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INDUSTRIAL TRAINING CENTRE
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INTRODUCTIONS OF COMPUTER

Definitions of a Computer :
  i. A Computer can be defined as a fast and electronic manipulating system which is designed to automatically accept and store input data, process it and produce output result under the direction of a stored set of instructions called PROGRAM.
  ii. A Computer can also be defined as an electronic machine, which process raw data into meaningful data.
  iii. A Computer is an electronic device, its store data instructions and after processing it gives us meaningful result.

Important Terms:

Raw Data	Process	Useful Information

(Block Diagram)
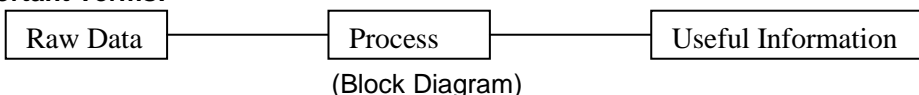
  a) **Raw Data-** Raw data is unarranged information which is fed into the computer.
  b) **Electronic Device-** It is a machine which works on electricity and consumes less electricity.
  c) **Processing-** A computer performs some actions on the raw data which are processing.
  d) **Meaningful Information-** The output received from processing is called as meaningful information.

Salient Features of Computers:
  1. **Speed-** The computers were invented as high speed calculators. The speed of modern computers has been so fast that they can perform more than 100 million instructions in one second. This is possible because the electronic components of the computer are now using components which are smaller in size and the electrons have to travel shorter distance which results in increasing speed.
  2. **Accuracy-** Computer gives consistently accurate results. Their accuracy does not go down even when they are used continuously for days together. The accuracy will depend on the method of programming and the way the result are interpreted. The accuracy also depend on the type of machine you employ.
  3. **Storage Capacity-** The fast speed of computers led to the requirement of a high storage capacity. The effort of the manufactures has been to increase both primary memory and also the capacity of other storage devices.
  4. **Versatility-** Computers are capable of performing almost any task which can be reduced to a series of logical steps.
  5. **Deligence-** Because computer is a machine, therefore its working is not affected as it is done by human being. The human being is affected by tiredness and lack of concentration in order to perform different instructions it takes same time.
  6. **No Feeling-** Computers do not work on emotions because computers are machines. Generally man takes decisions on feelings, taste and knowledge and experience. But computer's judgment is purely based on instructions given to it in the form of programs.

Application of Computers:
     Computer is most commonly used word these days and most commonly used machine. Today computers are used in each and every field of life. They help us in every aspect to solve our problems. There is no place where they are not used. Computers are now used to acquire information needed to explain new areas of health care, educations, scientific research, at police stations, traffic control rooms, airport and railway booking offices, etc.

CONCEPT OF SYSTEM

1. Computer Hardware: - It is the collection of physical elements that comprise a computer system.
2. Computer Software: - is a collection of computer programs and related data that provides the instructions for telling a computer what to do and how to do it.
3. Computer Firmware: - Firmware is a software program or set of instructions programmed on a hardware device. It provides the necessary instructions for how the device communicates with the other computer hardware.
4. Computer Skin ware: - It is the outer most part of computer.
5. Computer Human ware: - Human ware refers to the persons who program, design and operate a computer installation. Such as System Analyst, Programmer and computer operator.

CLASSIFICATION OF COMPUTERS

1. Analog Computers:-

ANALOG is a Greek word which means establishing similarities between two quantities. It measures and answers in HOW MUCH. It represents data not as number but as physical analogies. Analog computers operate by measuring rather than by counting. The Speedometer is a good example of analog computation.

2. Digital Computers:-

A digital computer counts and answer in HOW MANY. It represents data as numbers and performs mathematical and logical operations on that data. In digital computers mathematical expressions are finally represented as binary digits '0' and '1'. All operations are done by using these digits at a very high rate. These computers are used in engineering, mathematical, statistical operations research and accounts.

a) **Micro Computers: -** Micro computers are at the lowest end of the computer range. The most commonly microcomputers are Personal Computer (PC). The PC is small in size but it is capable of handling large size applications. It can perform diverse range of functions from keeping track of household accounts to keeping records of bigger organizations.
Example - PC, PC-XT, PC-AT

b) **Mini Computers: -** Mini Computers are between Micro computers and Main frames. Mini Computers perform better and are larger in size and cost more than micro. They are designed to support more than one user at a time. They posses Larger storage capacity and operate at higher speeds and also support fast operating peripherals devices. They can also communicate Main Frame Computers. Mini Computers are also used as LAN Servers. Example - PPDP 11/45, VAX 11, PCL's HALL MARK

c) **Main Frame Computers: -** Mainframes are more powerful than mini computers. They operate at very high speed and have larger storage capacity and can support hundreds of users. They are used to manage centralized databases. Such databases can be quarried by hundreds of users who need to access information from different locations. Main Frames are used to controlling node of WAN. Example – IBM 300 series, UNIVAC 1180, DEC 10

d) **Super Computers :-** Super computers are the highest end of the computer range. They are the fastest and most expensive machines and are considered a national resource. One of the methods in which computers are built in by interconnecting hundreds of microprocessors and making them function in parallel. These computers are capable performing billions of calculations per seconds. Example - CM-5, PARAM

3. Hybrid Computers :-

Hybrid computers are combination of all good qualities of both analog and digital computers. In such computers calculations are performed in some portion of computer and some are done in digital portion. Then it utilizes the services of devices which convert analog signals into digital signals and digital signals into analog wherever necessary such devices are called as Hybrid Computers.

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COMPUTER GENERATIONS

Introduction :

"Generation" in computer we means a step in technology. Computer's which we see today took many years to reach this stage and capability. This time period shows the growth of computer industry.

First Generation (1940-1956) Vacuum Tubes

The first computers used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions. First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and they could only solve one problem at a time. Input was based on punched cards and paper tape, and output was displayed on printouts. The UNIVAC and ENIAC computers are examples of first-generation computing devices. The UNIVAC was the first commercial computer delivered to a business client, the U.S. Census Bureau in 1951.

Example : ENIAC, EDSAC, DEVAC, UNIVAC
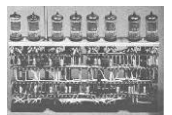
Second Generation (1956-1963) Transistors

Transistors replaced vacuum tubes and ushered in the second generation of computers. The transistor was invented in 1947 but did not see widespread use in computers until the late 1950s. The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, more energy-efficient

and more reliable than their first-generation predecessors. Though the transistor still generated a great deal of heat that subjected the computer to damage, it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output. Second-generation computers moved from cryptic binary machine language to symbolic, or assembly, languages, which allowed programmers to specify instructions in words. High-level programming languages were also being developed at this time, such as early versions of COBOL and FORTRAN. These were also the first computers that stored their instructions in their memory, which moved from a magnetic drum to magnetic core technology. The first computers of this generation were developed for the atomic energy industry. *Example: Honeywell 400, IBM 7030, CDC-1604, IBM 650, NCR 304*

Third Generation (1964-1971) Integrated Circuits

The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers. Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors. *Example : IBM 360/370, PDP-8, PDP-11, CDC 6600*

Fourth Generation (1971-Present) Microprocessors

The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. The Intel 4004 chip, developed in 1971, located all the components of the computer—from the central processing unit and memory to input/output controls—on a single chip. In 1981 IBM introduced its first computer for the home user, and in 1984 Apple introduced the Macintosh. Microprocessors also moved out of the realm of desktop computers and into many areas of life as more and more everyday products began to use microprocessors. As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet. Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.
Example : Orange-II, TRS-80, VAX 9000

Fifth Generation (Present and Beyond) Artificial Intelligence

Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come. The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization. *Example : IBM Notebook, Pentium PC, PARAM 10000 etc.*

COMPUTER HARDWARE

Introduction :-

The physical components of a computer are known as hardware. Such physical components may be electronic, electrical, magnetic, mechanical or optical. Some such parts are microprocessors, integrated circuits, hard disk, floppy disks, optical disks, monitor, keyboard, printer, etc.

Internal Hardware: This is any piece of hardware that is inside the computer case. Ex. Motherboard, Processor, Hard drive, Graphics Card, Memory etc.

External Hardware: these are accessories or parts for a computer that you can plug in externally. Ex. Keyboard, Mouse, Printer, Monitor, Scanner, etc.

A. Input Devices:

Data and instructions are entered into a computer through input devices. An input device first converts desired input data and instructions into suitable binary form (0 and 1) and then fed it into the CPU. Some Input Devices are:

i. **Key Board-** Programs and data are entered into a computer through a keyboard which is attached to a computer. A keyboard is similar to the keyboard of a typewriter. It contains alphabets, digits, special characters, function keys and some control keys.

ii. **Mouse-** A mouse is a pointing device. It is held in one hand and moved across a flat surface. The mouse can also be used to draw sketches, diagrams etc. on the monitor screen.

iii. **Light Pen-** A light pen is a pointing device. It is used to select a displayed menu options on the monitor. It is a photosensitive pen-like device. It is capable of sensing a position on the monitor screen when its tip touches the screen. The signals sent by the light pen to the processor identify the menu options.

iv. **Joystick-** A joystick is also a pointing device. It is used to move the cursor position on a monitor screen. Its function is similar to that of a mouse and is used for playing games.

v. **Trackball-** A trackball is also a pointing device and contains a ball which can rotate in any direction. The user spins the ball in different directions to move the cursor on the monitor. This type of pointing device is normally used in a laptop computer.

vi. **Scanner-** Scanners are a kind of input devices. They are capable of entering information directly into the computer. The main advantage of direct entry of information is that users do not have to type the information. This provides faster and more accurate data entry.

vii. **OMR-** Optical Mark Reader are special scanners used for recognizing a pre-specified type of mark made by pencil or pen. OMR focuses light pen on the page being examined and the light pattern reflected from the dark marks is then detected.

viii. **Bar-code Reader-** Bar-code readers are special devices used to read bar coded data. Bar code is a specialized code used for fast identification of items. It consists of a series of small lines, known as bars. These are primarily used for identification of goods such as books, postal packages, etc.

ix. **MICR-** Magnetic Ink Character Recognition detects the special encoded characters on bank cheques and deposit slips. After detecting the encoded characters, the MICR converts them into digital data for the computer.

x. **Web Cameras-** A web camera allows a computer to accept input just by focusing on an object. The camera is focused on the input object to take a picture of the object. Picture so taken can be transferred over network to a distant place. The image of the object can be seen on the monitor of the distant computer connected through a network or through Internet. Voice can also be transmitted over the network.

xi. **Voice Input and Recognition System-** VIRS is an input device, consisting of a microphone or telephone that converts human speech into electrical signals. A signal pattern obtained in this manner is sent to the computer where it is matched against pre-stored patterns to identify the input. When a close match is found, a word is recognized by the system.

xii. **OCR-** Optical character recognition, usually abbreviated to OCR, is the mechanical or electronic conversion of scanned images of handwritten, typewritten or printed text into machine-encoded text. It is widely used as a form of data entry from some sort of original paper data source, whether documents, sales receipts, mail, or any number of printed records.

B. Output Devices:

Output devices are used to show the information stored in a computer or the result of any processing done by the computer to the outside world. Some devices are:

i.   **Monitors-** A VDU or a monitor is very similar to a television and its size is measured in diagonal length of the screen. Monitors are available in 9", 14", 15", 17", 19" and even in 21" size. It shows text or pictures in colour or black and white, depending on the type.

ii. **Printers-** Printers are the most popular output devices. They provide information in a permanent readable form. They produce printed outputs of results, programs and data. The printers can be classified as :

    a. *Impact Printers:* It use an electro-mechanical mechanism that causes hammers or pins to strike against a ribbon and paper to print the text. Example – Dot Matrix Printers.

    b. *Non Impact Printers:* Non impact printers do not use any electro mechanical printing head to strike against ribbon and paper. They use thermal, chemical, electrostatic, laser beam or inkjet technology for printing the text. Example – Laser Printer, Inkjet Printer.

iii. **Plotter-** Plotters are output devices. They are used to produce precise and good quality graphics and drawings under control of the computer. They use ink pen or inkjet to draw graphics and drawings. Either single colour or multicloured pens can be employed. The pens are driven by stepper motor.

iv. **Multimedia Projector-** It is an output device connected to a PC and used to project information from a computer o to a large screen (a cloth screen or wall). The information is thus viewed by a large number of people. It is widely used for giving presentations. The presenter can directly point to, mark or edit the displayed information to make it more understandable.

v.   **Voice Response System-** A voice response system enables a computer to talk to the user. Audio response is an output media that produces verbal responses from the computer system. I a voice response system, all the sounds needed to process the possible enquires are pre- recorded on a storage medium. Each sound is given a code. When enquires are received, the computer follows a set of rules to create a reply message in a coded form. This coded message is then transmitted to an audio response device, which assembles the sounds in the proper sequence and transmits the audio message back to the station requesting the information.

C. Storage Devices:

Storage devices are permanent storage units used for storing programs and data. They use principle of magnetization for storing 0 and 1. They are also known as magnetic memory. The memory retains its contents even when power is switched off.

i.   **Floppy Disks-** A floppy disk also called a disk or diskette is a removable storage disk used for storing data. It is called a floppy disk because the round film inside the disk's plastic shell is flexible (floppy). You should make a copy of any important information from the hard disk in a floppy. This is known as keeping a backup of important information. You can use a floppy disk to store and move data easily from one PC to another.

ii. **Hard Disk-** A hard disk is a device used for mass storage of data. The data stored on a hard disk can be retrieved at a very fast speed, being a direct address device. Unlike floppies, CDs, zip disks etc. you cannot easily remove hard disk from a PC. A hard disk drive is made up of a group of disks or disk platters, piled on top of one another in an air tight, dustproof case.

iii. **Optical Disk-** It is an optical read only memory. The disk is made up of a resin, such as polycarbonate. It is coated with a material which will change its reflecting property when a high density laser beam is focused on it. The coating material is highly reflective, usually aluminium. For reading the data, a laser beam of less intensity is employed. In some cases separate laser beams are employed: one for writing and the other for reading.

iv. **Magnetic Tape-** Magnetic Tape is one of the most popular storage medium for large volumes of data. It is sequential access device, i.e. the data can only be accessed sequentially rather than randomly. The tape is plastic ribbon usually ½ inch wide that is coated on one side with an iron-oxide material that can be magnetized. The tape ribbon itself is stored in reels of 50 to 2400 feet.

v.   **Pen Drive-** The pen drive is a portable USB flash memory device that can be used to quickly transfer audio, video, and data files from the hard drive of one computer to another. With a construction that is small enough to fit into a pocket, the pen drive derives its name from the fact that many of these USB drive devices resemble a small pen or pencil in size and shape.

D. Central Processing Unit:

A CPU is the brain of a computer. Its primary function is to execute programs. The CPU is also responsible for activating and controlling the operations performed by all other units of the computer system. The major parts of CPU are:

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i.   **Arithmetic Logic Unit:** All calculations are performed and all comparison(decisions) are made in the ALU. The data and instructions, stored in the primary memory prior to processing, are transferred to the ALU where processing takes place. All processing and manipulation of data in the Arithmetic and Logical Unit.

ii.   **Control Unit:** Control unit obtains instructions from the program stored in the main memory, interprets the instructions, and issues signals that cause other units of the system to perform their functions.

iii.   **Main Memory:** Primary memory is a small and relatively fast storage unit that stores data and instructions which are being currently used by the CPU. Primary is temporary memory. It retains its contents only for the time the computer is switched on. As soon as you switch off your PC, the main memory loses it contents.

What is USB?

USB (Universal Serial Bus) is the most popular connection used to connect a computer to devices such as digital cameras, printers, scanners, and external hard drives. USB is a cross-platform technology that is supported by most of the major operating systems. On Windows, it can be used with Windows 98 and higher. USB is a hot-swappable technology, meaning that USB devices can be added and removed without having to restart the computer. USB is also "plug and play". When you connect a USB device to your PC, Windows should detect the device and even install the drivers needed to use it.

What is UPS?

Short for uninterruptible power supply, a power supply that includes a battery to maintain power in the event of a power outage. Typically, a UPS keeps a computer running for several minutes after a power outage, enabling you to save data that is in RAM and shut down the computer gracefully

What is Mother Board?

A motherboard is the main circuit board inside a computer that connects the different parts of a computer together. It has sockets for the CPU, RAM and expansion cards (e.g. discrete graphics cards, sound cards, network cards, storage cards etc)... and it also hooks up to hard drives, disc drives and front panel ports with cables and wires.Also known as a mainboard, system board, mobo or MB, here's how a motherboard looks like:

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COMPUTER MEMORY

Introduction :

The Memory is an essential component of a computer system. It is required by the computer system to store instructions and data. Memory can be divided into the following two types:

a. Primary Memory-

Primary memory is a small and relatively fast storage unit that stores data instructions which are being currently used by he CPU. This type of memory is also known as Main Memory. Primary is a temporary memory. It retains its contents only for the time the computer is switched on. As soon as you switch off your PC, the main memory loses it contents.

❖ **Read Only Memory-** ROM is permanent type memory. Its contents are not lost when power supply is switched off. The user cannot write into a ROM. Its contents are written into at manufacturing time. ROMs store permanent programs and other types of information which are needed by the computer to execute user programs.

❖ *Programmable Read Only Memory-* To enter a frequently required program on to a ROM, a user may obtain a PROM. Each bit of this can be individually programmed to a 1 or 0 by burning out a fusible link with selected cells.

❖ *Erasable Programmable Read Only Memory-* The EPROM makes it possible for the user to repeatedly erase and reprogram ROM. Erasing is done by exposing it to Ultra-Violet light of a specific frequency.

❖ *Electrically Erasable Programmable Read Only Memory-* The EEPROM comes closer to the ideal of a permanent memory which may programmed in situ. Erasing is done by given Commands.

❖ **Random Access Memory –**Ram is a read/write memory. Information can be written into and read from a RAM. It retains the stored information as long as it is supplied with power supply. When power supply is switched off or interrupted, the stored information in the RAM is lost.

❖ *Static Random Access Memory-* SRAM can retain stored information as long as the power supply is on. They consume more power. They have higher speed than Dynamic RAM.
❖ *Dynamic Random Access Memory-* DRAM loses its stored information in a very short time even though the power supply is on. They consume less power. They are used where a large capacity of memory is needed.
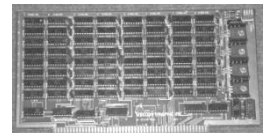
b. Secondary Memory-

You cannot store data in the main memory of a PC permanently. Main memory stores data and instructions only temporarily. In order to preserve or save the work which you have done on your computer (permanently for future use) before you shut it off, you have to use storage media such as floppy disk, Compact disks and Hard disk, etc.

Cache Memory-

Cache memory, also called CPU memory, is random access memory (RAM) that a computer microprocessor can access more quickly than it can access regular RAM. As the microprocessor processes data, it looks first in the cache memory and if it finds the data there (from a previous reading of data), it does not have to do the more time-consuming reading of data from larger memory. Cache memory is fast and it is expensive. It is categorized in levels that describe its closeness and accessibility to the microprocessor. Level 1 (L1) cache, which is extremely fast but relatively small, is located close to the processor. Level 2 (L2) cache is located half-way between the process and the system bus; it is fairly fast and medium-sized. Level 3 (L3) cache is relatively large and close to RAM.

Flash memory

It is a memory storage device for computers and electronics. It is most often used in devices like digital cameras, USB flash drives, and video games. It is quite similar to EEPROM. Flash memory is used in USB Drives, SSD Drives, computer RAM, hybrid drives (small SSD + Hard Drive), graphics cards, and memory cards.

MEMORY UNITS

This is based on the IBM Dictionary of computing method to describe disk storage - the simplest.

Processor or Virtual Storage	Disk Storage
· 1 Bit = Binary Digit	· 1 Bit = Binary Digit
· 8 Bits = 1 Byte	· 8 Bits = 1 Byte
· 1024 Bytes = 1 Kilobyte	· 1000 Bytes = 1 Kilobyte
· 1024 Kilobytes = 1 Megabyte	· 1000 Kilobytes = 1 Megabyte
· 1024 Megabytes = 1 Gigabyte	· 1000 Megabytes = 1 Gigabyte
· 1024 Gigabytes = 1 Terabyte	· 1000 Gigabytes = 1 Terabyte
· 1024 Terabytes = 1 Petabyte	· 1000 Terabytes = 1 Petabyte
· 1024 Petabytes = 1 Exabyte	· 1000 Petabytes = 1 Exabyte
· 1024 Exabytes = 1 Zettabyte	· 1000 Exabytes = 1 Zettabyte
· 1024 Zettabytes = 1 Yottabyte	· 1000 Zettabytes = 1 Yottabyte
· 1024 Yottabytes = 1 Brontobyte	· 1000 Yottabytes = 1 Brontobyte
· 1024 Brontobytes = 1 Geopbyte	· 1000 Brontobytes = 1 Geopbyte

Bit: A Bit is the smallest unit of data that a computer uses. It can be used to represent two states of information, such as Yes or No.

Byte: A Byte is equal to 8 Bits. A Byte can represent 256 states of information, for example, numbers or a combination of numbers and letters. 1 Byte could be equal to one character. 10 Bytes could be equal to a word. 100 Bytes would equal an average sentence.

Kilobyte: A Kilobyte is approximately 1,000 Bytes, actually 1,024 Bytes depending on which definition is used. 1 Kilobyte would be equal to this paragraph you are reading, whereas 100 Kilobytes would equal an entire page.

Megabyte: A Megabyte is approximately 1,000 Kilobytes. In the early days of computing, a Megabyte was considered to be a large amount of data. These days with a 500 Gigabyte hard drive on a computer being common, a Megabyte doesn't seem like much anymore. One of those old 3-1/2 inch floppy disks can hold 1.44 Megabytes or the equivalent of a small book. 100 Megabytes might hold a couple volumes of Encyclopedias. 600 Megabytes is about the amount of data that will fit on a CD-ROM disk.

Gigabyte: A Gigabyte is approximately 1,000 Megabytes. A Gigabyte is still a very common term used these days when referring to disk space or drive storage. 1 Gigabyte of data is almost twice the amount of data that a CD-ROM can hold. But it's about one thousand times the capacity of a 3-1/2 floppy disk. 1 Gigabyte could hold the contents of about 10 yards of books on a shelf. 100 Gigabytes could hold the entire library floor of academic journals.

Terabyte: A Terabyte is approximately one trillion bytes, or 1,000 Gigabytes. There was a time that I never thought I would see a 1 Terabyte hard drive, now one and two terabyte drives are the normal specs for many new computers. To put it in some perspective, a Terabyte could hold about 3.6 million 300 Kilobyte images or maybe about 300 hours of good quality video. A Terabyte could hold 1,000 copies of the Encyclopedia Britannica. Ten Terabytes could hold the printed collection of the Library of Congress. That's a lot of data.

Petabyte: A Petabyte is approximately 1,000 Terabytes or one million Gigabytes. It's hard to visualize what a Petabyte could hold. 1 Petabyte could hold approximately 20 million 4-door filing cabinets full of text. It could hold 500 billion pages of standard printed text. It would take about 500 million floppy disks to store the same amount of data.

Exabyte: An Exabyte is approximately 1,000 Petabytes. Another way to look at it is that an Exabyte is approximately one quintillion bytes or one billion Gigabytes. There is not much to compare an Exabyte to. It has been said that 5 Exabytes would be equal to all of the words ever spoken by mankind.

Zettabyte: A Zettabyte is approximately 1,000 Exabytes. There is nothing to compare a Zettabyte to but to say that it would take a whole lot of ones and zeroes to fill it up.

Yottabyte: A Yottabyte is approximately 1,000 Zettabytes. It would take approximately 11 trillion years to download a Yottabyte file from the Internet using high-power broadband. You can compare it to the World Wide Web as the entire Internet almost takes up about a Yottabyte.

Brontobyte: A Brontobyte is (you guessed it) approximately 1,000 Yottabytes. The only thing there is to say about a Brontobyte is that it is a 1 followed by 27 zeroes!

Geopbyte: A Geopbyte is about 1000 Brontobytes! Not sure why this term was created. I'm doubting that anyone alive today will ever see a Geopbyte hard drive. One way of looking at a geopbyte is **$1_5$267 650$_4$600 228$_3$229 401$_2$496 703$_1$205 376 bytes!**

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PROGRAMMING LANGUAGES

A programming language is a formal constructed language designed to communicate instructions to a machine, particularly a computer. Programming languages can be used to create programs to control the behavior of a machine or to express algorithms.

1. Machine Language - Programming language that can be directly understood and obeyed by a machine (computer) without conversion (translation). Different for each type of CPU, it is the native binary language (comprised of only two characters: 0 and 1) of the computer and is difficult to be read and understood by humans.

2. Assembly Language - Assembly language is a low-level programming language for a computer or other programmable device specific to a particular computer architecture in contrast to most high-level programming languages, which are generally portable across multiple systems. Each assembly language is specific to a particular computer architecture, in contrast to most high-level programming languages, which are generally portable across multiple architectures, but require interpreting or compiling. Assembly language is converted into executable machine code by a utility program referred to as an assembler; the conversion process is referred to as assembly, or assembling the code. Assembly language uses a mnemonic to represent each low-level machine instruction or operation.

3. High Level Language (HLL) - Usually machine-independent, sophisticated programming language that uses familiar English (or any human language) like syntax. In a HLL, each statement can represent several assembly language instructions that perform complex computing operations. It allows programmers to concentrate on application development without bothering with the underlying machine architecture.

TRANSLATION PROGRAMS

This term includes assemblers, compilers and interpreters. It can be defined as program that transforms programming language instructions into the machine language codes understood by the computers.

a) **Assembler –** An assembler is a program that takes basic computer instructions and converts them into a pattern of bits that the computer's processor can use to perform its basic operations. Some people call these instructions assembler language and others use the term assembly language.

b) **Interpreter –** These programs translate high level language instructions in machine language line by line i.e. when first line is translated and executed only then the next line can be translated. If there is error in some line then interpreter stops the interpretation at that line and error message is given. When the error is corrected only then it translates this line and goes to the next line and so on.

c) **Compiler –** Compiler are special programs written to translate high level language instructions in machine language instructions as interpreter. The difference between two is that the compiler translates the whole program at a time. If there are errors in the program, then they are displayed at the time of compilation. When all errors are corrected then after compilation another module is created from the source program which is known as object module. This object module can be executed on the machine directly or indirectly.

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COMPUTER SOFTWARE

Introduction :-

Software is a collective term used to describe various sets of instructions called or programs that control the operations of computer hardware. It includes the programs provided or supplied by the vendor at the time of installation of a computer system.

Classification of Software :-

1. System Software

System software (systems software) is computer software designed to operate and control the computer hardware and to provide a platform for running application software. software that allows users to do things like create text documents, play games, listen to music, or web browsers to surf the web are called application software. System software can be separated into two different categories, operating systems and utility software.

i. Operating System - The operating system (prominent examples being z/OS, Microsoft Windows, Mac OS X and Linux), allows the parts of a computer to work together by performing tasks like transferring data between memory and disks or rendering output onto a display device. It also provides a platform to run high-level system software and application software. Device drivers such as computer BIOS and device firmware provide basic functionality to operate and control the hardware connected to or built into the computer. A user interface "allows users to interact with a computer." Since the 1980s the graphical user interface (GUI) has been perhaps the most common user interface technology. The command-line interface is still a commonly used alternative.

ii. Utility Software - Utility software helps to analyze, configure, optimize and maintain the computer, such as virus protection.

2. Application Software :

Application software is a set of one or more programs designed to carry out operations for a specific application. Application software cannot run on itself but is dependent on system software to execute. Examples of application software include MS Word, MS Excel, a console game, a library management system, a spreadsheet system etc.

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OPERATING SYSTEM

Introduction :-

An Operating System (OS) is system software that controls the internal activities of the computer hardware and provides user interface. It is the first program loaded (copied) into the computer's memory after the computer is switched on. One of the primary jobs of the operating System is to provide an interface between the user and the hardware. This interface enables a user to use hardware. This interface enables a user to use hardware resources efficiently.

The operating system performs the following functions:

1. The operating system assigns processors (if a computer has more than one processor) to the different tasks that must be performed by the computer system.
2. It allocates the main memory and secondary memory to the system programs, user programs and data.
3. It carries out the input/output management and co-ordinates and assigns different input and output devices.
4. It manages files on various storage devices and the transfer of these files from one storage device to another.
5. It maintains internal time clock and log of system usage for all the users.

Classification of Operating System :-

a) **Single User Operating System –** This type of operating system permit only one job or user to use the CPU at one time. The main disadvantage of this is that the processor and input/output devices remain idle for a large amount of time and the execution of job is sequential.
Example- CP/M, MS-DOS, UNIX.

b) **Multi User Operating System –** This type of operating system allows more than one user to work at a time which means more than one person can use same CPU at the same time. Multiuser Operating system are very much useful because they keep the processor and I/O devices engaged as much as possible allowing more than one job to the CPU.
Example- UNIX and XENIX

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MS-DOS

Introduction :-
Microsoft Disk Operating System is an operating system supplied by Microsoft Corporation of U.S.A. Latest operating system available from Microsoft Corporation is windows XP and Windows VISTA. DOS is a single user operating system that can support only one user and only one task at a time.

Advantages of DOS :-
1. Creating New Files, Delete Old.
2. Manages Data of disk
3. Increase capacity of disk
4. Formats Floppy
5. Backup from disk to floppy
6. Controls Hardware like CPU and Memory.
7. Receives information from keyboard and displays on monitor.
8. Allocates memory to program.
9. Controls operations of peripheral devices.
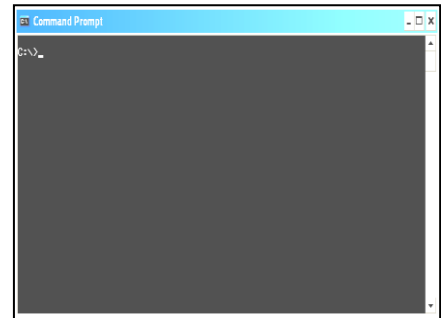
Versions of DOS :-
Dos - 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 6.22, 7.01, 7.10

DOS Command :-

1. **Internal Commands –** Internal commands are such programs in Dos which get loaded in the memory of a PC automatically at the time of booting or starting of a computer. These commands are made available so long as the PC is kept ON. Some Internal Commands are : *DIR, MD, CD, RD, DATE, TIME, CLS, VER, VOL, TYPE, COPY, COPY CON, REN, PROMPT,DEL, UNDELETE.*
2. **External Commands –** External commands are such short programs or utilities which are available on your floppy/ hard disk. These get loaded in the memory of the PC. When specially asked for.
Some commands are : *EDIT, ATTRIB, DOSKEY, TREE, DISKCOPY, MEM, LABEL, CHKDSK, DISKCOMP, FORMAT, UNFORMAT, SYS, MORE,BACKUP, RESTORE.*

System Files :-

1. CONFIG.SYS = Configuration System files
2. MSDOS.SYS = Microsoft Disk Operating System files
3. DRVSPACE.BIN = Drive Space Binary File.
4. AUTOEXEC.BAT = Automatic Executable Batch File.
5. IO.SYS = Input and Output System files.
6. COMMAND.COM = Command File

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MS-WINDOWS

Introduction :

One of today's most common operating system is Microsoft Windows. It is the world largest selling Operating System for PC's. As soon as you switch on the power supply, windows operating system program gets loaded in PC and takes the PC's control. It provides the communication link between your computer hardware and the software that you use. Windows is more than an operating system. It provides functions that let you manage many programs, customize PC, and do many of the maintenance tasks associated with a PC.

Advantage of Windows :-

1. Provides ways for you to start programs.
2. Runs more than one program at a time.
3. Provides a way for you to manage files.
4. Helps you to set up Internet access.
5. Windows comes with Outlook Express which is an e-mail program. Use this program to send and receive electronic mail.
6. Windows comes with many accessory programs, such as WordPad a word processing program.
7. It provides a way for you to customize the desktop and other screen areas of the monitor.

Basic Windows Elements :-

Desktop

Taskbar

A. **Desktop :** The desktop is the work area on a Windows screen where you are made to work. It is called the desktop because Windows uses your whole screen in a way that is similar to the way use the top of your desk. As you work in windows, you move items on the desktop, retrieve and put away items and perform many other day-to-day tasks.

B. **Icons and their types:**

An icon is a graphic object that shows a program or a file on your monitor. The different types of icons are-
   a. *System Icons* – System Icons are displayed along left edge of the screen. These objects are created automatically by Windows during its installation. Ex. My Computer, My Document, Recycle Bin, Internet Explorer.
   b. *Shortcut Icons* – These are the icons with small arrows in the lower left corner. A shortcut icon provides easy access to some objects on your system, such as a program, a document, or a printer, etc. The shortcut icon only contains information about the location of the object but not the object itself. Deleting a shortcut icon does not delete the program from the hard disk for that shortcut.
   c. *Program, Folder and Document Icons* – These are non-system icons without arrows and they represent the actual objects they describe. Thus, if you delete such an icon you are deleting the object itself, from the hard disk.

C. **The Taskbar :**

The taskbar can be seen along the side or the top of the screen. Different parts of the taskbar are –

a. *Start Button* – It is located at the left end of the taskbar. Clicking Start button displays a menu that lets you access the most useful items on your computer.
b. *Toolbars* – Toolbars represent a set of related icons for an easy access of mouse. Windows provides several toolbars which you can use as per your convenience.
c. *Task Buttons* – Task buttons are displayed in the center portion of the Taskbar. A button appears for each program you have started or each document you have opened.
d. *Notification Area* – The right corner of the Taskbar has the notification area in which Windows provides information about the status of your system.

Short Notes:-

A. **My Computer:** My Computer icon lets you browse through all the resources attached to your PC. When you click on MY Computer icon, a windows explorer window appears. Windows Explorer is a program that Windows uses to display folder contents. This window includes icons for each of the computer's disk drives (floppy disk, hard disk, CD_ROM, zip drive etc.) and network directories if you have connected your PC to a network. It also shows additional system folders, providing access to the Windows Control Panel, printers, Dial-up Networking, and a folder that manages scheduled tasks.

B. **My Documents:** This folder is used to store documents which we have saved in application look WordPad and Paint. Every user has unique My Document folder and its location can also be changed. By default My Document folder contains My Pictures which stores documents created with Paint.

C. **Recycle Bin:** It is waste paper basket which helps to keep all your deleted file and gives the facility to retrieve them in just a case we delete them by mistake. This folder holds these files and folders which were deleted from hard disk until permanently removed. The files deleted from floppy or network drive are permanently removed and are not placed in Recycle Bin.

D. **My Network Place:** If you are using a network, then this icon appears on the desktop. Double Click it to browse through the computer in the work group and the computer on entire network. Open the network and dial up connection folder where we can view and configure existing and create new network and dial up connections which is used to establish connections between computers.

Microsoft Office 2007

Microsoft Corporation is the largest processor of software. It introduced the concept of office suite. The aim was to use all the software which a small office will use. This concept was introduced for the first time for Macnitosh machines of Orange and was called as Microsoft Office Suite. During 1990 it was introduced for windows.

Microsoft office is a powerful combination of software which allows writing letters, prepare a presentation, keep database record, and prepare a spread sheet and many more applications. Main contents of MS Office suit are: *MS Word, MS Excel, MS PowerPoint, MS Access.*
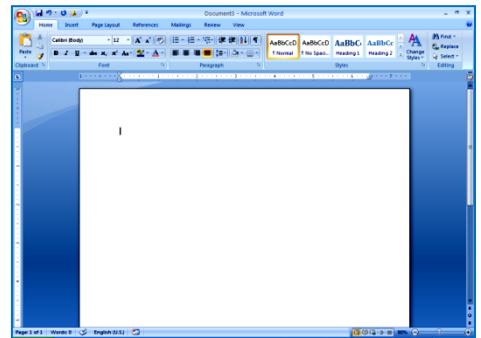
Microsoft Office Word 2007

It is word processing software which allows us to write letters, edit these letters, apply formatting and prints it. It contains all the possible options of a word processor which contains font style, font size, line spacing, margins, spelling checking and grammar checking etc.

Creation of a document involves the typing of words by the user into the primary memory of the computer and then it is saved permanently on the backup memory. Some common facilities provide by most of the word processors are:

a) Creation of a new document.
b) Saving, Printing, and editing a document.
c) Insertion and deletion of a line, character, word or a paragraph from a document.
d) Adjust the left, right, top, bottom margin of a document.
e) Search for a particular word in a document and replacing it by another word.
f) Change the text font and style.
g) Spelling and Grammar checking etc.

Basic Components of Word document:

a) **Title Bar:** This bar displays the name of the currently active word document.
b) **Menu Bar:** The main menu is displayed here. It allows you to perform a number of basic operations like creating and saving files.
c) **Ribbon:** The Ribbon is designed to help you quickly find the commands that you need to complete a task. Commands are organized in logical groups, which are collected together under tabs. Each tab relates to a type of activity, such as writing or laying out a page.
d) **Ruler bar:** It is used to set tab stops on a line of text and vertical alignment of text in a document.
e) **Workspace:** It is an area where user can enter the text.
f) **Scroll Bar:** It is used to scroll the contents of a document vertically or horizontally.
g) **Status Bar:** It displays the page number, column number and line number on which the cursor is positioned and information about a command or a toolbar button, an operation in progress.

Microsoft Office Excel 2007

Introduction: MS-Excel the spreadsheet draws many similarities from the document called ledger of an accountant. This is to say, Excel is the electronic equivalent of the ledger sheet. Excel works on the concept of workbooks which has worksheets which can be added or removed as and when required.

Features:
1) Excel has a grid of *columns* and *rows* into which you can enter numeral, text, etc. Each box in the grid is called a *cell*. The cell is where you enter data.
2) Excel can perform mathematical or logical calculations and show the results.
3) You can easily change the content of a cell.
4) You can plot a wide variety of graphs.

What is an electronic spreadsheet?

"Electronic spreadsheet is a software package which shows us in a tabular form, accepts data in a tabular form (rows and columns) and serves many functions to perform calculations."

Spreadsheet Terminology

1) **Workbook:** A workbook is a collection of many worksheets. In a single workbook, we can store information in an organized manner. By default, a workbook opens three worksheets and it can contain a maximum of 255 worksheets.

2) **Worksheets:** A worksheet, also called a spreadsheet, is a sheet made up of rows and columns. It is use for planning a project or financial documents of an organization.
3) **Chart sheet:** Chart sheet is a separate sheet in a workbook that contains only graphs.
4) **Row:** A row is a horizontal block of cells that runs through the entire width of the worksheet. The rows are numbered from top to bottom along the left edge of the worksheet. There can be maximum of 1048576 rows in an excel worksheet.
5) **Column:** A columns is a vertical block of cells that runs through the entire worksheet. A worksheet contains 16384 columns, labeled 'A' through 'XFD'.
6) **Cells:** A cell is the intersection of a row and a column.
7) **Formula:** it is an order of values, names, cells references, functions and operation in a cell that together give a new values. A formula always begins with = (equal) sign.
8) **Function:** Function are predefined formulas that perform complex calculations by using a specific value in a particular order to give a result. Ex. Sum (), Average (), If (), etc.
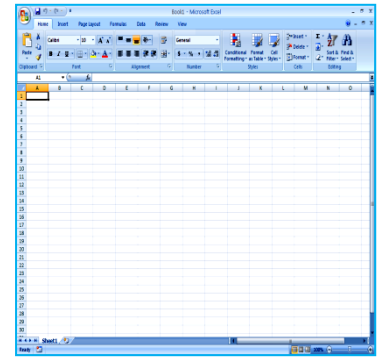
Advantages of Spreadsheets:
1) In Excel, many built in function do the complex calculation very easily.
2) Large volume of data can be handled easily.
3) A graphical representation of data is possible with the help of graph and charts for easy understanding.
4) Useful information can be imported or exported from/to other software packages.

Applications of Spreadsheets:
1) Budgeting and forecasting.
2) Scientific research.
3) Income tax and sales tax applications.
4) Annual reports.
5) Sales and purchase applications or we can say used in business applications.

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Microsoft Office Power Point 2007

Introduction: PowerPoint is the largest selling presentation graphics software package that is designed by Microsoft Corporation of USA. Since its introduction in 1987, PowerPoint has set new standards for the working of presentation graphics. PowerPoint helps you bringing ideas and information that you want to convey your audience with no difficulty. With PowerPoint you can:
a) Quickly create paper for overhead projector, 35mm slide, or on-screen presentations.
b) Supplement your presentation with speaker's notes.
c) Use material you have created in other application packages such as MS Word and MS Excel.

Uses of PowerPoint:
a) **Presentations** – You can make presentation in the form of slides, handouts or speaker's notes.
b) **Slides** – Slides are individual "pages" of a presentation. It may contain text, graphs, clipart, etc.
c) **Handouts** – Handouts consist of printed versions of your slides-either two, three, or six slides per page.

PowerPoint Views: Power Point offers many views to look at your presentation. Each view enables you to work on a different aspect of the presentations.
a) *Normal View :* Normal view contain three panes:
   i) **The Outline Pane:** Use the outline pane to organize and develop the contents of your presentations. You can type
      all of the text of your presentation and rearrange bullet points, paragraph and slides.
   ii) **The Slide Pane:** In the slide pane, you can see how your text looks on each slide. You can add graphics, movie
      and sound clipping, create hyperlink and add animations to individual slides.
   iii) **The Note Pane:** The notes pane lets you adds speaker notes or information you want to share with the audience.
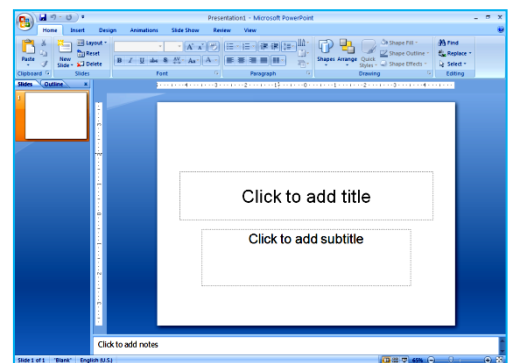
b) **The Slide Sorter View:** The slide sorter view displays a miniature of each slide in your presentation. If need be, you can easily reorder the slides, copy or delete the slides.
c) **The Slide Show View:** The view of PowerPoint shows the progress of the presentation form slide to slide just like a real slide show.
d) **The Notes Page View: This** view helps you to prepare the speaker notes used while you are making the presentation to your audience.

Master: Power Point master is a special slide that allows you to define all the formatting attributes and add any common graphical object that will appear in your presentation.
a) *Slide Master:* Slide Master controls the appearance of all the slides except the slides with the Title. Just make the change once on the slide master, and PowerPoint automatically updates the existing slides and applies the change to any new slides you add
b) *Notes Master:* The Notes Master is the template for Notes Pages. Any changes made in the Notes Master will affect all Notes Pages.
c) **Handout Master:** In the Handout Master view, you can select the two slides per page, three slides per page or the six slides per page.

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Microsoft Office Access 2007

Introduction:
MS-Access is a database program. It is also called as Relational Database Management System(RDMS). In Access data is stored in rows and columns. A table which contains different fields in them a relationship is established. From this stored data many types of reports can be generated. Database has another file called as flat file in which record can be seen in different tables. These databases can be queried and can be stored into graphical or tabular form.

Advantages of Databases:
1. The stored information can be viewed, sorted, manipulated, retrieved and printed as per requirements.
2. The data can be obtained in multiple formats.
3. The information in Access if more and interrelated can be retrieved quickly and accurately.

Objects and its Kind:
Tables: Tables are related data within a database.
Queries: Stored instructions that select data from one or more tables for reporting analysis and data-management purposes.
Forms: On screen representation of paper forms that you and other users use to enter data into tables.
Reports: It is printed listing of database data.
Macros: These are stored task lists for Access Commands.
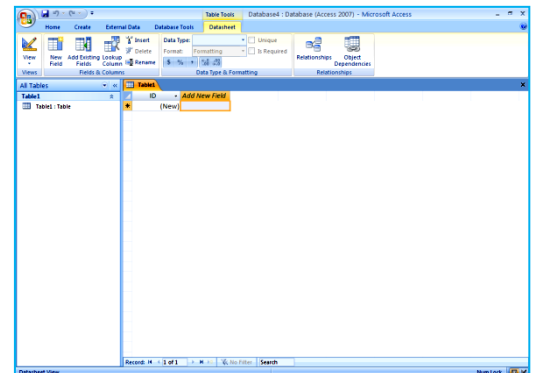
Various Data Types:
1. Text Data Type: This data type can store alpha-numeric characters from 0-255. Text type data can store all valid printable characters. Its default size is 50.
2. Number Data Type: In this data type numeric value like 1, 2 can be stored. This data can be used for calculations.
3. Date/Time Data Type: This can store date and time values up to 8 bytes.
4. Ole Object Data Type: Its storage size is up to 1 GB and it can store video clips, a picture, graph, sound.
5. Currency Data Type: This is used to enter monetary data and can store up to 8 characters.
6. Auto Number Data Type: This data stores an integer which gets incremented/decremented automatically when we add/delete record. It can store 4 bytes.
7. Yes/No Data Type: This type of data is called as logical type which means a data which can have only two values. For example, Yes/No, True/False, On/Off, and 0/1.
8. Memo Data Type: This data type contains alphanumeric characters and can store 0-64000 characters for each record.
9. Look up Column: on some occasions we may need a field in a table which can take limited number of values. For this we can define a lookup column. A lookup column is a field that displays a list which looks up data from an existing table or query or form a fixed set of user defined values.
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INTERNET

Introduction : Internet is the best flower gifted by Information Technology. It is the latest buzzword among the computer users and users of the information centres now a day. Internet is a world-wide computer network that contains large collection of information which could be made available to you on your computer.

What is Internet?

Internet is the abbreviation of Internetwork System. The INTERNET is the name for a vast, worldwide system consisting of people, information, and computers. Internet is the largest and most complete learning tool for a group of people with varied educational backgrounds and interests. For business community, internet is the common place where they can discuss and set the business deals without moving from their place.

Origin :

The United States Department of Defence (DOD) created a network in 1969 known as ARPAnet. ARPAnet model helped the researchers to communicate with each other. ARPA'S (Advanced Research Project Agency) main task was to develop a reliable and geographically dispersed network for military purposes. With the creation of ARPAnet in 1970s other various networks like Usenet, Bitnet, came into existence. In 1980s the NSFC (National Science Foundation Corporation) created a network called NSFNET. They connected their super computer to research agencies and universities to facilitate effective communication among them. In 1990 some of the pioneering networks were dismantled and all other independent networks joined with the NSFNET.

Benefits:
   a) **Communication on the internet.**
      a. Electronic Mail   b. Conferencing / Chatting   c. Internet Newsgroup
   b) **Searching / Retrieving information**
      a. FTP (File Transfer Protocol   b. Archie   c. Gopher   d. Veronica
   c) **Remote Login –** One can link to a remote computer through the Internet and gain vast wealth of information stored on it. This mode of connection is more economical when systems are widely dispersed than direct connection by using a cable. with appropriate software like Telnet or Internet, user can use the Internet's transmission medium to connect with other remote system.

Who manages the Internet:

No single person or organization owns the Internet. As it is a collection of thousand of networks connecting millions of people from all over the world with different beliefs. No single organization or a person can dictate the whole community according to their wishes. Although there are organizations that helps to manage different parts of the networks in order to standardize the working on the internet National Science Foundation (an US agency) created an organization called NIC (Network Information Centre) is responsible to register the domain names and addresses of new computers being added to the network.

Internet Architecture Board (IAB)

The IAB's task is to manage the research and evolution of protocols along with Internet standards. IAB has two main groups called Internet Research Task Force (IRTF) and Internet Engineering Task Force (IETF). IRTF is a small group which is charged to set priorities for research activities of protocols. The IETF is bigger in the sense that it deals with specific areas with working groups for them. IETF deals with all technical operation of the Internet.

Type of Connection-

   Dial-Up Access – This type of connection is most popular among individual users in India. The two major advantages of dial up access are Low Cost for connection and modest hardware and software's requirement. The major disadvantage of this type of connection is its slow speed and low reliability. The bandwidth of telephone lines mainly accounts for the slow speed of dial up access.

   a) **Dedicated or Leased Lines –** This type of connection is popular among the large organization allover the word. In this connection one can access the internet by a leased or dedicate lines between the network (or individual pc) and the internet service provider (ISP) companies. Modems are not required in this type of connectivity .The two major advantages of leased lines are-fast speed and better reliability. The only disadvantage of this type of connection is that it is very expensive.
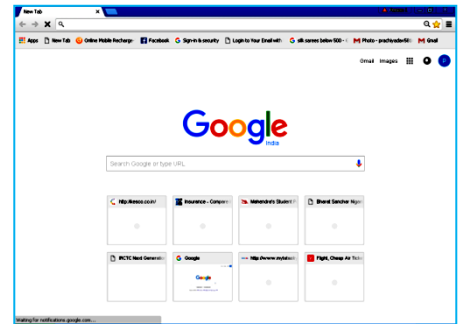
Type of Internet Account-
a) **Shell Account –** Using shell account one can view only text based information on the terminal. So this type of account is considered as not very user friendly with shell account one cannot view graphics or hear sounds. It is not useful in accessing World Wide Web but one can access FTP, IRC and e-Mail using shell account.
b) **TCP/IP Accounts –** TCP/IP stands for transmission Control Protocol / Internet Protocol. It is a member of Internet Protocol suite. The Network Access server actually manages the physical connection to the network. The most amazing feature of TCP/IP account is that one can access even graphics, sound files etc. So this type of account is generally regarded as more user friendly.

Hardware and Software Required for Internet:
a) **Computer :** All types of computers right from PC (having DOS or WINDOWS) to Pentium and the mainframes are suitable for internet. The current trends as a requirement is to acquire a Pentium with 150-200 MHz 1-2 GByte Hard disk space using Windows rather than DOS with 16 or 32 MB RAM.
b) **Modem :** It is a device that converts the digital signal from a computer into an analog one, which is suitable for transmission over a telephone line or other convenient communication channels.
c) **Linkage Mechanism :** The following are the methods using which linkage can be established on the Internet: i) Dial-up STD Telephone   ii) Leased Telephone Line
    iii) Very Small Aperture Terminal   iv) Radio Wave Link
d) **Communication Software :** These days, modems come with all types of communication software. And if these are not supplied as a part of modem delivery, then it is either exclusively requested from the vendor or Internet is loaded with all kinds of freeware and shareware.

Benefits of Internet:
a) Education   b) Publishing   c) Shopping   d) Advertising   e) Financial Services   f) Careers

Uses of Internet:
a) Browsing   b) E-Mail   c) Searching   d) Downloading   e) Shopping   f) Chatting

Domain Extension:
a) .com = Commercial User (ex- sify.com)   f) .org = Organizations (ex- kanpuruniversity.org)
b) .net = Network sites (ex- VSNL.net)   g) .in = for India (ex- irctc.co.in)
c) .gov = Government   h) .nic=national informatics centre
d) .edu = Educational   i) .uk = for United Kingdom
e) .mil = Military/Defence

Some Internet Service Provider:
a) Satyam Online   b) Sify Broad Band   c) BSNL   d) MTNL   e) Hath@way   f) Reliance Info   g) Tata

WWW(World Wide Web): WWW offers facilities to the users to share information with others. The WWW servers can publish text and graphics including sound and video. This is the fastest part of the Internet. The WWW servers are designed to handle documents created using HTML format.

Web Pages: Hypertext information is stored in files, and a URL That points to Hypertext is actually the address of a specific file on a particular computer. The content of a single file of hypertext is called a Web Page. A web Page can be of any size at all.

Home Page: A home page is the main page for a particular web site. Home page is the page you want to be loaded automatically each time you start the browser.

HTTP : Hyper Text Transfer Protocol is the protocol used by the Web Server and Web Clients to communicate with each other.Hyper Text Transfer Image, the underlying Image used by the World Wide Web. HTTP defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands. For example, when you enter a URL in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested Web page.

FTP : File Transfer Protocol (FTP) is a standard network Image used to transfer files from one host to another host over a TCP-based network, such as the Internet.

TCP/IP – It is the set of rules that allows the member computers of the network to talk to each other.
TCP : The Transmission Control Protocol (TCP) is one of the core protocols of the Internet Image Suite. TCP is one of the two original components of the suite, complementing the Internet Image (IP), and therefore the entire suite is commonly referred to as TCP/IP.

IP : An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination.

IP Address - In addition to domain name, every computer on the Internet has a unique 32 bit IP address. The number addressing system of IP has four parts and is referred as dot quod. Example 198.40.20.8 is a 32 bit IP address. Each part of an IP address is called as an Octet, which is a 8 bit binary number. So the complete IP address is a 32 bit number. IP address is used to identify computers on the network.

URL : Abbreviation of Uniform Resource Locator (URL) it is the global address of documents and other resources on the World Wide Web. Uniform Resource Locator is the location identifiers for any resource on the internet. It is the standardized way of representing resources on the net. Ex. http://www.gmail.com

WEBSITES : A site (location) on the World Wide Web. Each Web site contains a home page, which is the first document users see when they enter the site. The site might also contain additional documents and files. Each site is owned and managed by an individual, company or organization.

Web Client - Client is a computer system or a program that requests for an information or service from a remote system.
Server - The computer system or a program that furnishes the request of a client is generally called as server.

Hypertext System – It means a system having text that contains links to other text documents. the links present in the hypertext document points to other places within the same document or to the different documents. The user can also return to a previous link.

Hypermedia System – It uses the links between information of all sorts like text, graphics, sound, audio, video, etc. The only difference between hypertext and hypermedia is that in the hypermedia system links are used to connect all kinds of information beside text.

Hyper Text Markup Language – HTML is a descriptive language used to markup the hypertext and hypermedia documents. HTML is a standard language of the World Wide Web, which is used to create web pages.

Types of HTML Pages –
   a) **Static –** Those pages, which require no action at the server. In theses kinds of site no user interaction is available. These sites are used for display purpose only.
   b) **Dynamic Pages –** These pages are created as a result of the user's action. An example of dynamic page is the page which comes to the screen after user submits the form.
   c) **Directory Listing –** The server generally creates these pages in response to the queries. Whenever a user sends queries to the server without specifying the document name, directory listing is returned to the user in the form of a HTML page.

Freeware Program – It means the programs or files those can be downloaded free of cost.

Shareware Programs – It includes those programs or files that on can use for limited period.

Chatting – It is the real time conversation between two or more individuals. In other words you can say that chat is truly two-way mode of communication. It is like an open group discussion where different people can join and share their views and information.

Internet Relay Chat (IRC) – IRC is a technology that allows you to communicate with other people on the Internet as you are in the same room. IRC allows any number of individuals to simultaneously participate in discussion groups. In simple terms IRC can be regarded as a network of chat service located all over the globe, allowing users to have real time communication.

Mail Client – A mail client is a program that is used to compose, edit, send and retrieve electronic mail messages. There are number of mail clients available in the market. Ex. - Netscape Mail, Outlook Express, etc.

Mail Protocols – The concept of Electronic mail is based on standards known as mail protocols. The mail protocol includes Simple Mail Transfer Protocol (SMTP), Post Office Protocol (POP), Interactive Mail Access Protocol (IMAP), and Multipurpose Internet Mail Extensions (MIME). Following these protocols any e-mail client can exchange messages with other users on the Internet. The mail protocols standardize the process of exchanging mail with other users.

a) **Simple Mail Transfer Protocol (SMTP) –** The SMTP specifies how messages are to be sent on the Internet or in other words it's specifies the format in which a mail message how to be composed. SMTP is a server to server protocol used to transfer electronic mail between computers.

b) **Post Office Protocol (POP) –** The POP defines hoe system may act as a post office for a user's message queuing the mail until user retrieves them using mail clients. In other words it defines how clients can retrieve messages from a mail server. There are three versions of this protocol POP, POP2, POP3.

c) **Interactive Mail Access Protocol (IMAP) –** IMAP defines how user can access messages on a mail server, more specifically IMAP allows the user to browse and read their e-mails on remote mail server. The IMAP uses SMTP for communication between the e-mail client and servers.

d) **Multipurpose Internet Mail Extensions (MIME) –** MIME offers a way to extend Internet standard mail. So that the users can interchange the Multimedia electronic mail in addition to simple textual data among different computer systems.

Browsers –
Internet Explorer, Google Chrome, Safari, Mozilla Firefox, Opera

Some Websites -
1. *Searching –* www.google.com, www.ask.com
2. *Emailing –* www.gmail.com
3. *Commercial –* www.sify.com, www.yahoo.com, www.rediffmail.com
4. *Shopping –* www.flipkart.com, www.amazon.in, www.snapdeal.com, www.olx.com
5. *Railway –* www.irctc.co.in, www.indianrail.gov.in, www.erail.in
6. *Download Software –* www.download.com, www.filehippo.com, www.softwares.com
7. *Download Songs –* www.indiamp3.com, www.gaana.com, www.hungama.com
8. *Download Video –* www.viedo9.in, www.hungama.com, www.youtube.com
9. *Download Wallpapers –* www.wallpapers.com, www.indiafm.com, www.hdwallpapers.com
10. *SMS –* www.way2sms.com, www.160by2.com, www.fullonsms.com
11. *Jobs -* www.sarkari-naukri.in, www.naukri.com, www.timesjobs.com
12. *News –* www.jagran.com, www.indiatimes.com
13. *Results –* www.results.in, www.upresults.in, www.cbseresults.in, www.sarkariresults.nic.in

Chatting Software –
Skype, Rediff Bol, Google Talk, Yahoo Messanger

BASIC CONCEPT OF NETWORKING

What is Computer Networking?

An arrangement consisting of two or more interconnected computer is called a Computer Network. A computer network is created when several computers are linked by data communication channels. Each computer in a network can have its own processing capabilities and can also share hardware, data files, and programs.

Why Computer Network?

The need arose out of the common economic problem:
1) Limited resources and
2) A desire to share the resources

Today, that's a limiting view, because the most important resource in information. Network lets you share information and the same is achieved by Resources Sharing.
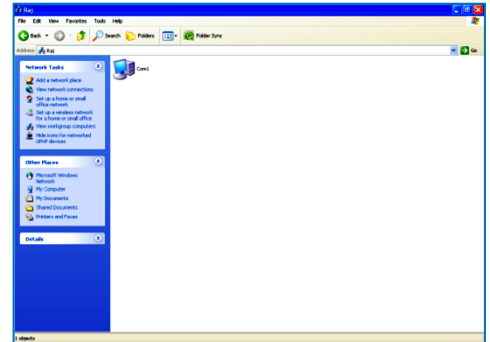
Types of Computer Network?

1. Local Area Network (LAN)   2. Metropolitan Area Network(MAN)   3. Wide Area Network (WAN)

LOCAL AREA NETWORK

A local area network (LAN) is two or more computers directly linked within a small well defined area such as a room, building, or group of closely placed buildings. A LAN may be made up of only microcomputers or any combination of microcomputers and large systems. Interest in local area networks is constantly growing due to following two developments:

a) Development of powerful and user-friendly micro-computers
b) Development in communication technology

A LAN is usually consists of the following:

i.   Two or more computers
ii. Peripheral devices such as printers and hard disk drives.
iii. Software to control the operation of the computers of other devices connected to the LAN
iv. Special cables, usually coaxial or fibre optic, to connect the computers and other devices
v.   A plug-in board to handle the data transmissions.

Hardware Required for LAN

a) Transmission Channel   b) Network Interface Unit (NIU) c) Servers   d) Workstations

Transmission Channel for LAN

a) Twisted Pair Cable b) Coaxial Cable   c) Fibre-Optic Cables   d)Radio Waves

Network Interface Unit - Network interface units connect each device in the LAN network to shared transmission device. It contains the rules or logic to access the LAN. NIU is also used to implement LAN protocols and for device attachments. Its function depends on the type of topology used in LAN.

Servers - One of the major benefits of implementation of LAN is sharing expensive resources such as storage devices, printers etc. This is achieved through providing servers on the LAN. It is dedicated computer that controls one or more resources. This contain both hardware and software interface for LAN. Three major categories of server used in LANs are:

a) File Server   b) Printer Server   c) Modem Server

In networking, **File server** is used to share storage space for files. Besides providing storage space for files in a LAN environment, it is used for taking periodical backup, and also to provide gateway to other servers within and between LANs.

Similarly **Printer server** is used to handle printing works of all workstations connected in the network.

In LAN environment also modem is required to get-connected to other network or simply to use a telephone. A **Modem server** is used to share this expensive resource by all connected workstations in a network ring.

LAN Software: a) Server software   b) Workstation Software

LAN Operating System: Noval Netware, Ethernet, Corvus, ArcNet, LAn Server, Omni Net, PC Net, IBM PC LAN, Etherlink Plus, etc.

WIDE AREA NETWORK: A Wide Area Network (WAN) is two or more computers that are geographically dispersed, linked by communication facilities such as telephone system or microwave relays. This type of network is usually

limited to use by large corporation and government agencies because of the high costs involved in building and maintaining them.

Hardware Required for WAN: a) Bridges   b) Routers   c) Gateway   d) X.25 standard Interface

Bridges - Bridges are used to connect two LANs that use the identical LAN protocols over a side area. The bridge acts as an address filter which picks up packets from one LAN that are intended for a destination on another LAN and passes these packets on the network.

Routers - Router is a special type of device that can be used to connect networks that may not similar. Such types of devices provide connectivity between two LANs or two WANs over large geographical distances.

Gateways - Gateways are used to connect two dissimilar LANs. A gateway is required to convert data packets from one protocol format to another before forwarding it, as it connects two dissimilar networks.

X.25 Standard Interface - X.25 is a protocol for interfacing to a Public Packet Switched Network. It is not a protocol used for implementing a network. Two system that support X.25 can't necessarily be connected back to back. They can only be connected through a DCE in a Public Packet switched Network.

Transmission Channel for WAN :   a) Radio Waves   b) Microwaves   c) Communication Satellites

Types of WAN :   a) Public Networks   b) Private Networks

Public Networks - Public Networks are those networks which are installed and run by the telecommunication authorities and are made available to any organization or individual who go for their subscription.

Private Networks - The basic technique used in all forms of private WAN is to use private circuits to link the location to be served by the network. Between these fixed points the owner of the network has complete freedom to use the circuits in any way they want. They can use the circuits to carry large quantities of data or for high speed transmissions. Private wide area networks can be built using whatever standard technology is available.

Network Topology

What is Network Topology?
Computer network topology is the way various components of a network (like nodes, links, peripherals, etc) are arranged. Network topologies define the layout, virtual shape or structure of network, not only physically but also logically. The way in which different systems and nodes are connected and communicate with each other is determined by topology of the network. **Topology can be physical or logical.** *Physical Topology* is the physical layout of nodes, workstations and cables in the network; while *logical topology* is the way information flows between different components.

Types of Physical Network Topologies

1 Bus Topology 2) Star Topology 3) Ring Topology 4) Mesh Topology 5) Tree Topology 6) Hybrid Topology
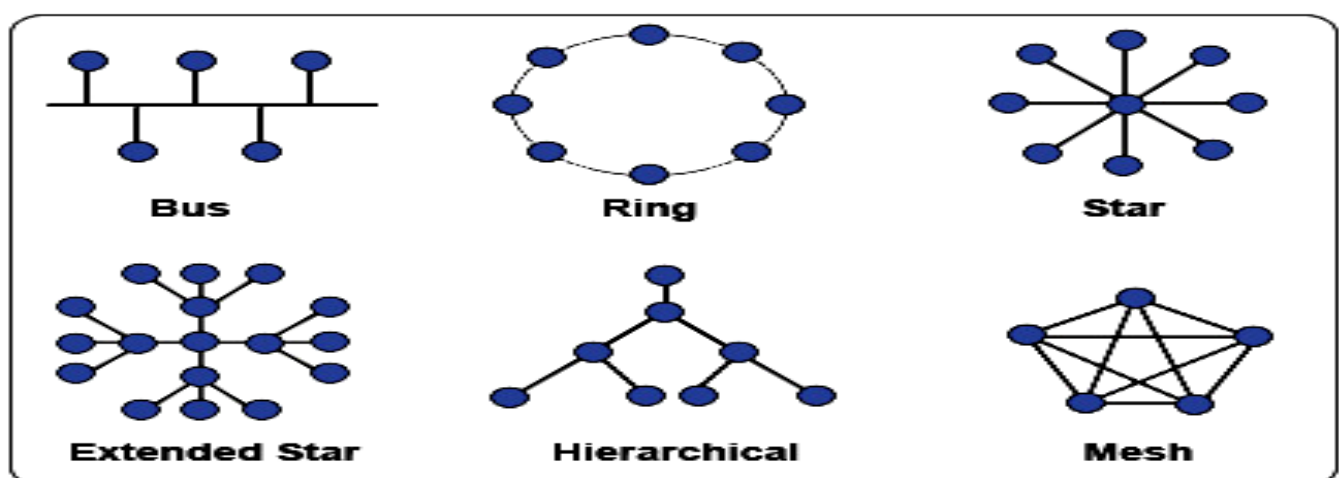
1. Ring : A ring network is a network topology in which each node connects to exactly two other nodes, forming a single continuous pathway for signals through each node - a ring. Data travel from node to node, with each node

along the way handling every packet. Because a ring topology provides only one pathway between any two nodes, ring networks may be disrupted by the failure of a single link.[1] A node failure or cable break might isolate every node attached to the ring.

2. Mesh : A network setup where each computer and network device is interconnected with one another, allowing for most transmissions to be distributed, even if one of the connections go down. This topology is not commonly used for most computer networks as it is difficult and expensive to have redundant connection to every computer. However, this topology is commonly used for wireless networks. Below is a visual example of a simple computer setup on a network using a mesh topology.

3. Bus: In local area networks where bus topology is used, each node is connected to a single cable. Each computer or server is connected to the single bus cable. A signal from the source travels in both directions to all machines connected on the bus cable until it finds the intended recipient. If the machine address does not match the intended address for the data, the machine ignores the data.

Linear bus : The type of network topology in which all of the nodes of the network are connected to a common transmission medium which has exactly two endpoints (this is the 'bus', which is also commonly referred to as the backbone, or trunk) – all data that is transmitted between nodes in the network is transmitted over this common transmission medium and is able to be received by all nodes in the network simultaneously.

Distributed bus : The type of network topology in which all of the nodes of the network are connected to a common transmission medium which has more than two endpoints that are created by adding branches to the main section of the transmission medium – the physical distributed bus topology functions in exactly the same fashion as the physical linear bus topology (i.e., all nodes share a common transmission medium).

4. Star : In local area networks with a star topology, each network host is connected to a central hub with a point-to-point connection. In Star topology every node (computer workstation or any other peripheral) is connected to central node called hub or switch. The switch is the server and the peripherals are the clients.

Extended star : A type of network topology in which a network that is based upon the physical star topology has one or more repeaters between the central node (the 'hub' of the star) and the peripheral or 'spoke' nodes, the repeaters being used to extend the maximum transmission distance of the point-to-point links between the central node and the peripheral nodes beyond that which is supported by the transmitter power of the central node or beyond that which is supported by the standard upon which the physical layer of the physical star network is based.

Distributed Star : A type of network topology that is composed of individual networks that are based upon the physical star topology connected in a linear fashion – i.e., 'daisy-chained' – with no central or top level connection point.

5. Tree : A network that is based upon the physical hierarchical topology must have at least three levels in the hierarchy of the tree, since a network with a central 'root' node and only one hierarchical level below it would exhibit the physical topology of a star.

6. Hybrid : Hybrid networks use a combination of any two or more topologies in such a way that the resulting network does not exhibit one of the standard topologies (e.g., bus, star, ring, etc.). For example a tree network connected to a tree network is still a tree network topology. A hybrid topology is always produced when two different basic network topologies are connected. Two common examples for Hybrid network are: *star ring network* and *star bus network*

Hub : In computer networking, a **hub** is a small, simple, inexpensive device that joins multiple computers together. Many network hubs available today support the Ethernet standard. Other types including USB hubs also exist, but Ethernet is the type traditionally used in home networking.

Router : Routers are small physical devices that join multiple networks together. Technically, a router is a Layer 3 gateway device, meaning that it connects two or more networks and that the router operates at the network layer of the OSI model.

Switch : A network switch is a small hardware device that joins multiple computers together within one local area network (LAN). Ethernet switch devices were commonly used on home networks before home routers became popular; broadband routers integrate Ethernet switches directly into the unit as one of their many functions. High-performance network switches are still widely used in corporate networks and data centers.

H T M L

Introduction :
Hyper Text Markup Language used mainly for creating Web Documents.

HYPER means that something which is active.

TEXT points to the text file you will be dealing with in HTML

MARKUP the contents of web pages.

LANGUAGE along with all its syntax (in HTML you can call them tags)

Origin :
It is an extended version of SGML (Standard Generalized Markup Language). SGML was initially used to create layouts for official documents by U.S. Department of Defence. The very first HTML document was designed by TIM BERNER LEE in 1990.

Application :
a) HTML is a language mainly used to create web documents.
b) HTML can also be used to display any document that is available on the web.
c) The web pages created by using HTML can have text, colors, and graphics.
d) The HTML elements markup the document and inform the browser that how the page should look like, when seen in the browser.
e) HTML provides tags, which makes the document look attractive.
f) HTML allows the creation of hyperlinks to other documents.
g) It is a platform independent language. Document written in HTML can be viewed on any computer that runs on any operating system by using a web browser.

Principles :
a) Your Web pages should be simple and well organized. the appearance of the web page should not confuse the user.
b) You should use proper color combination on your page.
c) The background and other textures should not distract the user instead the user should find your page interesting.
d) Always use appropriate backgrounds and images related to the text present on the web pages.
e) There must be proper space b/w the contents present on the web page.
f) The objects on the page should be well placed.
g) The size of object on the page must be appropriate.

Tools for Web Publishing:
a) A web page is created by using a text editor. The HTML files are plain ASCII text files having the extension .HTM or .HTML. One can use either Notepad or WordPad for creating a HTML document.
b) To view a HTML page, a web browser is also required. Generally Internet Explorer or Netscape Navigator is used to view the pages.

TAGS:
a) An HTML document consists of text along with the set of HTML elements, commonly known as tags.
b) The text conveys the data of a document and tags basically Markup the document.
c) The HTML elements are written inside the less than (<) and greater than (>) symbols.

Types of HTML Tags:
a) *Container* – It has a starting as well as ending tag. Ex. <HTML> --------------</HTML>
b) *Empty Tag* – An empty element does not have an ending tag. Ex -

Document Tags:
a) *HTML* – It is necessary for all HTML pages to have <HTML> tag which signifies the beginning of an HTML document and </HTML> indicates the end of the HTML elements.
b) *HEAD* – Tag is used to denote the heading of the web page. Identifies the properties of the entire page.
c) *TITLE* – Tag is used to give a title to the HTML document. It describe the contents of the page. It will appear on the title bar of the browser window.
d) *BODY* – Tag contains the contents of the web page. It is the area where most of the work is done. the contents are displayed in the browser window.

TALLY

What is Accounting?

Accounting refers to collection of financial data and recording therefore in a systematic, information and purposely manner so as to obtain any information as and when needed.

Definition:-

As per American Institute of Certified and Public Accountants(AICPA):-"Accounting is the art of recording, classify and summarizing in a significant and in term of money , transaction and events which are in part, at least of financial character and interpreting the result therefore.

As per American Accounting Association:- "Accounting is the process of identify, measuring and communicating economic information to permit informed judgment and decisions by user of accounts".

Purpose of Accounting: - Mainly accounting has a following purpose.Analysis of financial performance of business entity for particular period (determination of profit &loss of the particular period)

i)   Analysis of financial position of such business as on the last data of such period.

Accounting Process: - The process of accounting in voles the following steps

a)   Recording/journaling
b)   Classifying /ledger posting
c)   Calculating /ledger balance.
d)   Reporting /preparation of final account
e)

Accounting Terminology:-

Assets: - Assets are "things of value owned". It means property of all sorts of business in other means whatever it has to realize from debtors i.e. all resources of the business are its assets.

Liabilities: - it means amount which the firm owes to outsides, liabilities are debts, they are amounts owed to creditors .when a business purchase good on credit from xyz. The amount owing to xyz is a liability.

*Capital:-*the excess of assets over liabilities of the enterprise. It is the different between the total assets and the total liabilities.

Capital=Assets-liabilities

Expenses: - expenditure incurred by enterprise to earn revenue is termed as expenses or Cost

Loss:- The term is used to convey, at least, two different meaning. First it refers to the result of the business for the period when expenses exceed the revenue. Foe example, if the sale are Rs. 2000 and expense are of Rs. 25000, the loss will be 20000 – 25000 = 5000 (loss).

Proprietor/Owner: - A person who invests his money and bears all the risk connected with the business.

Drawing: - Money or value of goods belonging to business used by the proprietors for domestic or personal use.

Goods: - Includes all merchandise commodities, which are purchased by the business for selling.

Debtor: - Person who owes money to the business. It happens when goods are sold on credit.

Creditor: - Person to whom the business owes money. It happens when good material are purchased by the business on credit.

Gross Profit: - It is the difference between sales revenue or the proceed of the goods sold and or services rendered over its direct.

Net Profit: - It is the profit made after allowing for all expenses. Expenses are more than revenue so it is a loss.

Transaction: - Any exchange (dealing) of goods or services for cash or on credit by the business with any other business.

Events: - There are occasions, which cause change in the value due to time element.

Entry: - The record of a transaction or event in the book of account is known as entry.

Depreciation: - It is the fall in the book value which may or may not be equal to the value of the assets or cost price except in the first year of the life of the assets.

Inventory: - The term "Inventory" means trangible properly hold.

1.   For sale in the ordinary course of business.
2.   In the process of production for such sale
3.   For consumption in the production of goods or services hold for sale.

Discount:-

Trade discount:-it is the amount of discount allowed as a trade policy of the business and not to be considered in account.

Cash discount:- it is the amount allowed for prompt collection of cash, which must be considered in account.
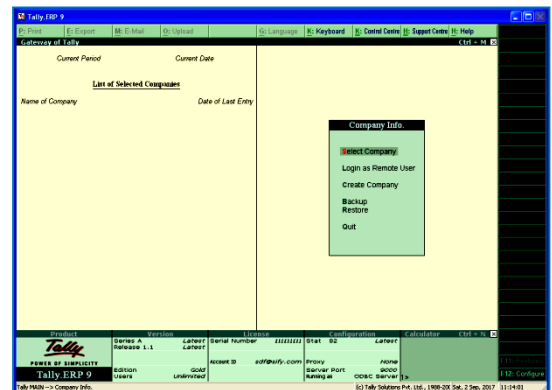
Trade discount	Cash discount
It is allowed on a certain quantity being purchased	It is allowed on payment being made on certain data.
Trade discount is not recorded in the ledger account	A ledger account has to be maintain for cash discount in the ledger.
The amount of the trade discount is deducted from the invoice.	It is deducted from the invoice.

Accounting Records:-

Voucher: - Voucher are the foundation of all accounting record. They furnish detailed information about business transaction.

Purchase:- it is an account in which all transaction related to purchase of goods & service are stored.

Sales account:- it is an account in which all transaction related to sales of goods & service are entered.

Some common Document are:-

Cash memo: - it provides details regarding cash transaction.

Invoice or Bill:- sales invoice is prepaid to record the details of credit sales.

Receipts:- it is issued as a proof for receiving cash.

Cheque:- A document in writing drawn upon a specified banks and payable on demand.

Debit & credit notes:- debit note is a document evidencing a debit to be raised against a party . Credit note is made out when a party is to be given credit except against the already from it.

Trading account:- The trading account also shows any items of expenditure which can properly

be allocated to expenses connected with the purchase, manufacture or storage of goods.

Classification of expenses:-

1)   Direct expenses:- it refers to the item of the expenses, which can be identifier with each individual unit of production. It refer of the expenses directly related to the purchase cost there of again e.g. Wages, carriage in ward , factory salary etc.

2)   Indirect expenses:- it is refers to the item of expenses that cannot be classified as direct expenses e.g. Salaries, rent, stationary etc.

Classification of incomes:-

1)   Operating: - Income accruing to an organization in the normal course of the business e.g. Sales of goods.

2)   Non operating:- Income other than operating income accruing to an organized e.g. rent received, interest on securities etc…

Classification of assets:-

1)   Fixed assets:- these are the assets, which are acquired for the purpose of establishment of the business enterprise and acquired for relatively long period for carrying on the business e.g. Goodwill, plant, machine.

2)   Current assets:-Those assets, which are continuously circulated in the business to meet the day to day requirement e.g. cash, debtors, bank etc….

Classification of liabilities:-

1)   Long term liabilities:- Which have long period payment e.g. share capital, debenture, long term loan etc….

2)   Current liabilities:- It is refer to the liabilities to be meet immediately within a short period e.g. sundry creditors, outstanding wages etc…

System of accounting:-

Double entry system:- The double entry system merely recognizes and it records both the aspects from the view points of each party thus each and every transaction in the book in such a manner so that both the aspect can be.

Single entry system:- Incompletes recording of business transaction goes by the name single entry this is no a separate system in itself.

Accounting Equation:- Every transaction should have two- side effect to the extent of same document this concept has resulted in accounting equation.

Assets= liabilities+ capital

Particular	Balance	To increase	To decrease
Assets	Debit(Dr)	Debit(Dr)	Credit(Cr)
Expenses	-do-	-do-	-do-
Liabilities	Credit(Cr)	Credit(Cr)	Debit(Dr)
Income	-do-	-do-	-do-

What is Account ?

Simply stated , an account is a record in ledger (Which is a collection or accounts in a book) of business transaction related to a particular person or item.

Goods may classified as follows:-
1)   Trading revenue goods
2)   Capital goods

Trading revenue goods :-
1)   Purchase:- when purchase
2)   Sales :- When sales
3)   Purchase return /Return outward:- When return to supplier
4)   Sales return

Capital goods:- The name class of the goods are mentioned in the accounts.

Rules of A/c:-
1)   Personal: -   it includes the accounts of person.
2)   Real A/c:-   Account that can be expressed in monitory item.
3)   Nominal: - These accounts are opened in the book to simply explain the nature of the transaction. They do not really exist.
1)   Personal: -   Debit is receiver.
   Credit is giver.
2)   Real :-   Debit what comes in
   Credit what goes out
3)   Nominal: -   Debit all expenses and losses.
   Credit all incomes and gains.

The following is the table that show that same prefix or suffix is added to a nominal account it become a personal account

Nominal	Personal A/c
Salary Account	Outstanding salary, Prepaid salary
Rent	Outstanding rent, Prepaid rent
Interest	Outstanding interest, Prepaid interest
Commission	Outstanding commission, Prepaid commission

Journalizing Procedure:- Each entry in the journal normally contains the following six parts.
1)   Date
2)   Title of account to debited
3)   Debit amounts
4)   Titles of account to be credited
5)   Credit Amount

Date	Particular	L.f	Amount (Dr)	Amount (Cr)

Ledger:- The general ledger is a collection of the firm accounts while the general journal is organized as a chronological record of transaction.

Title of the account
Dr-   Cr-

Date	Particular	J.f	Amount	Date	Particular	J.f	Amount

Preparing Trial balance:- Trial balance is not an account it is only a list of scheduler of balance of ledger account includes cash and bank balance. it is prepared in a particular date. Trial balance is prepared general journal sheet with two amount columns for debit and credit balances. The debits column and credit column be equal the stander format of a trial balance is given below.

Particular	L.f	Amount(Dr)	Amount(Cr)

Preparing Profit & loss:- The section of accounts shown how a company has performed over a certain period of time. This is usually between two balance sheet and it record the expenditure and total income for that period
Profit & loss account.
From ……. To……..

Particular	Amount	Particular	Amount

Preparing Balance sheet:- The balance sheet provides a statement of a business's financial position at a given points in time .

Balance sheet
As on_____

Liabilities	Amount	Assets	Amount

Adjustment:-
1)   Outstanding
2)   Prepaid
3)   Accured
4)   Unaccured
5)   Depreciation
6)   Appreciation
7)   Discount to debtors
8)   Discount from creditor
9)   Bad debts
10)   Interest on drawing
11)   Interest on capital
12)   Loss by fire/accident/thief
13)   Insurance claim
14)   Manager commission
15)   Provision for debtors

a)   *Outstanding* :- (Current liabilities) Cr.
Expenses (any) A/c   DR
 To outstanding
               Shown on:-
1)   Trading A/c or Profit and Loss A/c
2)   Balance sheet

b)   Prepaid :- (Current Assets)
(Prepaid)   A/C   Dr
         To (Exp)

DESKTOP PUBLISHING

INTRODUCTION

DTP is used to produce a high quality printed output or camera-ready output for commercial printing by using a personal computer (PC). It needs a desktop publishing program, high speed personal computer, large monitor and a laser printer.

AN INTRODUCTION TO COMPUTER GRAPHICS

INTRODUCTION

Computers have become a powerful tool for the rapid and economical production of pictures. Today we find computer graphics used routinely in such diverse areas as business, industry, government, art, entertainment, advertising, education, research, training and medicine.

APPLICATIONS OF COMPUTER GRAPHICS

Computer-Aided Design (CAD) - CAD which provides powerful tools. Part design and drafting is done interactively, producing outlines or more realistic renderings. When an object's dimensions have been specified to the computer system, designers can view any side of the object to see how it will look after construction.

Graphics, Charts and Models - A number of commercially available graphics programs are designed specifically for the generation of graphs and charts. Often a graph plotting program will have the capability of generating a variety of graph types such as bar charts, line graphs, surface graphs or pie-charts. Many programs are capable of summarizing data in other two dimensional or three dimensional forms. Graphs and Charts are typically used to summarize financial, statistical, mathematical, scientific, or economic data and several graphs are often combined in one presentation.

Computer Art - Computer generated art is widely used in commercial applications. Logos and advertising designs for T.V. messages are now commonly produced with graphics systems. Graphics programs has been developed for application in publishing and word processing, which allow graphics and text editing to be combined.

Computer Animation - A frame represents one frame of an animation sequence. The frame are drawn on the screen with such a speed that it appears to be moving which is known as animation. Each frame is drawn with a graphics system and recorded on film, with slight changes in the positions of objects from one frame to the next. When the frames are displayed in rapid succession, we have an animated movie sequence. Animation methods are used in education, training and research applications.

Graphical User Interface - Input options to many computer program are designed as a set of icons, which are graphic symbols that look like the processing options they are meant to represent. Users of such programs select processing options by pointing to the appropriate icon.

Graphics for Home Use - Some systems display graphics on built in screen, but many are designed to be attached to a T.V. set. With the increasing popularity of personal computers and the ever increasing graphics capabilities of these systems, graphics applications in the home have been steadily expanding.

Image Processing - The graphic technique used for producing visual displays from photographs or T.V. scans is called image processing. Although computers are used with these displays, image processing methods differ from conventional computer graphics methods. In traditional computer graphics a computer is used to create the picture.

GRAPHICS SOFTWARE

Programming commands for displaying and manipulating graphics are designed as extension to the existing languages. Basic functions available in a package designed for the graphics programmer include those for generating picture components like straight line, polygons, circles, setting color intensity, and selected views.

DESKTOP PUBLISHING SOFTWARES

Main constituents of DTP suit are: a) Photoshop b) Corel Draw c) PageMaker d) Photo Paint

PHOTOSHOP: Photoshop is software for image processing. With this you can manipulate your picture; either scanned or otherwise inserted, to such an extent that you would sometimes forget which picture you started off with. But, this is not the only purpose of the software, you can use it create better looking pictures and art works with text and other graphics to beat any other similar software in the market.

COREL DRAW: Corel Draw is a complete set of tools for creating many kinds of drawing and multi page documents from birthday cards, logos, brochures and newsletters to garden design and World Wide Web Pages. Corel Draw has incredible power and loads of features, all incorporated into a sophisticated interface and yet the program is still easy to use.

PAGEMAKER : It is very useful for longer document type of jobs like books, magazines, brochure, annual reports, etc. PageMaker is essentially a text oriented software with graphics thrown in here and there. It is not that it is not capable of handling graphics but it does not do it with ease as other software do.

PHOTOPAINT: Corel PHOTO-PAINT is a complete image-editing application that lets you retouch and enhance photos. Whether you're correcting red-eye or exposure problems, cutting out image areas, or creating and publishing images for the Web, Corel PHOTO-PAINT gives you powerful tools that are fast and easy to use.

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COMPUTER VIRUSES

INTRODUCTION

A virus is a program that in one or another way interrupts the normal working of your computer. Viruses work by copying themselves into files called hosts. From there they often branch out replicating themselves in more and more files on the disk. While some viruses infect almost every file in sight, others are picky. Some viruses only infect application programs other infect data files and still others invade the operating system itself. The level of destructiveness among viruses varies widely from one program to the next. Some viruses simply display pictures or message on the screen periodically while other erase or destroy both programs and data. Viruses are usually picked via disk. If you buy or are given a disk that already has the virus on it.

TYPES OF VIRUSES AND THEIR CHARACTERISTICS

1. ***Boot Sector Virus :-*** The boot sector is the portion of a hard disk that controls how your operating system starts when you turn ON your computer. A boot sector virus replaces the disk original boot sector with its own and loads the virus in memory. Once in memory the virus can spread to other disks.

2. ***File Infector :-*** A file infector virus adds virus code to files that run programs. So the virus is activated whenever you run the program. When the virus is activated it spreads to other program files.

3. ***Trojan Horse :-*** A Trojan Horse virus is disguised as a legitimate program. When you run a program infected with a Trojan Horse virus your computer may be damaged. These viruses are much more likely to destroy files or damage disks than other viruses files or disks.

HOW TO PROTECT YOUR COMPUTER FROM VIRUSES

1. ***Backup Data Regularly :-*** You must take backup regularly and do not discard or overwrite all of your old backups.

2. ***Write-Protect Floppies when ever Possible :-*** Since virus cannot infect write-protected disks. You should write protect any disk that you do not need copy files to. In particular always write-protect your original copies of program disks before you insert them into your computer.

3. ***Use Anti-Virus Programs :-*** Some programs only detect and eliminate viruses on command while others are what is known as "terminate-and-stay-resident" programs or TSR'S. which means that they remain in memory through out your work session by automatically hunting down viruses from every disk you insert into your computer.

SCANNING FOR VIRUSES

At best, anti-virus programs can prevent or repair damage caused by already known viruses. These protect your computer from viruses by scanning your computer's memory and disk drives. Anti Virus offers the following methods of detecting computer viruses :-

1. ***Detect :-*** It scans for virus and displays information about each virus it finds. This method does not automatically remove viruses from your computer.

2. ***Detect and Clean :-*** It scans for viruses and removes any that it finds. When you start anti-virus, it reads file information on the drive used to start the program. If you want to search for viruses on different drive. You must select the drive before scanning for viruses.

VIRUS PROTECTION FIGHTING DIAGNOSTIC TOOLS

a) MSAV	b) VSAFE	c) QUICK HEAIL
d) NORTAN	e) PC-CLIN	f) SD-SCAN

'C' LANGUAGE

Introduction :
'C' Programming language is very easy and get very powerful computer programming language. It is very easy because it is very small and its structured.

Structured Programming :
An important aspect of program, a part from its ability to solve the problem. One way to bring some discipline into programming practices is structured programming.

Some Advantage of Structured Programming :
A structure program is documented with comment of the programmer, so that any other reader may easily understand the program.

Basic component of structure Programming:
There are 3 widely used structured programming constructs: A) Sequence B) Selection   C) Repetition

A) Sequence: - Sequence structure consists of an action followed by another and so on till the desired result is obtained.

> Statement 1…………
> Statement 2………… n

B) Selection: - The selection structure consists of a test for a condition followed by two alternate path for program to follow.

C) Iteration: - In most case, program requires that a group of consecutive instruction be executed.

> Do-while   While-do   For -next

History of C language
By the fifties, there were many language developed. How ever none of general purpose.

In 1960 : **ALGOL-60** this language could not become popular because it was too general and highly abstract.

In 1963 : A new language was developed **CPL** (combine programming language) at Cambridge university. It was reducing the drawbacks of ALGOL-60.

In 1967 : Martin Richards at Cambridge university it developed BCPL (Basic combine programming language) very soon it was realized that BCPL was too specific and much too less powerful.

In 1972 : Ritchie at AT&T and developed c language.

Advantage
There are several feature which makes c a very suitable language for writing system. There are as follows:
   a) C is a machine independent and highly portable language.
   b) It is easy to learn as it has only as few as 32 keywords.
   c) Users can create their own function and add them to the C library to perform a variety of tasks.

Component of c language
a) Character set   b) Data type   c) Constants   d) Variable   e)Keywords   f) Grammar

a) Character set : - Letter a to z
> Digits 0 - 9
> Special symbol { }^%#@!&*()
> White space(space)

b) Data type : - There are two type of data type
> 1) Primary data type   2) Composite data

Primary Data : void, char, int, float, double

Composite Data : Array, Pointer, Structure, Union, Etc.

c) Constants : - There are 5 type of constants
> 1) Character   2) Integer   3) Real   4) String   5) Logical

d) Variable : - int name, age

Data Type :
a) char : Store a single character belonging to the defined character set of 'c' language.

b) int : Store signed integer eg. Positive or negative integers.

c) float : Store real number with single precision (precision of six digits after decimal point)

d) double : Store real number with double precision twice the storage space required by float.

e) void : Specify no value.

The following table shows the meaning and storage space required by various primary data type.

Data Type	Meaning	Storage Space	Format	Range of Value
char	A character	1 Byte	%c	ASCII character set
int	An integer	2 Byte	%d or %i	-32768 to +32767
float	A single precision floating point number	4 Byte	%f	-3.4×10^{38} to $+3.4 \times 10^{38}$
double	A double precision floating point number	8 Bytes	%lf	-1.7×10^{308} to $+1.7 \times 10^{308}$
void	Value less or empty	0 Bytes		

Structure of a 'C' program :

i.   **Statement :** Single C language instruction delimited by semi – colon is called a statement.
ii. **Function :** Every C program is structured as an assembly of one or more distinct units called functions. Each function is a group of a set of valid C statements and is designed to perform a specific task. The statement with in the function are always enclosed within a pair of braces { }. Every C program must necessarily contain a special function named main(). It is a very important part of C language without main any statement will be not executed.

```
Main()
{
…………………….. ;
…………………….. ;
…………………….. ;
}
```

iii. **Header flies :** C provide different types of function for input& output, file handing, string manipulation etc. These function are store in different function files which are called function libraries. We also called then header files because programmer must declare the appropriate header files at the top of program. The extension of header files is **.h**

      A) Stdio.h ->   input/output function
      B) Conio.h ->   O.s interactive fun.
      C) Math.h ->   Math func.
      D) String.h->   String fun.
      E) Process.h-> Process handling fun

iv. **Operators:** An operators is a symbol that tells the computer to perform certain mathematical or logical on data stored in variable. C operator can be classified in to number of categories, they include :-

    1) Arithmetical operators
    2) Relational operators
    3) Logical operators
    4) Assignment operators
    5) Increment and decrement operators
    6) Conditional operators
    7) Bitwise operators
    8) Special operators

Arithmetical operator: (+) addition (-) subtraction (*) multiplication (/) division (%)reminder for integer.
Relational operator: ==   !=   <   <=   >=   >
Logical operator: - && || !
Assignment operator: =
Increment and decrement: ++   --
Conditional operators: ?:
Bitwise operators :   ~   & | ^   <<   >>
Special or Other Operators: ,   sizeof