COMPUTER FUNDAMENTAL

SHORT NOTE

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2017

**1 Computer – Overview**

**Functionalities of a computer**

Any digital computer carries out five functions in gross terms:

* Takes data as input.
* Stores the data/instructions in its memory and use them when required.
* Processes the data and converts it into useful information.
* Generates the output
* Controls all the above four steps.

**Definition**

Computer is an electronic data processing device which accepts and stores data input, processes the data input, and generates the output in a required format.

**Advantages**

1. High Speed
2. Accuracy
3. Storage Capability
4. Diligence
5. Versatility
6. Reliability
7. Automation
8. Reduction in Paper Work
9. Reduction in Cost

**Disadvantages**

1. No I.Q
2. Dependency
3. Environment
4. No Feeling

**2 Computer – Applications**

Banking, Insurance, Education, Marketing, Health Care, Engineering Design, Military, Communication, Government.

**3 Computer – Generations**

**I. First Generation (1940-1956) Vacuum Tubes**

**Used: -** Vacuum tubes

**Main Memory:** - Magnetic drums

**Secondary Memory: -**

**Languages used: -** Machine Language

**Input: -** Punched cards and paper tape.

**Output: -** Displayed on printouts.

**First Computer: -**

**Some Popular Computer: -** Mark-1, ABC, ENIAC, EDSAC, EDVAC, UNIVAC, IBM-701, IBM-650

**II. Second Generation (1956-1963) Transistors**

**Used: -** Transistor

**Main Memory: -** Magnetic Core

**Secondary Memory: -**

**Languages used: -** Assembly Language, Some High level Language (i.e. COBOL & FORTRAN)

**Input: -** Punched cards and paper tape.

**Output: -** Displayed on printouts.

**First Computer: -**

**Some Popular Computer: -** IBM 1620, IBM 7094, CDC 1604, CDC 3600, UNIVAC 1108

**III. Third Generation (1964-1971) Integrated Circuits**

**Used: -** Integrated circuit

**Main Memory: -**

**Secondary Memory: -**

**Languages used: -**FORTRAN-II TO IV, COBOL, PASCAL PL/1, BASIC, ALGOL-68

**Input: -** Keyboards

**Output: -** Monitors

**First Computer: -**

**Some Popular Computer: -**

**IV. Fourth Generation (1971-Present) Microprocessors**

**Used: -** Microprocessor

**Main Memory: -**

**Secondary Memory: -**

**Languages used: -** C, C++, DBASE

**Input: -**

**Output: -**

**First Computer: -**

**Some Popular Computer: -** DEC 10 ,STAR 1000 , PDP 11 , CRAY-1(Super Computer) ,CRAY-X-MP(Super Computer)

**V. Fifth Generation (Present and Beyond) Artificial Intelligence**

**Used: -** Artificial Intelligence

**Main Memory: -**

**Secondary Memory: -**

**Languages used: -** C and C++, Java, .Net

**Input: -**

**Output: -**

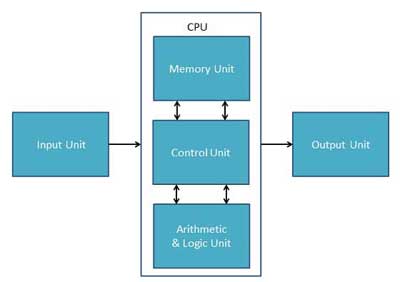
**First Computer:**

**Some Popular Computer: -** Desktop, Laptop, NoteBook , UltraBook , ChromeBook

**4 Computer – Types**

1. **PC (Personal Computer): -** It is a single user computer system having moderately powerful microprocessor
2. **Workstation: -** It is also a single user computer system which is similar to personal computer but have more powerful microprocessor.
3. **Mini Computer: -** It is a multi-user computer system which is capable of supporting hundreds of users simultaneously.
4. **Main Frame: -** It is a multi-user computer system which is capable of supporting hundreds of users simultaneously. Software technology is different from minicomputer. I/O Bound Processes more.
5. **Supercomputer: -** It is an extremely fast computer which can execute hundreds of millions of instructions per second. CPU bound processes are more.
6. **Hand Held Devices:** - this are very small devices like PDA, Smart Phones etc.

**5 Computer – Components**



**6 Computer – CPU**

**Features: -**

* CPU is considered as the brain of the computer.
* CPU performs all types of data processing operations.
* It stores data, intermediate results and instructions(program).
* It controls the operation of all parts of computer.

**CPU itself has following three components: -**

1. **Memory or Storage Unit: -** This unit supplies information to the other units of the computer when needed. It is also known as internal storage unit or main memory or primary storage or Random access memory(RAM).
2. **Control Unit: -** This unit controls the operations of all parts of computer but does not carry out any actual data processing operations.
3. **ALU (Arithmetic Logic Unit): -** This unit consists of two subsections namely:
   1. **Arithmetic Section -F**unction of arithmetic section is to perform arithmetic operations like addition, subtraction, multiplication and division. All complex operations are done by making repetitive use of above operations.
   2. **Logic Section -** Function of logic section is to perform logic operations such as comparing, selecting, matching and merging of data.

**7 Computer - Input Devices**

1. **Keyboard: -** Keyboard is the most common and very popular input device which helps in inputting data to the computer. Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.
2. **Mouse: -** Mouse is most popular pointing device. It is a very famous 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.
3. **Joystick: -** The function of joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing(CAD) and playing computer games.
4. **Light Pen: -** It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube. When the tip of a light pen is moved over the monitor screen and pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.
5. **Track Ball: -**Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse.
6. **Scanner: -** Scanner captures images from the source which are then converted into the digital form that can be stored on the disc.
7. **Digitizer: -** Digitizer is an input device which converts analog information into digital form.
8. **Magnetic Ink Card Reader(MICR): -** The bank's code number and cheque number are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.
9. **Optical Character Reader(OCR): -** OCR is an input device used to read a printed text
10. **Bar Code Readers: -** Bar Code Reader scans a bar code image, converts it into an alphanumeric value which is then fed to the computer to which bar code reader is connected.
11. **Optical Mark Reader(OMR): -** OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. Used for MCQ checking papers

**8 Computer - Output Devices**

**Monitors: -** Monitors, commonly called as Visual Display Unit (VDU), The sharpness of the image depends upon the number of pixels. There are two kinds of viewing screen used for monitors:

* **Cathode-Ray Tube (CRT) Monitor: -** A finite number of characters can be displayed on a screen at once. The screen can be divided into a series of character boxes - fixed location on the screen where a standard character can be placed. Most screens are capable of displaying 80 characters of data horizontally and 25 lines vertically.
* **Flat-Panel Display Monitor: -** Current uses of flat-panel displays include calculators, videogames, monitors, laptop computer, graphics display. The flat-panel display is divided into two categories.
  + **Emissive Displays -** The emissive displays are devices that convert electrical energy into light. Example are plasma panel and LED (Light-Emitting Diodes).
  + **Non-Emissive Displays -** The Non-emissive displays use optical effects to convert sunlight or light from some other source into graphics patterns. Example is LCD (Liquid-Crystal Device)

**Printers: -** Printer is an output device, which is used to print information on paper.

There are two types of printers:

1. **Impact Printers: -** The impact printers print the characters by striking them on the ribbon which is then pressed on the paper. These printers are of two types:
   1. **Character Printers: -**Character printers are the printers which print one character at a time. These are further divided into two types:
      1. **Dot Matrix Printer: -**Each character printed is in form of pattern of dots and head consists of a Matrix of Pins of size (5\*7, 7\*9, 9\*7 or 9\*9) which come out to form a character that is why it is called Dot Matrix Printer.
      2. **Daisy Wheel: -** Head is lying on a wheel and pins corresponding to characters are like petals of Daisy. These printers are generally used for word-processing in offices which require a few letters to be sent here and there with very nice quality.
   2. **Line Printers: -**  Line printers are the printers which print one line at a time. These are of further two types:
      1. **Drum Printer: -** The surface of drum is divided into number of tracks. Total tracks are equal to size of paper i.e. for a paper width of 132 characters, drum will have 132 tracks. A character set is embossed on track. The different character sets available in the market are 48-character set, 64 and 96 characters set. One rotation of drum prints one line. Drum printers are fast in speed and can print 300 to 2000 lines per minute.
      2. **Chain Printer: -** In this printer, chain of character sets is used so it is called Chain Printer. A standard character set may have 48, 64, or 96 characters.
2. **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. These printers are of two types:
   1. **Laser Printers: -** These are non-impact page printers. They use laser lights to produce the dots needed to form the characters to be printed on a page.
   2. **Inkjet Printers: -** Inkjet printers are non-impact character printers based on a relatively new technology. They print characters by spraying small drops of ink onto paper. Inkjet printers produce high quality output with presentable features. They make less noise because no hammering is done and these have many styles of printing modes available. Colour printing is also possible. Some models of Inkjet printers can produce multiple copies of printing also.

**9 Computer –Memory**

Computer memory is the storage space in computer where data is to be processed and instructions required for processing are stored. The memory is divided into large number of small parts called cells. Each location or cell has a unique address which varies from zero to memory size minus one.

* **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. It is used to hold those parts of data and program which are most frequently used by CPU. The parts of data and programs are transferred from disk to cache memory by operating system, from where CPU can access them.
* **Primary Memory (Main Memory): -** only those data and instructions on which computer is currently working. It has limited capacity and data is lost when power is switched off. It is generally made up of semiconductor device. These memories are not as fast as registers. The data and instruction required to be processed reside in main memory. It is divided into two subcategories RAM and ROM.
* **Secondary Memory: -** This type of memory is also known as external memory or non-volatile. It is slower than main memory. These are used for storing data/Information permanently. CPU directly does not access these memories instead they are accessed via input-output routines. Contents of secondary memories are first transferred to main memory, and then CPU can access it. For example: disk, CD-ROM, DVD etc.

**10 Computer – RAM**

RAM(Random Access Memory) 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.

* **Static RAM (SRAM): -** The word static indicates that the memory retains its contents as long as power is being supplied. However, data is lost when the power gets down due to volatile nature. SRAM chips use a matrix of 6-transistors and no capacitors. Transistors do not require power to prevent leakage, so SRAM need not have to be refreshed on a regular basis. Because of the extra space in the matrix, SRAM uses more chips than DRAM for the same amount of storage space, thus making the manufacturing costs higher. So SRAM is used as cache memory and has very fast access. Characteristic of the Static RAM:
  + It has long life
  + There is no need to refresh
  + Faster
  + Used as ache memory
  + Large size
  + Expensive
  + High power consumption
* **Dynamic RAM (DRAM): -** must be continually refreshed in order to maintain the data. This is done by placing the memory on a refresh circuit that rewrites the data several hundred times per second. DRAM is used for most system memory because it is cheap and small. All DRAMs are made up of memory cells which are composed of one capacitor and one transistor. Characteristics of the Dynamic RAM:
  + It has short data lifetime
  + Need to be refreshed continuously
  + Slower as compared to SRAM
  + Used as RAM
  + Lesser in size
  + Less expensive
  + Less power consumption

**11 Computer – ROM**

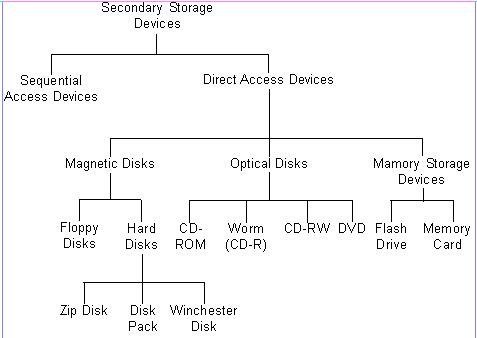
RAM (Random Access Memory) is the internal memory of the CPU for storing data, program and program result. It is read/write memory which stores data until the machine is working. As soon as the machine is switched off, data is erased.

* **MROM (Masked ROM): -** The very first ROMs were hard-wired devices that contained a pre-programmed set of data or instructions. These kind of ROMs are known as masked ROMs which are inexpensive.
* **PROM (Programmable Read only Memory): -** It can be programmed only once and is not erasable.
* **EPROM (Erasable and Programmable Read Only Memory): -**  The EPROM can be erased by exposing it to ultra-violet light for a duration of up to 40 minutes. For erasing this charge, ultra-violet light is passed through a quartz crystal window(lid). This exposure to **ultra-violet light** dissipates the charge. During normal use the quartz lid is sealed with a sticker.
* **EEPROM (Electrically Erasable and Programmable Read Only Memory): -** In EEPROM, any location can be selectively erased and programmed. EEPROMs can be erased one byte at a time, rather than erasing the entire chip. Hence, the process of re-programming is flexible but slow.

**The advantages of ROM are as follows:**

* Non-volatile in nature.
* These cannot be accidentally changed.
* Cheaper than RAMs
* Easy to test
* More reliable than RAMs
* These are static and do not require refreshing
* Its contents are always known and can be verified

**12 Computer - Secondary Storage**



**12 Computer - Motherboard**

The motherboard serves as a single platform to connect all of the parts of a computer together. A motherboard connects CPU, memory, hard drives, optical drives, video card, sound card, and other ports and expansion cards directly or via cables. It can be considered as the backbone of a computer.

**Features of Motherboard: -**

* Motherboard varies greatly in supporting various types of components.
* Normally a motherboard supports a single type of CPU and few types of memories.
* Video Cards, Hard disks, Sound Cards have to be compatible with motherboard to function properly.
* Motherboards, cases and power supplies must be compatible to work properly together.

**Popular Manufacturers: -**

Intel, ASUS, AOpen, ABIT, Biostar, Gigabyte, MSI.

**Description of Motherboard: -**

Motherboard contains ports to connect all of the internal components. It provides a single socket for CPU whereas for memory, normally one or more slots are available. Motherboards provide ports to attach floppy drive, hard drive, and optical drives via ribbon cables. Motherboard carries fans and a special port designed for power supply. There is a peripheral card slot in front of the motherboard using which video cards, sound cards and other expansion cards can be connected to motherboard.

Motherboards carry a number of ports to connect monitor, printer, mouse, keyboard, speaker, and network cables. Motherboards also provide USB ports which allow compatible devices to be connected in plugin/plug-out fashion for example, pen drive, digital cameras etc.

**13 Computer - Memory Units**

**Memory Size are as follows:**

**Bit**: - A binary digit is logical 0 and 1 representing a passive or an active state of a component in an electric circuit.

**Nibble** (4 bits)

**Bytes** (8 bits)

**Kilobytes** KB(1024byte)

**Megabytes** MB(1024 KB)

**Gigabytes** GB(1024 MB)

**Terabytes** TB(1024 GB)

**Petabytes** PB(1024 TB)

**Exabytes** EB(1024 PB)

**Zettabytes** ZB(1024 EB)

**Yottabytes** YB(1024 ZB)

**14 Computer – Ports**

A port:

* is a physical docking point using which an external device can be connected to the computer
* can also be programmatic docking point through which information flows from a program to computer or over the internet.

**A port has the following characteristics**

* External devices are connected to a computer using cables and ports.
* Ports are slots on the motherboard into which a cable of external device is plugged in.
* Examples of external devices attached via ports are mouse, keyboard, monitor, microphone, speakers etc.

**Serial Port: -**

 Used for external modems and older computer mouse

 Two versions: 9 pin, 25 pin model

 Data travels at 115 kilobits per second

**Parallel Port: -**

 Used for scanners and printers

 Also called printer port

 25 pin model

 Also known as IEEE 1284-compliant Centronics port

**PS/2 Port: -**

 Used for old computer keyboard and mouse

 Also called mouse port

 Most of the old computers provide two PS/2 port, each for mouse and keyboard

 Also known as IEEE 1284-compliant Centronics port

**USB (Universal Serial Bus) Port: -**

 It can connect all kinds of external USB devices such as external hard disk, printer, scanner, mouse, keyboard etc.

 It was introduced in 1997.

 Most of the computers provide two USB ports as minimum.

 Data travels at 12 megabits per seconds

 USB compliant devices can get power from a USB port

**VGA Port: -**

 Connects monitor to a computer's video card.

 Has 15 holes.

 Similar to serial port connector but serial port connector has pins, it has holes.

**Power Connector: -**

 Three-pronged plug

 Connects to the computer's power cable that plugs into a power bar or wall socket

**FireWire Port: -**

 Transfers large amount of data at very fast speed.

 Connects camcorders and video equipment’s to the computer

 Data travels at 400 to 800 megabits per seconds

 Invented by Apple

 Three variants: 4-Pin FireWire 400 connector, 6-Pin FireWire 400 connector and 9-Pin FireWire 800 connector

**Modem Port: -** Connects a PC's modem to the telephone network.

**Ethernet Port: -**

 Connects to a network and high speed Internet.

 Connect network cable to a computer.

 This port resides on an Ethernet Card.

 Data travels at 10 megabits to 1000 megabits per seconds depending upon the network bandwidth.

**Game Port: -**

 Connect a joystick to a PC

 Now replaced by USB.

**Digital Video Interface, DVI port: -**

 Connects Flat panel LCD monitor to the computer's high end video graphic cards.

 Very popular among video card manufacturers

**Sockets: -** Connect microphone, speakers to sound card of the computer

**15 Computer – Hardware**

Hardware represents the physical and tangible components of a computer i.e. the components that can be seen and touched.

Examples of Hardware are following:

 Input devices -- keyboard, mouse etc.

 Output devices -- printer, monitor etc.

 Secondary storage devices -- Hard disk, CD, DVD etc.

 Internal components -- CPU, motherboard, RAM etc

**Relationship between Hardware and Software: -**

 Hardware and software are mutually dependent on each other. Both of them must work together to make a computer produce a useful output.

 Software cannot be utilized without supporting hardware.

 Hardware without set of programs to operate upon cannot be utilized and is useless.

 To get a particular job done on the computer, relevant software should be loaded into the hardware

 Hardware is a one-time expense.

 Software development is very expensive and is a continuing expense.

 Different software applications can be loaded on a hardware to run different jobs.

 A software acts as an interface between the user and the hardware.

 If hardware is the 'heart' of a computer system, then software is its 'soul'. Both are complimentary to each other.

**16 Computer – Software**

Software is a set of programs, which is designed to perform a well-defined function. A program is a sequence of instructions written to solve a particular problem.

There are two types of software:

**System Software: -**

System software serves as the interface between hardware and the end users.

Some examples of system software are Operating System, Compilers, Interpreter, Assemblers etc.

**Application Software: -**

 Payroll Software

 Student Record Software

 Inventory Management Software

 Income Tax Software

 Railways Reservation Software

 Microsoft Office Suite Software

 Microsoft Word

 Microsoft Excel

 Microsoft PowerPoint

**17 Computer - Number System**

* **Decimal Number System: -** Base 10. Digits used: from 0 to 9.
* **Binary Number System: -**  Base 2. Digits used: 0, 1
* **Octal Number System: -**  Base 8. Digits used: 0 to 7
* **Hexa Decimal Number System: -** Base 16. Digits used: 0 to 9, Letters used: A- F

**18 Computer - Number Conversion**

**Decimal to Other Base System**

 Step 1 - Divide the decimal number to be converted by the value of the new base.

 Step 2 - Get the remainder from Step 1 as the rightmost digit (least significant digit) of new base number.  Step 3 - Divide the quotient of the previous divide by the new base.

 Step 4 - Record the remainder from Step 3 as the next digit (to the left) of the new base number.

Repeat Steps 3 and 4, getting remainders from right to left, until the quotient becomes zero in Step 3.

The last remainder thus obtained will be the most significant digit (MSD) of the new base number.

**Other base system to Decimal System**

 Step 1 - Determine the column (positional) value of each digit (this depends on the position of the digit and the base of the number system).

 Step 2 - Multiply the obtained column values (in Step 1) by the digits in the corresponding columns.

 Step 3 - Sum the products calculated in Step 2. The total is the equivalent value in decimal.

**Other Base System to Non-Decimal System**

 Step 1: Convert to Decimal

 Step 2: Convert Decimal to Binary

**Shortcut method - Binary to Octal**

 Step 1 - Divide the binary digits into groups of three (starting from the right).

 Step 2 - Convert each group of three binary digits to one octal digit.

**Shortcut method - Octal to Binary**

 Step 1 - Convert each octal digit to a 3 digit binary number (the octal digits may be treated as decimal for this conversion).

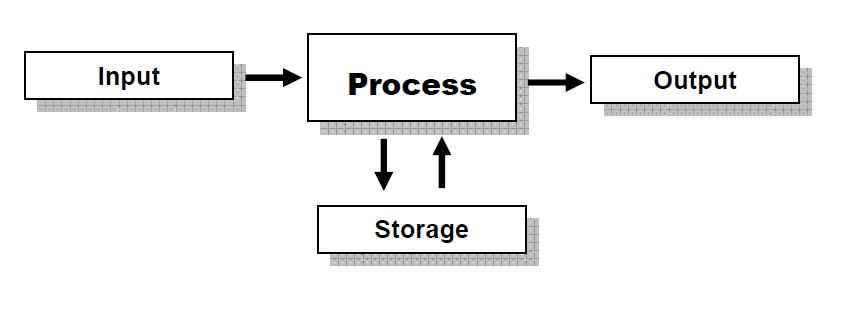
 Step 2 - Combine all the resulting binary groups (of 3 digits each) into a single binary number.

**19 Computer – Data and Information**

Data can be defined as a representation of facts, concepts or instructions in a formalized manner which should be suitable for communication, interpretation, or processing by human or electronic machine.

Data is represented with the help of characters like alphabets (A-Z, a-z), digits (0-9) or special characters (+,,/,\*,<,>,= etc.).

Data Processing Cycle: -

  
 **Input -** In this step the input data is prepared in some convenient form for processing. The form will depend on the processing machine. For example, when electronic computers are used, the input data could be recorded on any one of several types of input medium, such as magnetic disks, tapes and so on.

 **Processing -** In this step input data is changed to produce data in a more useful form. For example, pay checks may be calculated from the time cards, or a summary of sales for the month may be calculated from the sales orders.

 **Output -** Here the result of the proceeding processing step are collected. The particular form of the output data depends on the use of the data. For example, output data may be pay-checks for employees.

**20 Computer – Networking**

A computer network is a system in which multiple computers are connected to each other to share information and resources.

**Characteristics of a computer network: -**

 Share Resources from one computer to another

 Create files and store them in one computer, access those files from the other computer(s) connected over the network

 Connect a printer, scanner, or a fax machine to one computer within the network and let other computers of the network use the machines available over network.

**Network Cables: -** are used to connect computers. The most commonly used cable is Category 5 cable RJ-45.

**Distributors: -** A computer can be connected to another one via a serial port but if we need to connect many computers to produce a network, this serial connection will not work. The solution is to use a central body to which other computers, printers, scanners etc. can be connected and then this body will manage or distribute network traffic.

**Router: -** A router is a type of device which acts as the central point among computers and other devices that are part of a network. A router is equipped with holes called ports and computers and other devices are connected to a router using network cables. Now-a-days router comes in wireless modes using which computers can be connected without any physical cable.

**Network Card: -** is a necessary component of a computer without which a computer cannot be connected over a network. It is also known as network adapter or Network Interface Card (NIC). Most branded computers have network card pre-installed. Network cards are of two types: Internal and External Network Cards. Two Types: -

1. **Internal Network Cards: -** Motherboard has a slot for internal network card where it is to be inserted. Internal network cards are of two types in which first type uses Peripheral Component Interconnect (PCI) connection while the second type uses Industry Standard Architecture (ISA). Network cables are required to provide network access.
2. **External Network Cards: -** come in two flavours: Wireless and USB based. Wireless network card need to be inserted into the motherboard but no network cable is required to connect to network.

**21 Computer - Operating System**

An OS is a program that acts as an interface between the software and the computer hardware. It is an integrated set of specialised programs that are used to manage overall resources and operations of the computer. It is specialised software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

**Objectives of Operating System: -**

 To make a computer system convenient to use in an efficient manner

 To hide the details of the hardware resources from the users

 To provide users a convenient interface to use the computer system

 To act as an intermediary between the hardware and its users and making it easier for the users to access and use other resources

 To manage the resources of a computer system

 To keep track of who is using which resource, granting resource requests, according for resource using and mediating conflicting requests from different programs and users

 To provide efficient and fair sharing of resources among users and programs

**Characteristics of Operating System: -**

 **Memory Management --** keeps tracks of primary memory i.e. what part of it is in use by whom, what part is not in use etc. and allocates the memory when a process or program requests it.

 **Processor Management --** allocates the processor(CPU) to a process and deallocates processor when it is no longer required.

 **Device Management --** keeps track of all devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.

 **File Management --** allocates and de-allocates the resources and decides who gets the resources.

 **Security --** prevents unauthorized access to programs and data by means of passwords and similar other techniques.

 **Job accounting --** keeps track of time and resources used by various jobs and/or users.

 **Control over system performance --** records delays between request for a service and from the system.

 **Interaction with the operators --** The interaction may take place via the console of the computer in the form of instructions. Operating System acknowledges the same, does the corresponding action and informs the operation by a display screen.

 **Error-detecting aids --** Production of dumps, traces, error messages and other debugging and error detecting methods.

 **Coordination between other software and users --** Coordination and assignment of compilers, interpreters, assemblers and other software to the various users of the computer systems.

**22 Computer - Internet & Intranet**

**Internet It is a worldwide system which has the following characteristics:**

**** Internet is a world-wide / global system of interconnected computer networks.

 Internet uses the standard Internet Protocol (TCP/IP)

 Every computer in internet is identified by a unique IP address.

 IP Address is a unique set of numbers (such as 110.22.33.114) which identifies a computer’s location.

 A special computer DNS (Domain Name Server) is used to give name to the IP Address so that user can locate a computer by a name.

 For example, a DNS server will resolve a name http://www.tutorialspoint.com to a particular IP address to uniquely identify the computer on which this website is hosted.

 Internet is accessible to every user all over the world.

**Intranet: -**

**Similarities in Internet and Intranet: -**

 Intranet uses the internet protocols such as TCP/IP and FTP.

 Intranet sites are accessible via web browser in similar way as websites in internet. But only members of Intranet network can access intranet hosted sites.

 In Intranet, own instant messengers can be used as similar to yahoo messenger/ gtalk over the internet.

Differences in Internet and Intranet: -

 Internet is general to PCs all over the world whereas Intranet is specific to few PCs.

 Internet has wider access and provides a better access to websites to large population whereas Intranet is restricted.

 Internet is not as safe as Intranet as Intranet can be safely privatized as per the need.