of

Control Unit - It supervises and controls information flow by a clock signal as per which the processing is done. Clock signal is given in MHz/GHz (Mega Hertz/ Giga Hertz).

Arithmetic Logic Unit - It performs arithmetic and logical operations on data from memory.

Disk Organization Terms

It is the manner in which the disk is organized for storage of data. Some terms are discussed.

Boot Record - It is in the first sector of disk drive, from where the operating system is loaded into the memory when the computer is started.

Disk partitioning - Process of creating primary and extended partitions on disk drive.

File System - It is a way to organize data on storage device (hard disk) and like NTFS, FAT, etc

File Allocation Table (FAT) - It is a file system used by MS-DOS and MS-WINDOWS.

Memory Capacity - Amount of data storage device can hold and measured in MB or GB.

Access time - It is time in milliseconds to access a data in a storage device.

Memory Address - Address of data is stored in storage locations.

1.6 Software

Software is instructions, programs to execute and it is classified as

System Software - It has direct interface with hardware Windows XP, Linux and consist of

Operating System Software - It controls the hardware and running of the application software like Linux, Windows XP/2003, MS-DOS. It does resource (CPU, memory) and task management with command interpretation (by a user interface graphical or character).

Device Drivers - It controls a device attached to computer like printers, displays, etc. and usually has DLL or EXE file name. A virtual device driver usually has the suffix of VXD.

Application Software - It needs system software and it fulfill a specific user's requirement like

Word Processing Software - It create and edit letters, reports, etc. like MS-Word

Spreadsheet Software - It store and process data in columns and rows like MS-Excel.

Presentation Graphics Software - It is used to create slides for presentations like MS-PowerPoint.

Other Software Terms

Utility software - It helps to optimize and maintain computer like disk cleanup, backup, etc.

Custom Made Software - It is made as per user's requirement by software programmers.

Packaged Software - It is readymade software, which we purchase like a commodity.

Translators - It accepts statements in one language or source and produces equivalent statements in another language usually in machine language. Three types of translators are

Assembler - It translates assembly language program to machine code.

Compiler - It translates high-level language into machine level like C and C++ compilers.

Interpreter - It is similar to compiler but translates and executes the statement immediately.

1.7 Operating System

It is a large collection of software, which manages resources of the computer system. On computer startup ROM-BIOS instructions are executed to test components also called POST (POWER-ON SELF TEST).

Terms Related to Operating System

Batch Processing - User data are collected on top of another and executed sequentially.

On-Line Processing - Programme processes data as, it arrives

Real Time Processing - Data processing takes place in specific duration of arrival.

Multiprocessing - It simultaneously execute several programs by different CPU's

Multiprogramming - It simultaneously execute several programs by same computer.

Time Sharing - In it computer resources are given to various programme for some duration.

Spooling - Jobs put in buffer (special memory or on disk) where device can access it when ready.

File - It is like a physical file having a file name and file extension (which tells the application software to use for file) like MS-Word file have 'DOC' and MS-Excel have 'XLS' file extension.

Directory - It is collection to store related files like a physical file rack having specific types of files.

Pointer or Cursor - It is an indicator to show the position on a computer monitor or other display device that will respond to input from a text input (keyboard) or pointing device (mouse). The flashing text cursor may be referred to as a caret in some cases. The mouse cursor may be referred to as a mouse pointer, owing to its arrow shape on some systems.