COMPUTERS APPLICATIONS IN MANAGEMENT

Q.1)what is a computer?explain its Architecture and characteristics of computer?

A computer is an electronic device that accepts data, processes data, generates output, and stores data. The concept of generating output information from the input data is also referred to as *input-process-output* concept.

The input-process-output concept of the computer is explained as follows—

Input The computer accepts input data from the user via an input device like keyboard. The input data can be characters, word, text, sound, images, document, etc.

Process The computer processes the input data. For this, it performs some actions on the data by using the instructions or program given by the user of the data. The action could be an arithmetic or logic calculation, editing, modifying a document, etc. During processing, the data, instructions and the output are stored temporarily in the computer's main memory.

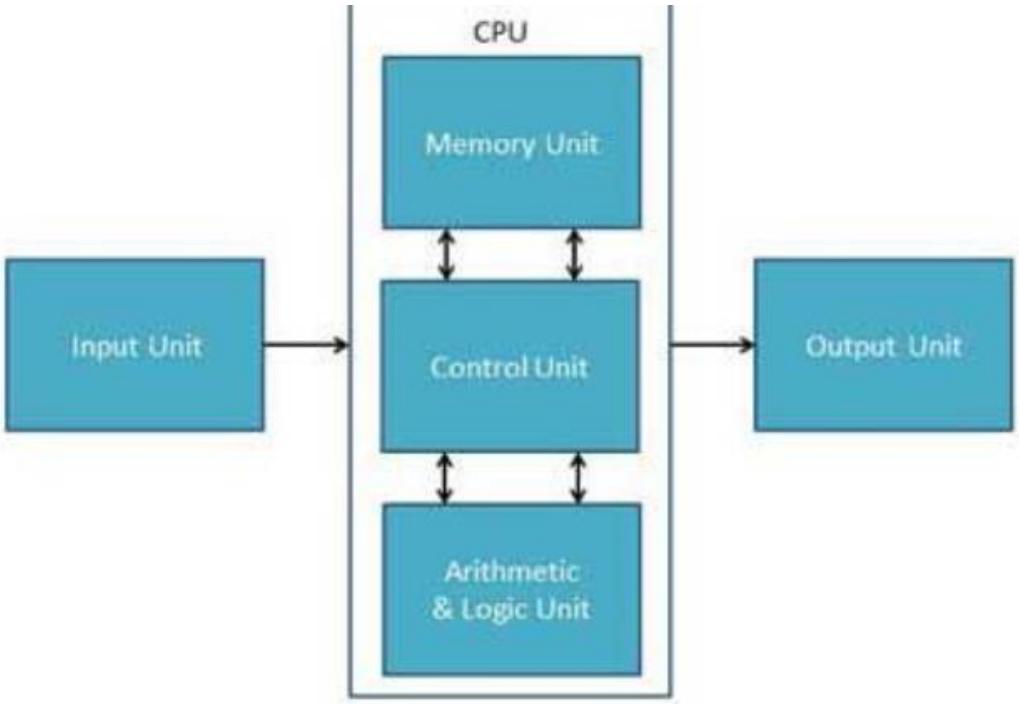
Output The output is the result generated after the processing of data. The output may be in the form of text, sound, image, document, etc. The computer may display the output on a monitor, send output to the printer for printing, play the output, etc.

Storage The input data, instructions and output are stored permanently in the secondary storage devices like disk or tape. The stored data can be retrieved later, whenever needed.

Components of Computer :

The computer system hardware comprises of three main components —Input/Output (I/O) Unit, Central Processing Unit (CPU), and Memory Unit.

The I/O unit consists of the input unit and the output unit. CPU performs calculations and processing on the input data, to generate the output. The memory unit is used to store the data, the instructions and the output information illustrates the typical interaction among the different components of the computer.



Input/Output Unit:The user interacts with the computer via the I/O unit. The Input unit accepts data from the user and the Output unit provides the processed data i.e. the information to the user. The Input unit converts the data that it accepts from the user, into a form that is understandable by the computer. Similarly, the Output unit provides the output in a form that is understandable by the user. The input is provided to the computer using input devices like keyboard, trackball and mouse. Some of the commonly used output devices are monitor and printer.

***Central Processing Unit*:** CPU controls, coordinates and supervises the operations of the computer. It is responsible for processing of the input data. CPU consists of Arithmetic Logic Unit (ALU) and Control Unit (CU).

ALU performs all the arithmetic and logic operations on the input data.

CU controls the overall operations of the computer i.e. it checks the sequence of execution of instructions, and, controls and coordinates the overall functioning of the units of computer.

Additionally, CPU also has a set of *registers* for temporary storage of data, instructions, addresses and intermediate results of calculation.

MemoryUnit :Memory unit stores the data, instructions, intermediate results and output, *temporarily*, during the processing of data. This memory is also called the *main memory or primary memory* of the computer. The input data that is to be processed is brought into the main memory before processing. The instructions required for processing of data and any intermediate results are also stored in the main memory. The output is stored in memory before being transferred to the output

device. CPU can work with the information stored in the main memory. Another kind of storage unit is also referred to as the *secondary memory* of the computer. The data, the programs and the output are stored *permanently* in the storage unit of the computer. Magnetic disks, optical disks and magnetic tapes are examples of secondary memory.

Characteristics of Computer:

Speed, accuracy, diligence, storage capability and versatility are some of the key characteristics of a computer. A brief overview of these characteristics are—

Speed The computer can process data very fast, at the rate of millions of instructions per second. Some calculations that would have taken hours and days to complete otherwise, can be completed in a few seconds using the computer. For example, calculation and generation of salary slips of thousands of employees of an organization, weather forecasting that requires analysis of a large amount of data related to temperature, pressure and humidity of various places, etc.

Accuracy Computer provides a high degree of accuracy. For example, the computer can accurately give the result of division of any two numbers up to 10 decimal places.

Diligence When used for a longer period of time, the computer does not get tired or fatigued. It can perform long and complex calculations with the same speed and accuracy from the start till the end.

Storage Capability Large volumes of data and information can be stored in the computer and also retrieved whenever required. A limited amount of data can be stored, temporarily, in the primary memory. Secondary storage devices like floppy disk and compact disk can store a large amount of data permanently.

Versatility Computer is versatile in nature. It can perform different types of tasks with the same ease. At one moment you can use the computer to prepare a letter document and in the next moment you may play music or print a document.

Q.2)Explain about classification of computers?

Computers can be classified on the basis of purpose and their size.

Based on Applications they are divided into three

1. Digital Computers

2.Analog Computers.

3.Hybrid Computers

Digital Computers:

These are the computers which are used to compute the numerical values.The digits like 0-9. Most of computers that we use in offices ,colleges,institutes are all this category.they are some special purposes digital computers that are designed to perform specific task.

Analog Computers:

Analog Computers are. computers which measures physical quantities such as pressure, length,temperature etc and convert them into numerical values.For Ex: A thermometer does not perform any calculations but measures the temperature of the body of comparing the relative expansion of mercury.They are used mainly for scientific and engineering purpose. because they deal with quantities that vary constantly. They give only approximate results.

Hybrid Computers:

A hybrid computer is nothing but a machine which has the features of both anolog and digital computers. This type of computers are mainly used in hospitals and satellite centers.for example anolog computer scan measure a patients vital sign like measure a patients temperature heart functions.there are thus connected to digital computers that moniter the patients vital signs.

Based on the size four types:

1. Micro computer
2. Mini computet
3. Mainframe computer
4. Super computer

Micro computer: The micro computer is the smallest type of computer available.Inside a microcomputer,all the C.P.U components(arithmetic unit,control units and memory unit are combined on a single chip called microprocessor chip ,which is the main component of a computer,was invented in 1969.since the technology has progressed rapidly these microprocessor are used in fourth generation.

Minicomputer: The first mini computer is PDP-8.These computers are more powerful than the microcomputers and can support several users.They have larger RAM and backing storage capacity.And they can process data more quickly.they are basically designed For control purpose.Medium-sized organizations may use it for applications like processing of payrolls and financial accounts,handling sales analysis,costing and production planning etc.

Mainframe computers:

Mainframes are very large storage capacity computers and processing speed is very high Because they can process large amount of data quickly,There are organizations such as Banks and insurance companies,process large number of transactions on-line.the processing power needed for such computers is several million transactions per second.These computers are much bigger in size and more expensive.These types of computers called main frame computers.

some examples of mainframe computers are IBM 4318,IBMES 2000 etc..

Super computers:

Super computers have got more processing capacity and they are very large in size. They are mainly used in research areas.They are more expensive than all other types of computers.Complex scientific applications like weather, forecasting require a large amount of data to be manipulated within very short time.The examples of super computers are PAV AM - 1000, CR AY - XMP, NEC - 500.

Q.3)Explain History or Generations of computer?

Generations of Computer:The computer has evolved from a large-sized simple calculating machine to a smaller but much more powerful machine. The evolution of computer to the current state is defined in terms of the generations of computer. Each generation of computer is designed based on a new technological development, resulting in better, cheaper and smaller computers that are more powerful, faster and efficient than their predecessors. Currently, there are five generations of computer.

First Generation:

The period of first generation was 1946-1959. First generation of computer started with using vacuum tubes as the basic components for memory and circuitry for CPU(Central Processing Unit). These tubes like electric bulbs produced a lot of heat and were prone to frequent fusing of the installations, therefore, were very expensive and could be afforded only by very large organisations.

In this generation mainly batch processing operating system were used. In this generation Punched cards, Paper tape, Magnetic tape Input & Output device were used. There were Machine code and electric wired board languages used.

The main features of First Generation are:

- Vacuum tube technology
- Supported Machine language only

 Very costly

 Generate lot of heat

 Slow Input/Output device

 Huge size ,Need of A.C.

 Consumed lot of electricity

Some computer of this generation were:

 ENIAC, EDVAC, UNIVAC, IBM-701, IBM-650.

Second Generation :

The period of second generation was 1959-1965. This generation using the transistor were cheaper, consumed less power, more compact in size, more reliable and faster than the first generation machines made of vaccum tubes.In this generation, magnetic cores were used as primary memory and magnetic tape and magnetic disks as secondary storage devices. In this generation assembly language and high level programming language like FORTRAN, COBOL were used. There were Batch processing and Multiprogramming Operating system used.

The main features of Second Generation are:

 Use of transistors

 Reliable as compared to First generation computers

 Smaller size as compared to First generation computers

 Generate less heat as compared to First generation computers

 Consumed less electricity as compared to First generation computers

 Still very costly ,A.C. needed

 Support machine and assmebly languages

Some computer of this generation were:

 IBM 1620

 CDC 3600

 UNIVAC 1108

Third Generation :

The period of third generation was 1965-1971. The third generation of computer is marked by the use of Integrated Circuits (IC's) in place of transistors.A single I.C has many transistors, resistors and capacitors along with the associated circuitry.The I.C was invented by Jack Kilby. This development made computers smaller in size, reliable and efficient. In this generation Remote processing, Time-sharing, Real-time, Multi-programming Operating System were used. High level language (FORTRAN-II TO IV, COBOL, PASCAL PL/1, BASIC, ALGOL-68 etc.) were used during this generation.

The main features of Third Generation are:

 IC used and More reliable

 Smaller size

 Generate less heat,Faster

 Lesser maintenance,Still costly

 A.C needed, Consumed lesser electricity

 Support high level language

Some computer of this generation were:

 IBM-360 series

 Honeywell-6000 series

 PDP(Personal Data Processor)

 IBM-370/168

Fourth Generation :

The period of Fourth Generation was 1971-1980. The fourth generation of computers is marked by the use of Very Large Scale Integrated (VLSI) circuits.VLSI circuits having about 5000 transistors and other circuit elements and their associated circuits on a single chip made it possible to have microcomputers of fourth generation. Fourth Generation computers became more powerful, compact, reliable, and affordable. As a result, it gave rise to personal computer (PC) revolution. In this generation Time sharing, Real time, Networks, Distributed Operating System were used. All the Higher level languages like C and C++, DBASE etc. were used in this generation.

The main features of Fourth Generation are:

- VLSI technology used
- Very cheap
- Portable and reliable
- Very small size ,No A.C. needed
- Concept of internet was introduced.

Some computer of this generation were:

STAR 1000,PDP 11 ,CRAY-1(Super Computer) , CRAY-X-MP(Super Computer)

Fifth Generation :

The period of Fifth Generation is 1980-till date. In the fifth generation, the VLSI technology became ULSI (Ultra Large Scale Integration) technology, resulting in the production of microprocessor chips having ten million electronic components. This generation is based on parallel processing hardware and AI (Artificial Intelligence) software. AI is an emerging branch in computer science, which interprets means and method of making computers think like human beings. All the Higher level languages like C and C++, Java, .Net etc. are used in this generation. AI includes:

- Robotics
- Neural networks
- Game Playing
- Development of expert systems to make decisions in real life situations.
- Natural language understanding and generation.

The main features of Fifth Generation are:

- ULSI technology
- Development of true artificial intelligence
- Development of Natural language processing
- More user friendly interfaces with multimedia features
- Availability of very powerful and compact computers at cheaper rates

Some computer types of this generation are:

- Desktop
- Laptop
- NoteBook
- UltraBook
- ChromeBook

Q.4)Explain various input and output devices?

Input and Output Devices are responsible for reading data from user and giving final result to the user. A computer is useful only when it is able to communicate with the external environment through the I/O devices.These devices provide the means of communication between the computer and the outside world. These Devices are also called as "peripheral devices. The overall efficiency of a computer is highly depend upon these peripheral device.

Following are few of the important input devices which are used in Computer Systems

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader

Keyboard: Most common and very popular input device is keyboard. The keyboard helps in inputting the data to the computer.The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing some additional functions. Keyboard are of two sizes 84 keys or 101/102 keys, but now 104 keys or 108 keys keyboard is also available for Windows and Internet.

The keys are following

Sr. No.	Keys	Description
1	Typing Keys	These keys include the letter keys (A-Z) and digits keys (0-9) which are generally give same layout as that of typewriters.
2	Numeric Keypad	It is used to enter numeric data or cursor movement. Generally, it consists of a set of 17 keys that are laid out in the same configuration used by most adding machine and calculators.
3	Function Keys	The twelve functions keys are present on the keyboard. These are arranged in a row along the top of the keyboard.Each function key has unique meaning and is used for some specific purpose.
4	Control keys	These keys provides cursor and screen control. It includes four directional arrow key.Control keys also include Home, End,Insert, Delete, Page Up, Page Down, Control(Ctrl), Alternate(Alt), Escape(Esc).
5	Special Purpose Keys	Keyboard also contains some special purpose keys such as Enter, Shift, Caps Lock, Num Lock, Space bar, Tab, and Print Screen.

Mouse: Mouse is most popular Pointing device. It is a very famous cursor-control device. It is a small palm size box with a round ball at its base which senses the movement of mouse and sends corresponding signals to CPU on pressing the buttons. Generally it has two buttons called left and right button and scroll bar is present at the mid. Mouse can be used to control the position of cursor on screen, but it cannot be used to enter text into the computer.

Joystick: Joystick is also a pointing device which is used to move cursor position on a monitor screen It is a stick having a spherical ball at its both lower and upper ends. The lower spherical ball moves in a socket.TheJoystic can be moved in all four directions. The function of joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing(CAD) and playing computer games.

Light Pen: Light pen is a pointing device which is similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen.It consists of a photocell and an optical system placed in a small tube. When light pen's tip is moved over the monitor screen and pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.

Track Ball: Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball which is half inserted and by moving fingers on ball, pointer can be moved. Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button and a square.

Scanner: Scanner is an input device which works more like a photocopy machine. It is used when some information is available on a paper and it is to be transferred to the hard disc of the computer for further manipulation. Scanner captures images from the source which are then converted into the digital form that can be stored on the disc.These images can be edited before they are printed.

Magnetic Ink Card Reader(MICR): MICR input device is generally used in banks because of a large number of cheques to be processed every day. The bank's code number and cheque number are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable. This reading process is called Magnetic Ink Character Recognition(MICR). The main advantages of MICR is that it is fast and less error prone.

Optical Character Reader(OCR): OCR is an input device used to read a printed text. OCR scans text optically character by character, converts them into a machine readable code and stores the text on the system memory.

Bar Code Readers: Bar Code Reader is a device used for reading bar coded data (data in form of light and dark lines). Bar coded data is generally used in labelling goods, numbering the books etc. It may be a hand held scanner or may be embedded in a stationary scanner. Bar Code Reader scans a bar code image, converts it into an alphanumeric value which is then fed to the computer to which bar code reader is connected.

Optical Mark Reader(OMR): OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked. It is specially used for checking the answer sheets of examinations having multiple choice questions.

Output Devices:

Following are few of the important output devices which are used in Computer Systems

- Monitors
- Graphic Plotter
- Printer

Monitors: Monitor commonly called as Visual Display Unit (VDU) is the main output device of a computer. It forms images from tiny dots, called pixels, that are arranged in a rectangular form.

The sharpness of the image depends upon the no. of the pixels. There are two kinds of viewing screen used for monitors.

- Cathode-Ray Tube (CRT)
- Flat- Panel Display

Cathode-Ray Tube (CRT) Monitor :In the CRT display is made up of small picture elements called pixels for short.The smaller the pixels, the better the image clarity, or resolution.It takes more than one illuminated pixel to form whole character, such as the letter e in the word help. A finite number of character can be displayed on a screen at once.The screen can be divided into a series of character boxes - fixed location on the screen where a standard character can be placed. The most screens are capable of displaying 80 characters of data horizontally and 25 lines vertically. There are some disadvantage of CRT

- Large in Size
- High Power consumption

Flat-Panel Display Monitor: The flat-panel display refers to a class of video devices that have reduced volume, weight and power requirement compare to the CRT. You can hang them on walls or wear them on your wrists. Current uses for flat-panel displays include calculators, videogames, monitors, laptop computer, graphics display. The flat-panel display are divided into two categories

- Emissive Displays - The emissive displays are devices that convert electrical energy into light. Example are plasma panel and LED(Light-Emitting Diodes).
- Non-Emissive Displays - The Non-emissive displays use optical effects to convert sunlight or light from some other source into graphics patterns.Example is LCD(Liquid-Crystal Device)

Printers: Printer is the most important output device, which is used to print information on paper. There are two types of printers

- Impact Printers
- Non-Impact Printers

Impact Printers: The printers that print the characters by striking against the ribbon and onto the paper, are called impact printers. Characteristics of Impact Printers are following

- Very low consumable costs
- Impact printers are very noisy
- Useful for bulk printing due to low cost.There is physical contact with the paper to produce an image

These printers are of two types

- Character printers
- Line printers

Character Printers: Character Printers are printers which print one character at a time. These are of further two types

- Dot Matrix Printer(DMP)
- Daisy Wheel

Dot Matrix Printer: In the market one of the most popular printer is Dot Matrix Printer because of their ease of printing features and economical price. Each character printed is in form of pattern of Dot's and head consists of a Matrix of Pins of size(5*7, 7*9, 9*7 or 9*9) which comes out to form a character that is why it is called Dot Matrix Printer

Advantages: Inexpensive,Widely Used,Other language characters can be printed

Disadvantages: Slow Speed ,Poor Quality

Daisy Wheel: Head is lying on a wheel and Pins corresponding to characters are like petals of Daisy(flower name) that is why it is called Daisy Wheel Printer. These printers are generally used for word-processing in offices which require a few letters to be send here and there with very nice quality representation**.**

Advantages: More reliable than DMP's, Better quality ,The fonts of character can be easily changed.
Disadvantages: Slower than DMP's, Noisy ,More expensive than DMP's

Line Printers: Line printers are printers which print one line at a time.

Non-impact Printers:The printers that print the characters without striking against the ribbon and onto the paper, are called Non-impact Printers. These printers print a complete page at a time, also called as Page Printers. These printers are of two types

- Laser Printers
- Inkjet Printers

Characteristics of Non-impact Printers

- Faster than impact printers.
- They are not noisy.
- High quality.

 Support many fonts and different character size.

Laser Printers:These are non-impact page printers. They use laser lights to produces the dots needed to form the characters to be printed on a page.

Advantages: Very high speed,Very high quality output, Give good graphics quality,Support many fonts and different character size.

Disadvantage:Expensive,Cannot be used to produce multiple copies of a document in a single printing.

Inkjet Printers: Inkjet printers are non-impact character printers based on a relatively new technology. They print characters by spraying small drops of ink onto paper. Inkjet printers produce high quality output with presentable features. They make less noise because no hammering is done and these have many styles of printing modes available. Colour printing is also possible. Some models of Inkjet printers can produce multiple copies of printing also.

Advantages: High quality printing ,More reliable

Disadvantages: Expensive as cost per page is high ,Slow as compare to laser printer.

Q.5)what is an operating system?explain various functions and types of operating systems?

An operating system is a program that acts as an interface between the software and the computer hardware.

 It is an integration set of specialised programs that are used to manage overall resources and operations of the computer.

 It is specialised software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

Objectives of Operating System:

 Making a computer system convenient to use in an efficient manner

 To hide the details of the hardware resources from the users

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

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

 Manage the resources of a computer system.

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

 The efficient and fair sharing of resources among users and programs

Functions of Operating System:

 Memory Management -- It keeps tracks of primary memory i.e what part of it are in use by whom, what part are not in use etc.Allocates the memory when the process or program request it.

 Processor Management -- Allocate the processor(CPU) to a process. Deallocate processor when processor is no longer required.

 Device Management -- Keep tracks of all devices.This is also called I/O controller. Decides which process gets the device when and for how much time.

 File Management -- Allocates the resources. De-allocates the resource. Decides who gets the resources.

 Security -- By means of passwords & similar other techniques, preventing unauthorized access to programs & data.

 Job accounting -- Keeping track of time & resources used by various jobs and/or users.

 Control over system performance -- Recording delays between request for a service & from the system.

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

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

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

Types of Operating Systems:

An operating system may be single user or multi user.There are mainly five types of operating systems.

Batch Processing: Batch processing is one of the oldest methods of running programs that are being used by many data processing centers for processing their jobs.Batch processing is also known as serial, sequential,offline, or stacked job processing. When a batch of programs have been collected, the operator loads this batch of-program into the computer. At one time they are executed one after another.Finally the operator retrieves the printed outputs of all these jobs and return then t the concerned users.The method of batch processing reduces the idle time of a

computer system because transition from one job to another does not require operator intervention. However batch processing suffers from several disadvantages that are follows:

- It reduces time lines in some cases.
- Though efficient from the computer's point of view, batch processing makes each job wait in line at each step and often increase its turnaround time.
- In batch processing, it is difficult to provide the desired priority scheduling.

Multiprogramming: multiprogramming OS is the name given to the interleaved, execution of two or more different and independent programs by the same computer .Interleaving of programs means chain of programs that are either n running phase, ready or blocked phase. It is an efficient way to improve the system performance. The OS picks up any of the programs as scheduled and starts execution.Multiprogramming has been employed to optimize the resource utilization of a computer system and to support multiple users in interactive manner.

Multiprocessing: Here two or more independent processors are linked together in a coordinated system and instructions from different and independent programs can be processed same instant in time by different processors.Multiprogramming involves concurrent execution of instruction from two or more programs sharing the CPU and controlled by one supervisor.The instructions are executed simultaneously because the available CPU can execute different instructions of the same program or of different programs at any given time. Multiprocessing is used for major control applications such as railroad control or airlines management.

Parallelprocessing: Parallel processing means simultaneous data processing tasks for increasing the computational speed of a computer system.Here instructions are not executed sequentially. The system may have two or more processors and be able to execute two or more instructions at the same time.Parallel processing is very useful in the following areas:

- Long range weather forecasting .
- Petroleum explorations Seismic data analysis Medical diagnosis
- Aerodynamics and space flight simulations
- Artificial intelligence and expert system
- Image processing.

Online processing: It is a system that operates in all interactive mode with quick response time.Online processing systems perform random and rapid input of transactions and provide immediate access to the records. The term is general term used to describe processing system with a number of independent relatively low speed online stations.

Real time processing: It is a form of operating system that are used in environments where a large number of events mostly external to computers,must be accomplished and proceed in a short time or

within certain deadline.Processing method is one that controls the environment by receiving the data, processing them and taking action or returning results sufficiently quickly to affect the functioning of the environment at that time.Real time processing is suitable in the following types of business operations:

- wholesale suppliers and manufacturer availability of stock airlines of flight seats availability.
- Manufacturing statues of production orders.
- Real time systems usually operate in multiprogramming and multiprocessing,These increase both availability and reliability of the system.

Q.6)Explain various DOS Internal and External commands?

DOS COMMANDS: MS-DOS means Microsoft-Disk Operating System, it is powerful single will execute and do the appropriate action. There are mainly two types of DOS

Commands they are .

1. Internal commands
2. External Commands

INTERNAL COMMANDS: An internal command is a MS-DOS command that is stored in the system memory and loaded from the command.com. As can be seen in the picture to the right, each of the commands the command.com is capable of running are part of the command.com file. However, with the external commands, each of the commands are their own separate files.

These are as follows.

1.CLS:- (*Clear the screen*) This command is used to clear the screen or wipe out everything written on the screen.

Syntax:- C:\> CLS and press Enter

2.DIR:- (*Directory*) Dir command is used for listing files and directories present in the current disk.

Syntax:- C:\> DIR [/switches]

Example:- C:\> DIR /P

3. VER:-(*Version)* Version numbers indicates that which edition of DOS we are working on.

Syntax:- C:\> VER press enter

4. VOL:-(*Volume*) Displays the disk volume label and serial number, if it exist.

Syntax:-C:\>VOL press enter

5. DATE:- Display the current Date

Syntax:- C:\> DATE

6. TIME:- Display current time

Syntax:-C:\>TIME

File related commands

7. COPY CON:- This command gives the facility to create a new text file.

Syntax:- C:\>COPYCON<Filename>

After copy con we must specify a suitable file name. Press enter. Start typing the informations of the file. After gathering the information we press ^Z (CTRL+Z) button or F6 button to save the file. After pressing enter key computer will show a message like 1 file(s) copied. This means that file is stored in the disk. Suppose we don't want to save the file or we just want to abort from file creation job, then we simply press ^C (CTRL+C) button to abort without saving the file, intend of pressing ^Z button.

8. TYPE:- This command is used to display the contents or text of any file to the display device.

Syntax:- C:\> TYPE <Filename>

9. COPY :- Copy command is used for copy any file to another location or to copy the files to another directory. This command may also be used for copying any file to another disk with different file name.

Syntax:- C:\> COPY <Source filename> <Target file name>

10.REN:- (*Rename*) This command is used to change the name of any file or directory.

Syntax:- C:\> REN <Source filename> <Target filename>

11.DEL:- This command is used for erasing any file from the disk.

Syntax:-C:\>DEL<Filename>

Directory related commands:

12. MD:- (*Make Directory*)- This command allows to create a new directory.

Syntax:- C:\> MD <Dirname>

Now this directory can be used for keeping various sort of reports. Under this directory we can create another directory which is known as subdirectory.

13. CD:- (*Change Directory*):- We can enter or exit from any directory using this command.

Syntax:-Toaccessanydirectory
C:\>CD<Directoryname>

Prompt will change with the directory name. If we keep two dots after CD command than we will exit from the directory.

Syntax:-C:\> CD..

14. RD:-(*Remove directory*):- This command is used when we want to remove any unusable directory form our disk.

Syntax:- C:\> RD <Directory name>

15. PATH:- This command is used for display or sets directories for executable files.

Synatx:-C:\>PATH
This command display current path settings.

External DOS Commands:

These are also called Disk resident, or external, commands are really for special purpose. These are found in separate files on the hard disk so that they do not typically consume valuable memory space. They are loaded into memory only as called for. External commands are not really commands at all each external commands request actually runs a program contained in a separate file. These file are called com or exe files.External commands were not part of DOS shell and need external files same like Windows Library (DLL) files. Here are some MS DOS's external commands. These are not built into the command interpreter COMMAND.COM) but rather are launched by running a different program for each command. These external programs can be on a floppy disk or on some directory in the hard disk.

1. MORE:-Using TYPE command we can see the content of any file. But if length of file is greater than 25 lines then remaining lines will scroll up. To overcome through this problem we uses MORE command. Using this command we can pause the display after each 25 lines.

Syntax:- C:\> TYPE <File name> | MORE

2. MEM:-This command displays free and used amount of memory in the computer.

Syntax:-C:\>MEM

the computer will display the amount of memory.

3. SYS:- This command is used for copy system files to any disk. The disk having system files are known as Bootable Disk, which are used for booting the computer.

Syntax:- C:\> SYS [Drive name]

4. XCOPY:- When we need to copy a directory instant of a file from one location to another the we uses xcopy command. This command is much faster than copy command.

Syntax:- C:\> XCOPY < Source dirname > <Target dirname>

5. MOVE:- Move command is used for moving one file or multiple files from one location to another location or from one disk to another disk.

Syntax:- C:\> MOVE <file name> <path name>

6. FC:-(*File Compare)* This command is capable for comparing two set of files and display difference between two files.

Syntax:- C:\> FC <First set of file> <Second set of file>

7.CHKDSK:-(*Check disk)* - This command is used to check the status of a disk and show the report of result status.

Syntax:- C:\> CHKDSK

8. SORT:- This command is useful when we want to sort a file. When we run this command the result can be get to display device or file.

Syntax:- C:\> SORT /R < Input file name> <output file name>

9. FIND:- The FIND command is used to search a file for a text string.

Syntax:- C:\> FIND "String to search" <File name>

10. DISKCOPY:- DISKCOPY copies the contents of a floppy disk to another.

Syntax:- C:\> DISKCOPY <Drive1> <Drive2>

11. ATTRIB:- Sets the various type of attribute to a file. Like Read only, Archive, Hidden and System attribute.

Syntax:-C:\>ATTRIB[±r][±a][±h][±s]<Filename>
here r - for read only, a- for archive, h - for hidden, s - for hidden attribute.

12. LABEL:- If you are not happy with the volume label of hard disk, you can change it.

Syntax:- C:\> LABEL

13. DOSKEY:- Once we install doskey , our dos will star to memorize all commands we uses. We can recall those commands using up or down arrow keys. It also gives the facility to create macros, which creates a short key for long keyword or command.

Key function for Doskey are given as-

UP,DOWN	arrows recall commands
Esc	clears current command
F7	displays command history
Alt+F7	clears command history
F9	selects a command by number
Alt+F10	clears macro definitions

Syntax:-c:\>DOSKEY

14. FORMAT:- This command creates new Track & Sectors in a disk. Every

Syntax:- C:\> FORMAT [drive name] [/S]

Q.7)Explain various applications of MS-OFFICE?And Explain MS-WORD features?

In 1997, Microsoft launched an advanced version of MS-OFFICE based on Windows-95 named as Office-97, after modification of Office-97, Microsoft launched OFFICE-2000.It is a powerful package, having a long range of user friendly facilities.It is developed to do all the office work. Microsoft office comes in two types of editions, they are

1. Standard Edition
2. Professional Edition

MS OFFICE have the following primary applications

1)Microsoft Word

2) Microsoft Excel

3)Microsoft Powerpoint

4)Microsoft Access

5)Microsoft Mail

6)Microsoft ClipArtGallery

7)Microsoft Word Art

8)Microsoft Publisher

Microsoft Word:MS WORD is a powerful word processor that allows you to create letters,memos,fax,coversheets, webpages, reports,brochure's and may other business and professional documents.Ms word provides easy graphics handling outlining calculation of data in a tables.The capability to create a mailing list,Sorting.we can share data and tools with excel access outlook and other window applications.

Microsoft Excel: Microsoft Excel is mainly used for Accounting purpose,by using this we can perform different type of applications on our data.Microsoft excel is an integrated electronic worksheet that is also called spreadsheet.A spreadsheet or electronic worksheet is an electronic sheet that is used to store the different types of information entered by you.

Microsoft PowerPoint: Microsoft PowerPoint is a component of MS-OFFICE package and is one of the most powerful presentation graphics package.By using this we can represent any topic in the form of slides with color full pictures and animations and graphics effects. User can make modification to the slide in variety of ways.

Microsoft Access: Microsoft Access is a database component of MS-OFFICE package. By using this a user can store and organize information in a set of tables. Aller creating a database, user can look at the information as a list in columns or rows. User can perform calculations ,compute statistics such as totals and averages and sort the information in ascending of descending manner. Access can also help to create a report in a specific format.

Microsoft Mail: It is a licensed product of MS-OFFICE used to mail on the work stations.

Microsoft ClipArt Gallery: Clip art gallery is a collection of ready-made graphics that the user can import (copy) into any of the office applications to make them more effective.

MicrosoftWord Art: Wordart enables a user to convert the text into various shapes for logos, banners and headlines.

Microsoft Publisher: It helps to organize the material of text books in the form of chapters and volumes.

Microsoft word features:

Microsoft Word is an essential tool for the creation of documents. Its ease of use has made Word one of the most widely used word processing applications currently on the market. Therefore, it's important to become familiar with the various facets of this software, since it allows for compatibility across multiple computers as well as collaborative features. Word is a fairly simple program to use for completing simple tasks. However, it may be more difficult to learn how to explore the more advanced possibilities of Word.It is designed to help you create professional-quality documents. With the finest document-formatting tools, Word helps you organize and write your documents more efficiently. Word also includes powerful editing and revising tools so that you can collaborate with others easily.We can create documents, brochures, letters, outlines, resumes, lists, and simple web pages.

Spell Checking and Grammar: Word includes the capability to check the spelling and grammar in a document. Only word has a spell checker and correction tool, which not only checks but can also correct the errors.There is built-in dictionary named custom dictionary having the custom.dic file.Spell checker also gives us suggestions about the different words if any errors occurs in the document.

Print preview: We can print a document, table, chart or any text or graphics material from the document file.Before taking print,we should take the view of our printed document using the PRINT PREVIEW.To get an idea of the appearance of your document in print before you actually print it out, you can click on this icon to view your document from a zoom-out distance.

Thesaurus: Thesaurus is used to type an alternate word in place of nay word typed in the document It will display the meanings of the word actually or synonyms of the word.

Working with Graphics: You can add shape to your file or combine multiple shapes to make a drawing or a more complex shape. Available shapes include lines, basic geometric shapes, arrows, equation shapes, flowchart shapes, stars, banners, and callouts. After you add one or more shapes, you can add text, bullets, numbering, and Quick Styles to them.The **Drawing Tools Format** Tab also allows you to change the shape fill, outline, effects and select how the text in your document is wrapped around the shape.

WordArt : WordArt can be used to add special text effects to your document. For example, you can stretch a title, skew text, make text fit a preset shape, or apply a gradient fill. This WordArt becomes an object that you can move or position in your document to add decoration or emphasis. You can modify or add to the text in an existing WordArt object whenever you want.

Tables : Using tables in Word can provide you with additional elements to any document. Tables can be used to create lists or format text in an organized fashion.We can create a table having any number of rows and columns having different size of cells. We can format the text within the cells also.

Boarder and Shading: Border and Shading can be done to our paragraph for enhancing its appearance or to the doted and dimmed line table to convert these into solid line having gridlines.We can apply shadings to the paragraphs by this option.

Templates and Wizard: Templates and Wizards make the processing speed of formatting the business letters,documents to be sent in daily routine to the different business firms much faster and easy.

MailMerging the files: The term mail merge is typically used to describe the process of merging some form of address database with a form of letters to create a group of individual letters.It is a good feature of the MS-Word.

Formatting page,paragraphs, sections,Indent: Formatting the Page means to set the margins(left, right, top, bottom, header,footer and gutter).

Creating Lists and Numbers: Ms-Word provide us the facility to easily number our lines,paragraphs or mark and put the bullets at the beginning of paragraph or beginning of every lines. Here lists are the different bullets,which are used during the description of various list of different objects or lines or steps.We can also set numbers to different lines,different headings automatically by setting the Numbering headings.

Positioning and Viewing Text: Ms-Word provides a number of document views.User can quickly change the way of display using the view menu. Different views of information can be seen by using the Normal, outline, page layout buttons which are at the left corner of the horizontal scroll bar.

Setting Tabs:AS during typing we will try to use spacebar for alignment of column which is a time consuming or to set user defined Tab stops we can use this TABS option provided by Ms-Word. User can define tab stops with the help of ruler bar and mouse or by suing the tab dialog box. Thus tab settings or tabs are of following 4 types which can be changed by clicking the tab button. 1. Left 2. Right 3. Decimal 4. Center.

Labels & Envelopes: Ms- Word automates the process of creating envelopes,enabling us to specify the type of label having size, number per page etc.,and then creates a main document consisting of page label.Each label cell contains the fields to insert the address information.

Q.8)Explain various components of MS-WORD?

Components in the MS-Word Window: When we opens a MS-Word window on the screen, it has number of different components like-

1.Title Bar 2. Menu Bar 3.Tool Bar 4. The Ruler
5 . Status bar 6.Scroll Bar 7.Frame 8. Working area

THREE COMMONLY USED TOOLBARS

The **Menu** bar: This toolbar is constructed of word commands and not icons (pictures). The **Menu** bar contains all the options available to you in Microsoft Word. Using this toolbar to format and

change your document will often allow you greater control than using the icons on the other toolbars. However, the other toolbars may be more convenient.

Figure 1. Menu bar.

The Standard Toolbar: Word allows all toolbars to be customized, so you may not find all options listed here. There are several buttons that may or may not appear immediately in your version of Word. Use the following graphic as a guide to the Standard Toolbar.

1. **New Blank Document:** To begin a new document, click on the New Blank Document icon, shaped like a blank sheet of paper.
2. **Open:** Clicking on this icon opens up a previously saved document on your computer.
3. **Save:** Clicking on the Save icon saves the document you are currently working on. If you are saving a document for the first time, you can click on this button. However, if you want to save a new file from a preexisting document, then you must go to the menu bar and select "File" >> "Save As" and give the file a new name. When working on any document, you should be sure to save frequently, so that you don't lose any work.
4. **Permission:** Not generally used.
5. **Print:** Clicking on the Print icon automatically prints the document currently active in Word. If you wish to explore more print options, then go to the menu bar and select "File" >> "Print."
6. **Print Preview:** To get an idea of the appearance of your document in print before you actually print it out, you can click on this icon to view your document from a zoom-out distance.
7. **Spelling and Grammar:** Clicking begins a review of your document in search of spelling and grammatical errors that may need to be corrected.
8. **Copy:** Copy the current selection to the clipboard, which can then be pasted elsewhere in the document, or into a completely separate program/document.
9. **Paste:** Clicking on the Paste button inserts the text that has been most recently added to the Clipboard (the text would have been added there by Cutting or Copying). With Paste, you can either insert the copied text into a document or replace selected text.
10. **Undo Typing:** The Undo Typing button goes back and removes the last addition or change made to your document.
11. **Insert Hyperlink:** You may find that you want to make links to a particular web site, web page, or some other kind of online file in your Word document. Using the Insert Hyperlink button, you can turn selected text into hyperlinks. When the icon is clicked, a window will appear that will allow you to insert the URL (web address) of the web page you want to link to. You can

type in the URL yourself or insert a preexisting bookmark. Once the link is inserted, the link in your Word document can be clicked and the web page will open up in a web browser.
12. **Insert Table:** When this icon is clicked, a small window will appear in the form of a grid of squares. Use this window as a guide to indicate how many rows and columns you would like your table to contain. Once selected, a table will automatically appear in Word. Clicking the Tables and Borders button will allow you to modify the table. To modify an aspect of the table, select, or place the cursor in, the area and apply changes such as borders and colors.

The Formatting Toolbar: Word allows all toolbars to be customized, so you may not find all options listed here. There are several buttons that may or may not appear immediately in your version of Word. Use the following graphic as a guide to the Formatting Toolbar.

1.**Style:** Styles in Word are used to quickly format portions of text. For example, you could use the "Normal" or "Default Paragraph Font" for the body text in a document. There are also three preset styles made for headings.
2. **Font:** Font is a simple but important factor in Word documents. The choice of font (the style of the text itself) can influence the way others view documents, either on the screen or in print. For example, Arial font looks better on screen, while Times New Roman is clearer in print. To apply a font to text, select desired text with your cursor, and choose a font from the font drop down menu.
3. **Font Size:** You may encounter times in which you need to display some text larger or smaller than other text. Selecting desired text with the cursor and choosing a font size from the drop down menu changes the size of text.
4. **Bold:** Places the text in **bold**.
5. **Italic:** Places the text in *italics.*
6. **Underline:** Underlines the text.
7. **Align Left:** Aligns the selection to the left of the screen/paper.
8. **Center:** Aligns the selection to the center of the screen/paper.
9. **Align Right:** Aligns the selection to the right of the screen/paper.
10. **Justify:** Aligns the selection to both the left and right of the screen/paper.
11. **Line Spacing:** Adjust the line spacing (single-spaced, double-spaced, etc.)
12. **Numbering:** Create a numbered list.
13. **Bullets:** Create an unordered, bulleted list.
14. **Decrease Indent:** Decreases the indentation of the current selection (to the left).
15. **Increase Indent:** Increases the indentation of the current selection (to the right).
16. **Outside Border:** Places a border around the current selection; click the drop-down for a wide selection of bordering options.

17. **Highlight:** Highlight the current selection; default color is yellow.
18. **Font Color:** Change the font color; the default/automatic color is black.

More Formatting: Besides the toolbars, Word provides a great deal of ways to customize and format your text and documents.

Paragraph Spacing: To access the Paragraph formatting options, navigate to the menu bar, and select "Format" >> "Paragraph," or right-click within a paragraph.

A window will appear with options for modifying spacing and indenting. Here, you can choose to make the text in your document single or double spaced, as well as edit the margins for the document. A window will appear with options for modifying spacing and indenting. Here, you can choose to make the text in your document single or double spaced, as well as edit the margins for the document.

Headers/Footers: Headers and footers are important aspects of a Word document if you wish to include information such as page numbers and headings on every page. To access the header and footer options, go to the menu bar and select "View" >> "Header and Footer."

Inserting an Image: In Word, it's possible to add clipart or other images to a document. Click the cursor in your document where you wish to place an image. Then go to the menu bar and select "Insert" >> "Picture." From there, you will find a number of options to choose from. "Clipart" searches through your computer's Clipart library. "From File" will allow you to insert an image saved elsewhere on your computer. Other options include "AutoShapes" and "WordArt."

Q.9)Explain Applications of MS WORD in business correspondence(LETTERS,TABLES)?

Applications of MS Word in Business Correspondence:

Most service-oriented business workers spend a lot of time using a word processor for preparing business correspondence and documents. Word processors are powerful tools that can be used for writing letters, creating simple databases. and creating forms. Microsoft Word is one of the most popular word processors on the market, which is having the largest market share by far.

Although most software vendors will claim that their word processors are compatible with each other *to* varying degrees, it IS best to standardize on one office suite for your entire office.

Letters:

Components of a Letter

A typical business letter has eleven components, which are as follows:

1) Letterhead:The letterhead consists of the name of the practice or physician,address, telephone number, fax number, and sometimes the company logo. The letterhead is often embossed in color and centered on the top of the page,The letterhead may also be preset into a template,

2) Date: The date includes the month, day, and year.It should be positioned two to four spaces below the letterhead.The date must the typed on only one line and abbreviations should not be used.

3) Inside Address:The inside address refers to the name and address of the person whom the letter is being sent.A nine-digit zip code should be used if available.The inside address is placed four spaces down from the date unless the letter is being mailed with a window envelope and it will riot be aligned correctly.

4) Subject Line:The subject line, an optional component, is used to state the intent of a letter or to indicate what the letter is regarding. It is placed onthe third line below the inside address and is written as Re: (an abbreviation for regarding) following by the subject.

5) Salutation:The salutation is the greeting of the letter.It is placed two spaces down from the inside address or the subject line, Capitalize the first letter of each word in the phrase and end the phrase with a colon. It is permissible to eliminate the salutation ifthe letter is informal or if a subject line has been used.

6) Body of the Letter: The body of the letter contains the message. It should be single-spaced with double spacing between the paragraphs.Here are some guidelines for writing the body of the letter:

i) If the' letter is more. than one page long, 'try to avoid dividing a paragraph at the end of a page. If you must, leave atleast two sentences at the bottom of the first page. Use the widow and orphan control feature of your word processor program to prevent orphan lines from appearing.

ii) Tables and graphs should not be broken.They should appear on one page only.

iii)Web addresses and e-mail addresses should fit on one line and never be continued to another page.

iv) If the letter is more than one page, long, page numbers should be used.

v) Use a bulleted format to highlight key points for the reader.

vi)Letterhead is used only on the first page ofthe letter. The second page should be the same quality paper as the letter head.Start the second page with a continuation line (name of person the letter is going to and the date of the letter).Continue the letter two lines down from the continuation line.

vii)Closing:The closing concludes the letter.Some common closings are:Sincerely,Yours truly, Regards, Respectfully,and Cordially yours', Only the first word is capitalized and a comma follows the phrase.Closings are placed two spaces down from the end of the letter.Never put the closing alone one page.

viii)Signature and Typed Name:The name 'of the person sending the document is typed for spaces below the closing, with the person's title typed directly below.

ix)Identification Line:The identification line, an optional component, indicates who dictated the letter and who wrote it.It consists of abbreviations only. The initials of the person who dictated the letter are capitalized(generally the physician); the initials of the writer of the letter are in lower case (generally these will be yours).The identification line can also be called the reference line.

x)Enclosure:An enclosure is something that is included with a letter.It is abbreviated Enc., and is placed two spaces down from the identification line.The number of documents included,is placed in parentheses; if only one document is included, just the abbreviation Enc. is used.

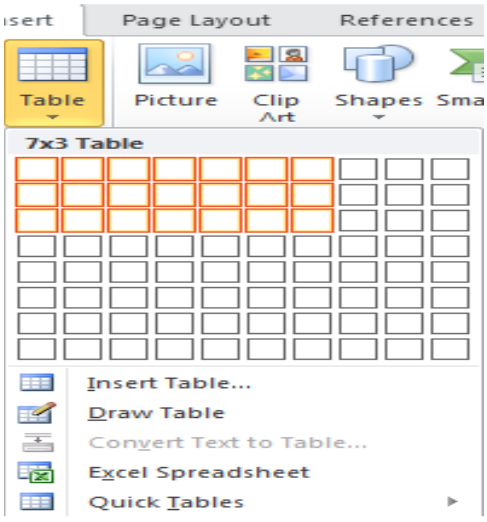
xi) Copy: The abbreviation c is used to indicate that a duplicate letter has been sent. It is typed two spaces below the enclosure line.Usually,letters are copied to managers supervisors, or to the physician who requested that the give information be dispersed.

TABLES:

Creating documents using Microsoft Word allows for the manipulation and display of text and other information. Tables, which are made up of rows and columns that form cells, can be utilized to organize information in your document. Formatting text, structuring your document, and adding a little bit of aesthetic appeal to your document are just a few ways in which you can use tables in Word. By using tables, you can turn an otherwise dull and unorganized document into a more well-designed and laid-out project.

Manipulating Tables:

1)**Creating a Table**:There are different methods you can use insert a table into your Word document. If you are less experienced with tables, then you might want to consider using the "Insert Table" option. Otherwise, you can use "Draw Table,"which lets you make a table by scratch by drawing it free hand using the Draw Table tool.



2)Inserting a Table :

1.click where you want to insert a table.

2.on the Insert tab, in the **Tables** group, click **Table**

3.A drop down box will appear; click and hold your mouse then drag to select the number of rows and columns that you want inserted into your document. You will see your table appearing in your document as you drag on the grid.

4. Once you have highlighted the rows and columns you would like let 4. Once you have highlighted the rows and columns you would like let go of your mouse and the table will be in your document

3)Add Row/Column to Table

1. Click on the table.
2. Under **Table Tools**, go to the **Layout** tab
3. Click on the **Insert Above** or **Insert Below** to add a row, Click on **Insert Left** or **Insert Right** to insert a column.
4. Click on **Delete** to remove a column, row or cell.

4)Delete a Table

1. Rest the pointer on the table until the table move handle appears, and then click the table move handle.
2. Press BACKSPACE on your keyboard.

Delete Table Contents. You can delete the contents of a cell, a row, a column, or the whole table. When you delete the contents of a table, the table's rows and columns remain in your document.

5)The Tables and Borders Toolbar: You'll primarily be using the Tables and Borders toolbar for formatting and modifying the appearance of your table. o open the toolbar, go to the"File"menu and select"Toolbars" >> "Tables and Borders."

Draw Table: Lets you create a table by drawing it freehand (see above section).

Eraser: You can remove parts of your table by using the eraser to click and drag on lines, rows and columns.

Border Color: By clicking on this button, you can access the color template that will allow you to apply a color to your line borders

Merge Cells: Merging cells is the act of selecting more than one separate cell and merging them so that they become one. First, select the cells that you want to merge with your mouse (by clicking and holding within one cell and dragging the mouse across the cells you want to select), and then click on the "Merge Cells" icon. Word will automatically merge the two cells together.

Split Cells: Splitting a cell is the act of selecting a specific cell, and dividing it into one or more rows or columns. Select the cell that you want to split, and then click on the "Split Cells" icon. Once you do this, the "Split Cells" window will appear. From here, you can decide how many rows or columns you wish to create from the one cell.

6)**Table AutoFormat:** Clicking on this icon brings up the Table AutoFormat window. There are a number of pre-made design table templates you can use to apply to your table. You can customize colors, fonts, borders, and other

7)**Sort Ascending:** Sort a selection of text in cells in ascending order.

8)**Sort Descending:** Sort a selection of text in cells in descending order.

9)**AutoSum:** Automatically calculates formulas within cells.

10)**Move a Table:** To move an entire table to a new location in your document, move your cursor over the table until you see the icon that appears in the upper left-hand corner of the table, shaped like a square with crosshair arrows inside.

11)**Change Row/Column Heights/Widths:** If you need to increase or decrease the height or width of a row or column, you can do so by clicking and dragging the borders of rows or columns. Drag the borders until you create the desired amount of space between rows or columns.

12)**Table Properties:** At any time, you are free to change the properties of your table. Right-click inside of any table and select “Table Properties.”

A new window with four tabs will appear. Within these tabs, you can adjust every minor detail about the table including alignment, spacing, text wrapping, etc.

Q.10)Explain the procedure to create MailMerge and its advantages?

When you send invitation"letter's to a group people,generally the letters have the identical standard information except the mailing addresses of the recipient to be printed on the top.The problem is to print these letters, each time user has to go back to the' document in order to. change the address.To-take care of this problem, MS Word-provides a facility called 'Mail Merge' which allows to merge the main,document that is the letter with mailing lists forming a single document.

procedure to create mailmerge:

1)Open Microsoft Word 2003.

2)Go to Tools > Letters and Mailings > Mail Merge... If the task pane was closed, it will open the Mail Merge task pane.

Step 1: Select Document Type

1. Under Select document type, choose Letters.
2. Click on Next: Starting document at the bottom of the task pane

Step 2: Starting document

1.Selecting Use the current document will allow you to start from the current document shown on the screen.

2. Click Next: Select recipients. Note that you can always go between steps by clicking on the Next and Previous links at the bottom of the task pane.

Step 3: Select Recipients

1. Select Use an existing list.
2. To find an already existing file, click Browse... and navigate your way to the file.
3. If your data source is an Excel worksheet that has data on multiple tabs, you need to select the tab containing the data you want. Click OK.
4. All the entries in the data source will now appear in the Mail Merge Recipients window, where you can edit the list of recipients.

5)In the Mail Merge Recipients window, select the recipients you want by checking the boxes next to the recipients. To sort the list, click the column heading of the item you want to sort by. To filter items in the list click the arrow next to the column heading of the item you want to filter by and select any of the following:

1. Blanks display all the records in which the corresponding field is blank.
2. Nonblanks display all the records in which the corresponding field contains information. If your data source contains records that share the same information, and there are ten or fewer unique values in the column, you can filter by specific

information.
6.If the arrow next to any column heading is blue, that category is screening out names. To display all the recipients again, click and blue arrows and select All.
7. To check all names in your recipients list, click Select All. To uncheck all names, click Clear All.
8. Click OK to return to the Mail Merge Wizard.
9. To change the file click Select a different list...
10. To edit the list click on Edit recipient list... (data source)
11. Click on Next:Write your letter.

Step 4: Write Your Letter

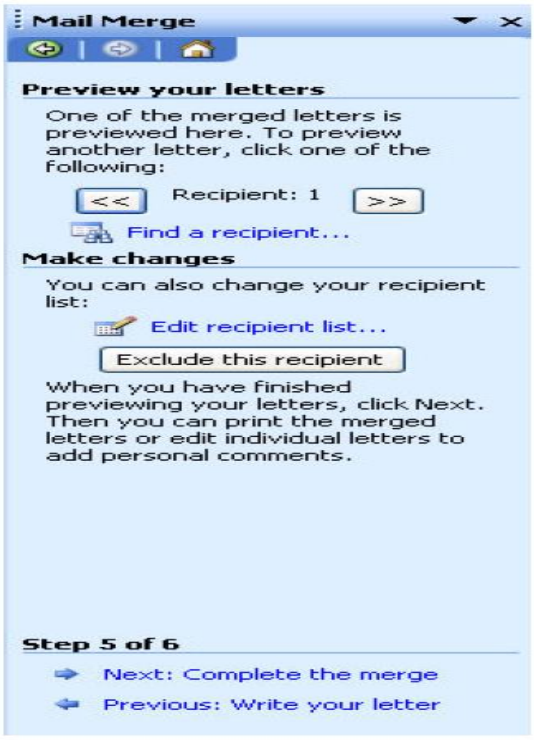
1. If you are creating a form letter, type the text that you want to appear in every form letter. Insert merge fields where you want to merge names, addresses, and other data from the data source (i.e. recipient list) by clicking anywhere you want in the main document to insert the field. Then click on More Items and insert individual field
Click More items...
(a) Address Fields will allow you to select from address fields that will automatically map to corresponding fields in your data source, even if the data source's fields don't have the same name as your fields.
(b) Database Fields will allow you to select from fields that always take data directly from a column in a database.
2. In the Fields window, click the field you want.
3. Click Insert, and then click Close.
4. If the Match Fields window appears, Microsoft Word may have been unable to find some of the information it needs to insert the field. Click the arrow next to not matched, and then select the field from your data source that corresponds to the field required for the mail merge.
If you are creating a form letter, click Next: Preview your letters.

Step 5: Preview your letters

1. To preview the items in order, click the arrows under the Preview your letters heading.
2. To locate a specific item, click Find a recipient..., and then enter the criteria in the Find field.
3. To change the list of recipients, click Edit recipient list..., and make your changes in the Mail Merge Recipients window.
4. Click on Next: Complete the Merge at the bottom of the task pane

Step 6: Complete the Merge

1. Click Edit individual letters...
2. In the Merge to New Document window, select the records you want to merge.
3. Click OK.
4. Microsoft Word will create new merged document.



5.To personalize individual documents, scroll to the information you want to edit, and make your changes.

6. Print or save the document just as you would any regular document.

Step7:save the merged documents.

If you do wish to save the merged document, collect the merged files into a single document by clicking Edit individual letters In the Merge to New Document window, select one of the following:

1.To merge all the documents, click All.

2.To merge only the document that you see in the document window, click Current record.

3.To merge a range of documents, click From, and then type the record numbers in the From and To boxes.

Click **OK.**

Microsoft Word will open one new document that contains all the individual letters. Save the document just as you would any regular document.

Advantages of MailMerge:

1.Automatic generation of letters with a database of names and addresses.

2.Automatic pre-addressed forms to merge with letters.

3.Automatic mailing labels to merge with letters

4,Automatic generation of envelopes for letters

5.Automatic generation of catalogs.

Q.11)what are features of MS-EXCEL and explain various types of charts in MS-EXCEL?

A spread sheet looks a lot like a table you might see in any word processing package, but it has some very important features that most tables do not.The first is that it is designed to make repetitive and/or complicated calculations very easy to carry out. Secondly, most spreadsheet programs have advanced graphing capabilities that make producing graphs from the data on the spread sheet relatively simple.While Excel is a very popular spreadsheet program, it is by no means the only one that will do the job.It is a full-featured spreadsheet program that allows organizing data,completing calculations,making decisions,graphing data and developing professional reports.

EXCEL FEATURES

There are a number of features that are available in Excel to make your task easier. Some of the main features are:

AutoFormat - lets you to choose many preset table formatting options.

1.AutoSum - helps you to add the contents of a cluster of adjacent cells.

2.List AutoFill - automatically extends cell formatting when a new item is added to the end of a list.

3.AutoFill - feature allows you to quickly fill cells with repetitive or sequential data such as chronological dates or numbers,and repeated text. AutoFill can also be used to copy functions.

4.AutoShapes toolbar will allow you to draw a number of geometrical shapes, arrows, flowchart elements, stars and more.With these shapes you can draw your own graphs.

5.Wizard - guides you to work effectively while you work by displaying various helpful tips and techniques based on what you are doing.

Drag and Drop - feature will help you to reposition the data and text by simply dragging the data with the help of mouse.

6.Charts - features will help you in presenting a graphical representation of your data in the form of Pie, Bar, Line charts and more.

7.PivotTable - flips and sums data in seconds and allows you to perform data analysis and generating reports like periodic financial statements, statistical reports, etc.You can also analyse complex data relationships graphically.

8.Shortcut Menus - commands that are appropriate to the task that you are doing appear by clicking the right mouse button.

CHARTS:

A chart is a graphical representation of the data in your worksheet. You can create an embedded, chart,which appears on the worksheet beside the data, or,you can create a chart sheet as a separate sheet in the workbook so that it can be displayed apart from its associated data.

Types of charts:

Pie chart: A *Pie chart* is designed to show comparisons within a single set of values, and to show how parts contribute to a whole.

Column chart:A column chart can be used to illustrate how data changes over period of time and to compare various items.categories displayed horizontally values vertically.

Line chart:It is the best way to show trends and changes over time. Use a Line chart if you want dates on the bottom of the chart, to make historical developments visible at a glance. Line charts usually have only one set of numbers, shown on the vertical axis.

XY Scatter chart: An XY Scatter chart compares two sets of numbers at once, one on the horizontal X axis, one on the vertical Y axis. The data values are scattered across the chart. You have the option of connecting the values with lines, but those lines don't show trends over time.XY Scatter charts are good for showing comparisons of numbers such as scientific or statistical data, where several measurements need to be plotted on a single chart. If you wanted to show how many cases of flu occurred in various age groups, or the average incomes in cities of various sizes, an XY Scatter chart would be an effective type.

Bar chart: It is similar to column charts,the categories on a bar chart displayed vertically and values are organized horizontally.

Area chart:It shows the relative importance of values over a period of time.It is similar to line chart.

Radar chart: This is another one widely used in the far east.it looks like a badly-made spiders web.It shows changes of data series relative to a center point and one to another.
Cylinder,Cone,Bubble,Pyramid are other types of charts.

Steps to create chart:

Select the data that you want to chart, including the column titles and the row labels

2. Then click the Insert tab, and in the Charts group, click the Column button.You could select another chart type,but column charts are commonly used to compare items and will get your point across.

3. After you click Column, you'll see a number of column chart types to choose from. Click Clustered Column, the first column chart in the 2-D Column list. A ScreenTip displays the chart type name when you rest the pointer over any chart type. The ScreenTip also provides a description of the chart type and gives you information about when to use each one.

4. That's it, you've created a chart in about 10 seconds.

If you want to change the chart type after you create your chart, click inside the chart. On the Design tab under Chart Tools, in the Type group, click Change Chart Type, and select another chart type.

Any changes that you make to the worksheet data after the chart is created are instantly shown in the chart.When you create a chart, Chart Tools appear on the Ribbon, which include the Design, Layout, and Format tabs.

Add Chart Titles: You can give a title to the chart itself, as well as to the chart axes, which measure and describe the chart data.column chart has two axes.On the left side is the vertical axis (also known as the value or y axis). A quick way to add chart titles is to click the chart to select it and then go to the Design tab and locate Chart Layout. Each option shows different layouts that change the way chart elements are laid out.

Format Chart Titles:

If you'd like to make the chart or axis titles stand out more, that's easy to do, too. On the Format tab, in the WordArt Styles group, there are many ways to work with the titles. In the picture, a text fill, one of the options in the group, has been added to change the color.

Q.12)What are various functions used in MS-EXCEL?Explain briefly about financial functions?

Functions are built in formulas.The users have to provide cell references and addresses only. These are called arguments of the function and are given between the left and right parenthesis.

To manipulate data and to extract useful information from Excel worksheets, formulas and worksheet functions play very important role.In Excel, formulas are used to calculate results from the worksheet data. When there is some change in the data,such formulas automatically calculate the updated results with no extra efforts on the part of the user.

The function has the following elements:

1)the = (equal to)sign

2)the function name such as SUM,COUNT etc..

3)The arguments such as (A1:H1)

Types of functions:

1)Mathematical and Trigonometric functions

2)Statistical functions

3)Date and Time functions

4)Financial functions

6)Text functions

7)Data base functions

8)Look up reference functions.

Financial functions:

Excel includes large number of financial functions covering every thing from simole household budget problems such as calculating a house payment,to complex tasks such as figuring the bond-equivalent yield for U.S Treasury Bill or the yield of a security that has an odd last period.

Common financial functions:

I)NPERO( ):

NPER calculates the number of required pay periods for an investment based on periodic,constant payment, and a constant interest rate.

Syntax: NPER(rate, payment, present value, future value, type)

Where,

1)rate is the interest rate per period.

2)payment is the amount of each payment to the investment and represents a regular amount.

3)present value is the lumpsum amount that a series of future payments is worth right now.

4)The future value is cash balance you want to attain after the last payment is made, If you omit the future value.Excel assumes of future value is pie.

2)NPVO( ):

The NPV functions calculates the net present value of a series of cashflow transaction or an investment based on a series of periodic cashflows a discount rate.rate is the periodic interest 'rate of an investment of equivalent risk, and the range in the.range of cells containing the cash incomes or outflows.If you are the investor or lender, remember that the loan paid-out is negative and the payments in are positive,

If the result is a positive number, the investment can be considered a good one.

Syntax: NPV(rate,range)

3)PMT( ):

The PMT function calculates the periodic payment when ;V0u enter the interest rate, periods,and principal as arguments.

Syntax:PMT(rate,periods,principle)

4)PPMT( ):

The PPMT function calculates the amount of principal being paid during any of the payment Periods,given the periodic interest rate and number of periods. PPMT calculates the principal payment for

Any given payment number.

Syntax:PPMT(rate,payment number,periods,principal)

5)RATE( ):

Figuring the Interest Rate you need to Achieve a Certain Future Value:The RATE( ) function determines the interest rate you need to achieve a certain future value, given an initial balance, and a set value for regular contributions.

Syntax:RATE(noer,pmt,pv,[fv],[type],[guess])

The math underlying the RATE function's trickier than the calculations used in the other financial functions, In fact, there is no direct way to determine the interest rate if there is more than one payment made. Instead, Excel uses an iterative approach (otherwise known as trial and error). In most cases, Excel can quickly spot the answer, but if it comes up empty after 20 iterations, the formula fails and returns the dreaded #NUM, error code.

6)Depreciation( ):

Another common calculation in the world of finance is depreciation. Simply stated, depreciation is how much the value of an asset decreases over time. All assets that depreciate begin with a certain value (which you determine) and then depreciate over the course of a lifetime (which you specify). At the end of an asset's life, from an accounting perspective, the asset is deemed to be useless and without value.

Excel supports four basic depreciation functions,each of which figures depreciation in aslightly different way:

i)SLNO: It uses simple straight-line depreciation, where the cost of the asset minus its scrap value (the value of the asset if sold purely as raw materia1) is simply divided by the life span of the asset. In other words, if the life span's 10 years; the book value of the asset is depreciated by 10 per cent of the original value each year.SLNO is the only form of depreciation that proceeds regularly.All other types of depreciation are known as accelerated depreciation functions because they assume that the asset's greatest loss in value occurs early on rather than evenly over several years. As a result,these accelerated depreciation functionsare often more realistic.

Syntax: SLN(cost,salvage,life,period)

ii)SYDO( ):

It uses the sum-of-years-digits depreciation method.This method starts with a larger depreciation rate,which is gradually lowered as the asset becomes less valuable SYDO is a good all- around choice(or most depreciation calculations)

iii)DDB( ):

It uses the double declining balance depreciation method,which is like straight-line depreciation on steroids,It reduces an asset' by double the percentage of the SLNO method, which makes for a fast reduction in value (and a hefty tax write-off).In other words,if the life span ,is 10 years,the book value of the asset is depreciated by 20 per cent of the original value each year.

Q.13)Explain TABLES,QUERIES,FORMS in MS-ACCESS?

Access is a relational database. The environment allows you to store data in multiple tables and to use other objects such as queries, forms and reports to view the data.

Tables: The data in a database is stored in its tables. A table is a collection of data about a specific topic.Tables in a database are joined by a common field, which allows us to utilize data from any of the tables.

Queries: Queries can be used to view, change and analyze data. Queries allow you to control which tables, which fields and which records you view. They can also be a source for the data for forms and reports.

Forms: Forms are used to view data one record at a time (rather than in table view), and also as a data entry tool.

Reports: Access reports allow you to present your data in an effective printed format. Reports can include all your data, selected parts of your data or summary data.

I)TABLES:

Each object in an access database has at least two views. For tables this includes:

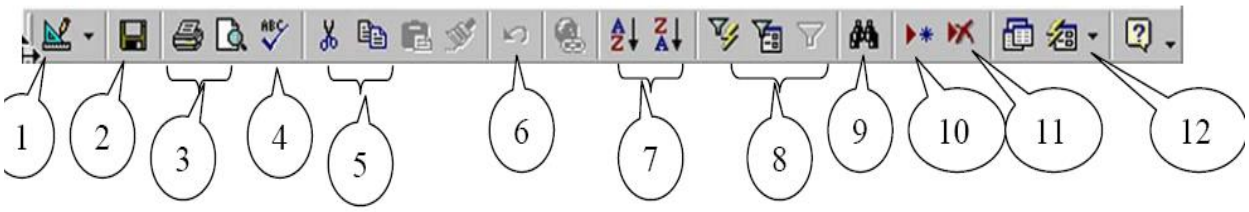
Datasheet view: displays the records contained in the table

Design view: displays the properties and design of the table. These features control the type of data the table can contain, and how that data is displayed.

In datasheet view, a table displays as a series of columns (fields) and rows (records). In datasheet view the user can find records, sort them, filter, edit,delete and enter new records.

An important thing to note about working in datasheet view is that a record being entered or edited is saved automatically, as soon as the user moves to another record. There is only one undo available in datasheet view,and undo is not available after the deletion of a record.

Datasheet view:



Features of the tables datasheet toolbar

1. Switch from datasheet view to design view (and back)
2. Save

3. Print /Print Preview
4. Spell Check
5. Cut/Copy/Paste
6. Undo
7. Sort A-Z and Z-A
8. Filter by selection/ by form/ Apply filter
9. Find
10. Next record
11. Delete Record
12. Create a new object (such as a form) based on this one

Design View of a Table

1.In design, the first pane lists the name of each field (column) in the table

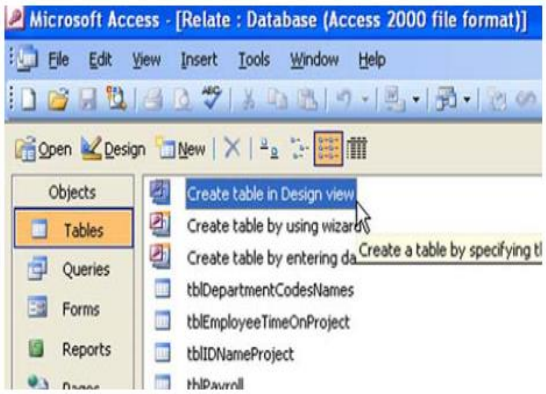
2.Next to the name, the designer must identify the type of data that will be contained in that field.

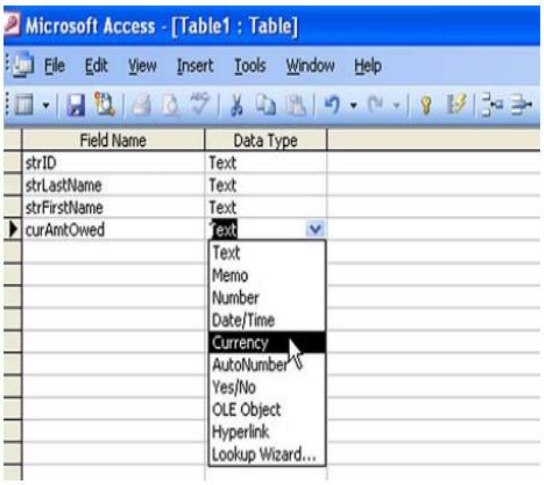
3.A description area is also available. The designer can include notes about any field which may help others using the database.

4.Each field has its own properties sheet. The designer can set constraints here that control what the user can put in the database.

Creating a table in design view

1. In the database window, be sure you are on the tables tab
2. Double click the icon for starting a new table in design view
3. In the design window, enter a name for each field in your table
4. Select the data type for each field from the drop down list
5. Set any properties you wish for the fields, in the properties pane





6. Select a primary key for the table
7. Save the table, at which time you will be prompted for a name for the table

8.You may want to consider using a standard naming convention such as table as it will help to differentiate your database objects later.

9. You can now switch to datasheet view and add records to your table if you wish

II)QUERIES:

Queries are used to view and analyze your data in different ways. They are very useful when you may not want to view all the records in your table(s), but just to see records that meet certain conditions determined by you.They are also very helpful as the source data for your forms and reports.

Creating a Query

1.In your database window, click to select the queries tab

2.Double click "create a query in design view"

3.The query design window will open, and the show tables window will pop up

4.Double click on the name of the table(s) you wish to query on

Adding Fields to the Grid

5.The query grid will be displayed, with your table at the top. You may wish to resize areas of the grid so you can see the full name and fields in your table

6.To add fields to your query, double click on each field name that you wish to add. You will see them appear left to right in your design grid

7.To run the query, use the"run" button,which is the red exclamation point in the center of the toolbar The results of your query are displayed in datasheet view. Many of the toolbar options used with tables are also available in the query's datasheet.

9.If you wish to change or refine the results of the query, you can switch back to design view using the view button.

Sorting the Results

10.The design grid allows you to sort the records by the field or fields of your choice. Click the sort row in that field and select ascending or descending.

11. The results are displayed in that order.

Querying on Multiple Tables

1.To add additional tables to your query, click the show tables button

2.Double click the additional table(s) you'd like to add

3.If you have established relationships between the tables, you will observe the join lines in the query

4. Once the additional tables are present and the joins are present, you can add fields from the other tables to your query.

FORMS:

Forms in the MS Access are used for building a GUI based interaction to, database. It helps to enter the view,edit, and enter the data into the table. These are also used to create the dialog boxes to accept the input from the user and perform the related tasks. It also works as a tool to open other forms or printing the reports. A form contains different icons either to accept the data from the user or display the data to user. A form may be linked to one or more table to display or enter the data. Different buttons on the forms are also put which when pressed does a specific task"

A Form is used to enter and edit data in a table in a convenient way.The controls on a form are

displayed when entering or editing a table using the form, and they are also printed when the form is printed.

They are two ways to create forms

1)with wizard

2)on design view

Creating Forms using Wizard ,-

The wizard' asks' detailed questions about the record sources, fields, layout, and' format user wants.

Step1:In the database window click forms

Step2:click new button on the database window toolbar

Step3:In New form dialog box,click the wizard that you want to use.A description of wizard appears in left side of dialog box.

Step4:click name of the table or other record source that includes the data you want to base your form on.

Creating forms using Design view:

Step1:In the database window click forms

Step2:click new button on the database window toolbar

Step3:In New form dialog box,click the Design view.

Step4:click name of the table or other record source that includes the data you want to base your form on.

Q.14)Define powerpoint and explain the procedure to create slides?

Microsoft PowerPoint is a presentation program which allows users to create engaging presentations for slide shows, meetings, and web pages. The program allows the user to quickly and easily create professional looking presentations that include pre-defined designs and the ability to create animations.

The MS PowerPoint interface brings out all the functionality of the software using tabs rather than drop-down menus. You should get acquainted with the different parts of the main window:

Slide: A content holder for text and images. To insert additional slides click **New Slide** under the **Slides** section of the Home tab. The slide below is called the **Title slide** where you should enter the title of your presentation and information related to you, your organization, and colleagues.

Text box: A box outlined by dotted lines is where you enter your textual content.

Slides tab: A tab located in the left pane named Slides shows mini-versions of your slides and allows you to view many slides at once.

Outline tab: A tab located in the left pane name Outline that shows mini-versions of your slides but only the text.

Notes section: The section below the slide where you can write notes relating to the slide. This can be used by the presenter for practicing the presentation or handed out to the audience.

Creating Slides:A blank presentation has only a single slide,and you must create any other that you want. There are three views one can use to create PPT slides: Normal, Outline and Slide. In Slide View you see one slide at a time as you type the text and draw the graphics. In Outline view you see the outline of all the text on your slide.

Step1:on the formatting tool bar click on new slide button.
Step2:select layout of the slides that you wish to use in the presentation.Although there are many options here (title slides, slides with or without additional text, slides with graphs, slides with clipart, etc)choose the slide you want.
Step3: Click and enter the title of the new slide
Step4: To add content, click and begin typing the list
Step4: View of completed list

To add Image:

Step5: Click on Clip Art Click on the Insert tab
Step6: Click thumbnail to insert image
Step7: Resize and move image as needed Follow the same steps from to create the remaining slides
Slide transitions:
Step8:Click the thumbnail of the first slide
Step9:Click the Animation tab
Step9:Click the fades smoothly transition.For the remaining slides, you can choose other transitions.
Step10: **Click** Apply to All and set Timing for slides.

To add Animations to slides :

Step11: Click the custom animation button
Step12: Click the text box to select it
Step13: Click the Add Effect button
Step14:select effect you like
Step15: Change direction and speed as you like
Step16: Continue this animation scheme for the remaining slides
Step17:To view click on slide show tab, Press the Esc key to stop the show

Q.15) what is a Computer Network?Explain various types of networks?

A computer network consists of a collection of computers, printers and other equipment that is connected together so that they can communicate with each other.A network consists of two or more computers that are linked in order to share resources (such as printers and CDs), exchange files, or allow electronic communications.The computers on a network may be linked through cables, telephone lines, radio waves,satellites, or infrared light beams.

Types of Network:

Depending upon the geographical area covered by a network, it is classified as:
– Local Area Network (LAN)
– Metropolitan Area Network (MAN)
– Wide Area Network (WAN)
– Personal Area Network (PAN)

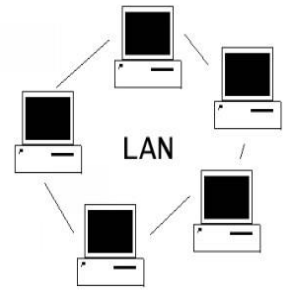
I)LOCAL AREA NETWORK(LAN):

A LAN is a network that is used for communicating among computer devices, usually within an office building or home.

• LAN's enable the sharing of resources such as files orhardware devices that may be needed by multiple users
• Is limited in size, typically spanning a few hundred meters,and no more than a mile
• Is fast, with speeds from 10 Mbps to 10 Gbps
• Requires little wiring, typically a single cable connecting to each device
• Has lower cost compared to MAN's or WAN's
•LAN's can be either wired or wireless. Twisted pair, coax or fibre optic cable can be used in wired LAN's.
• Every LAN uses a protocol – a set of rules that governs how packets are configured and transmitted.
• Nodes in a LAN are linked together with a certain topology. These topologies include:
– Bus
– Ring
– Star
• LANs are capable of very high transmission rates (100s Mb/s to G b/s).

Adavantages:

• Speed
• Cost
• Security
• E-mail
• Resource Sharing

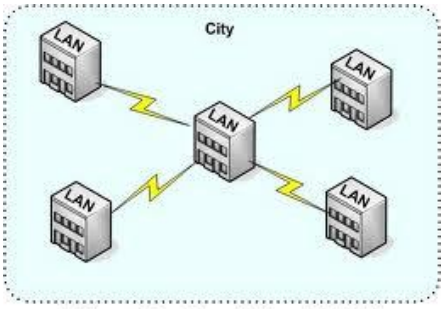


Disadvantages:

•Expensive To Install
• Requires Administrative Time
• File Server May Fail
• Cables May Break

II)METROPOLITAN AREA NETWORK(MAN):

• A **metropolitan area network** (**MAN**) is a large computer network that usually spans a city or a large campus.



Metropolitan Area Network (MAN)

• A MAN is optimized for a larger geographical area than a LAN, ranging from several blocks of buildings to entire cities.

• A MAN might be owned and operated by a single organization, but it usually will be used by many individuals and organizations
• A MAN often acts as a high speed network to allow sharing of regional resources.
• A MAN typically covers an area of between 5 and 50 km diameter.
• Examples of MAN: Telephone company network that provides a high speed DSL to customers and cable TV network.

III)WIDE AREA NETWORK(WAN):

•WAN covers a large geographic area such as country, continent or even whole of the world.
• A WAN is two or more LANs connected together. The LANs can be many miles apart.
• To cover great distances, WANs may transmit data over leased high-speed phone lines or wireless links such as satellites.
• Multiple LANs can be connected together using devices such as bridges, routers, or gateways,

which enable them to share data.

•Wide Area Networks use optic fibre as their communication medium.

•The largest example of a Wide Area Network is the internet itself, which connects all users to the information and data that is available on the the internet.

PERSONAL AREA NETWORK(PAN):

• A PAN is a network that is used for communicating among computers and computer devices (including telephones) in close proximity of around a few meters within a room
• It can be used for communicating between the devices themselves, or for connecting to a larger network such as the internet.
• PAN's can be wired or wireless
• A **personal area network** (**PAN**) is a computer network used for communication among computer devices, including telephones and personal digital assistants, in proximity to an individual's body.
• The devices may or may not belong to the person in question. The reach of a PAN is typically a few meters.

Q.16)Explain various types of network Topologies?

In computer networking, *topology* refers to the layout of connected devices

Topology in Network Design

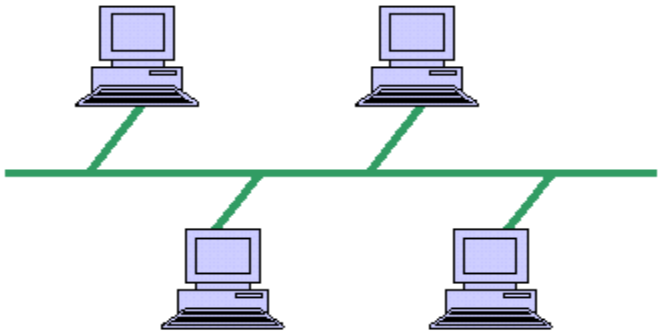
Think of a topology as a network's virtual shape or structure. This shape does not necessarily correspond to the actual physical layout of the devices on the network. For example, the computers on a home LAN may be arranged in a circle in a family room, but it would be highly unlikely to find a ring topology there. Network topologies are categorized into the following basic types:

- bus
- ring
- star
- tree
- mesh

More complex networks can be built as hybrids of two or more of the above basic topologies.

Bus Topology

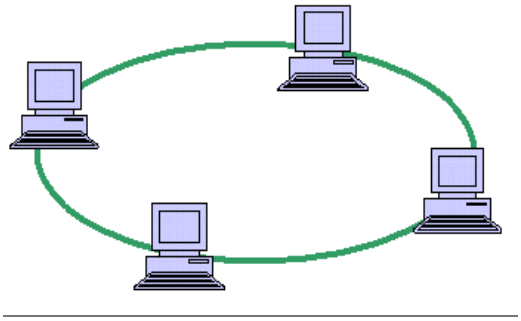
Bus networks (not to be confused with the system bus of a computer) use a common backbone to connect all devices. A single cable,the backbone functions as a shared communication medium that devices attach or tap into with an interface connector. A device wanting to communicate with another device on the network sends a broadcast message onto the wire that all other devices see, but only the intended recipient actually accepts and processes the message.



Ring Topology

In a ring network, every device has exactly two neighbors for communication purposes. All messages travel through a ring in the same direction (either "clockwise" or "counterclockwise"). A failure in any cable or device breaks the loop and can take down the entire network.

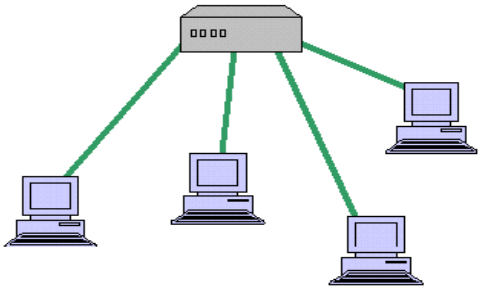
To implement a ring network, one typically uses FDDI, SONET, or Token Ring technology. Ring topologies are found in some office buildings or school campuses.



Star Topology

Many home networks use the star topology. A star network features a central connection point called a "hub" that may be a hub, switch or router. Devices typically connect to the hub with Unshielded Twisted Pair (UTP) Ethernet. Compared to the bus topology, a star network generally requires more cable, but a failure in any star network cable will only take down one computer's network access and not the entire LAN. (If the hub fails, however, the entire network also fails.)

Illustration - Star Topology Diagram



Tree Topology

Tree topologies integrate multiple star topologies together onto a bus. In its simplest form, only hub devices connect directly to the tree bus, and each hub functions as the "root" of a tree of devices. This bus/star hybrid approach supports future expandability of the network much better than a bus (limited in the number of devices due to the broadcast traffic it generates) or a star (limited by the number of hub connection points) alone.

Mesh Topology

Mesh topologies involve the concept of routes. Unlike each of the previous topologies, messages sent on a mesh network can take any of several possible paths from source to destination. (Recall that even in a ring, although two cable paths exist, messages can only travel in one direction.) Some WANs, most notably the Internet, employ mesh routing. A mesh network in which every device connects to every other is called a full mesh. As shown in the illustration below, partial mesh networks also exist in which some devices connect only indirectly to others.

Illustration - Mesh Topology Diagram