UNIT-V

TOPIC NAME: PC AND NETWORKING

A.PERSONAL COMPUTER:
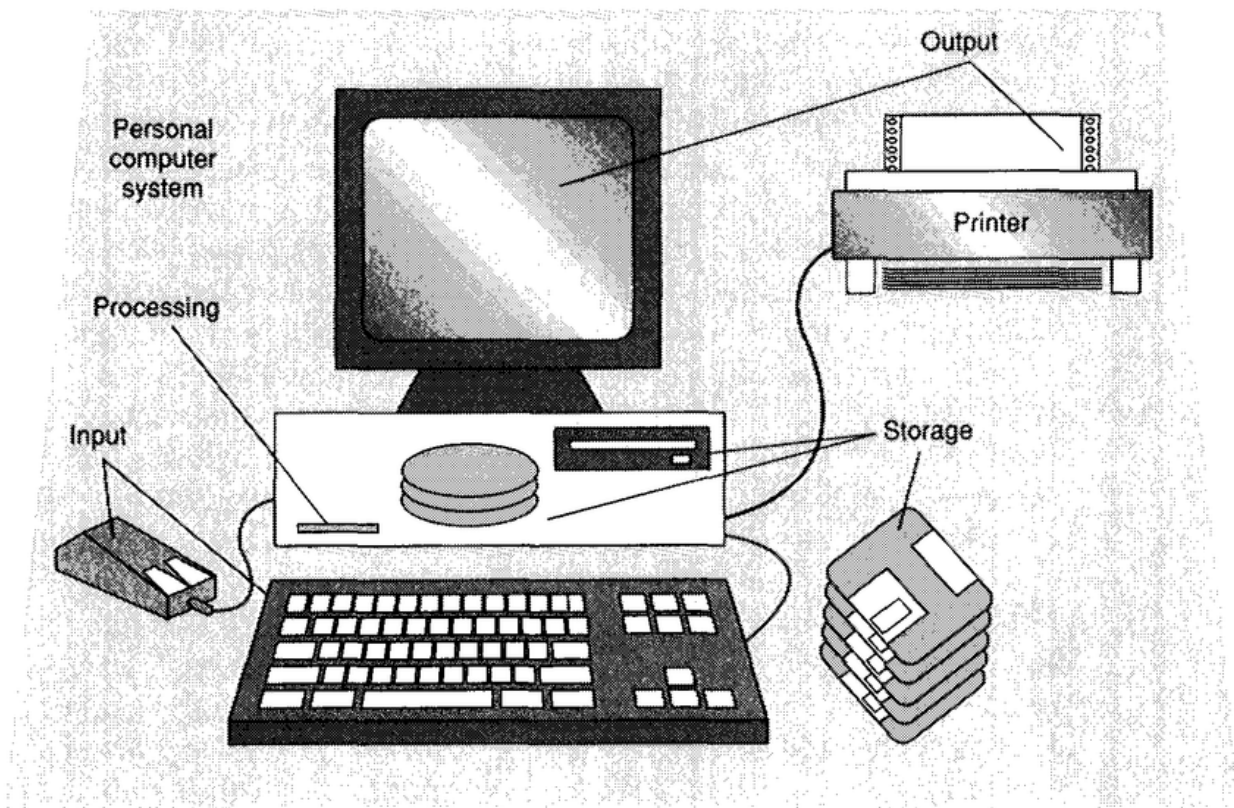
A personal computer (PC) is a multi-purpose computer whose size, capabilities, and price make it feasible for individual use. Personal computers are intended to be operated directly by an end user, rather than by a computer expert or technician. Unlike large costly minicomputers and mainframes, time-sharing by many people at the same time is not used with personal computers.

Institutional or corporate computer owners in the 1960s had to write their own programs to do any useful work with the machines. While personal computer users may develop their own applications, usually these systems run commercial software, free-of-charge software ("freeware"), which is most often proprietary,

or free and open-source software, which is provided in "ready-to-run", or binary, form. Software for personal computers is typically developed and distributed independently from the hardware or operating system manufacturers. Many personal computer users no longer need to write their own programs to make any use of a personal computer, although end-user programming is still feasible. This contrasts with mobile systems, where software is often only available through a manufacturer-supported channel, and end-user program development may be discouraged by lack of support by the manufacturer.

Since the early 1990s, Microsoft operating systems and Intel hardware dominated much of the personal computer market, first with MS-DOS and then with Microsoft Windows. Alternatives to Microsoft's Windows operating systems occupy a minority share of the industry. These include Apple's macOS and free and open-source Unix-like operating systems.

The advent of personal computers and the concurrent Digital Revolution have significantly affected the lives of people in all countries.

TERMINOLOGY:

"Pc" is an initialize for "personal computer". The IBM personal computers incorporated the designation in its model name. It is sometimes useful to distinguish personal computers of the "IBM personal computer" family from personal computers made by other manufacturers. For example, "pc" is used in contrast with "mac", an apple Macintosh computer. Since none of these apple products were mainframes or time-sharing systems, they were all "personal computers" and not "pc" (brand) computers.

TYPES OF PERSONAL COMPUTER:

1. Workstation
2. Desktop computer
3. Laptop
4. Tablet
5. Smartphone
6. Ultra mobile PC

Workstation:

A workstation is a computer intended for individual use that is faster and more capable than a personal computer. It's intended for business or professional use (rather than home or recreational use). Workstations and applications designed for them are used by small engineering companies, architects, graphic designers, and any organization, department, or individual that requires a faster microprocessor, a large amount of random access memory (RAM), and special features such as high-speed graphics adapters. Historically, the workstation developed technologically about the same time and for the same audience as the UNIX operating system, which is often used as the workstation operating system. Among the most successful makers of this kind of workstation are Sun Microsystems, Hewlett-Packard, DEC, and IBM.

Desktop computers:

A desktop computer is a personal computer designed for regular use at a single location on or near a desk or table due to its size and power requirements. The most common configuration has a case that houses the power supply, motherboard (a printed circuit board with a microprocessor as the central processing unit (CPU), memory, bus, and other electronic components), disk storage (usually one or more hard disk drives, solid state drives, optical disc drives, and in early models a floppy disk drive); a keyboard and mouse for input; and a computer monitor, speakers, and, often, a printer for output. The case may be oriented horizontally or vertically and placed either underneath, beside, or on top of a desk.

Laptop:

A laptop (also laptop computer), often called a notebook, is a small, portable personal computer (PC) with a "clamshell" form factor, typically having a thin LCD or LED computer screen mounted on the inside of the upper lid of the clamshell and an alphanumeric keyboard on the inside of the lower lid. The clamshell is opened up to use the computer. Laptops are folded shut for transportation, and thus are suitable for mobile use. Its name comes from lap, as it was deemed to be placed on a person's lap when being used. Although originally there was a distinction between laptops and notebooks (the former being bigger and heavier than the latter), as of 2014, there is often no longer any difference. Today, laptops are commonly used in a variety of settings, such as at work, in education, for playing games, Internet surfing, for personal multimedia, and general home computer use.

Tablet:

A tablet, or tablet PC, is a portable computer that uses a touch screen as its primary input device. Most tablets are slightly smaller and weigh less than the average laptop. Tablets without physical keyboards allow you to enter text using a pop-up keyboard that appears on the screen.

Smart phone: Mobile phone that performs many of the functions of a computer, typically having a touch screen interface, Internet access, and an operating system capable of running downloaded apps.	
Ultra mobile pc: Ultra-mobile PC (UMPC) is a hand-held computing device capable of running a Windows operating system. A UMPC is larger than a personal digital assistant (PDA) but smaller than a laptop. Microsoft and Intel created a design specification for the UMPC in a project called Origami.	

Advantages and Disadvantages of computer:

B.<u>NETWORKING:</u>

Networking is the exchange of information and ideas among people with a common profession or special interest, usually in an informal social setting. Networking is used by professionals to expand their circles of acquaintances, to find out about job opportunities in their fields, and to increase their awareness of news and trends in their fields or in the greater world. (The term computer networking refers to linking multiple devices so that they can readily share information and software resources.)

Business owners may network to develop relationships with people and companies they may do business with in the future. Professional networking platforms provide an online location for people to engage with other professionals, join groups, post blogs, and share information. Networking often begins with a single point of common ground. The most obvious is a professional affiliation, such as stock brokers, but some people find effective networking opportunities in a college alumni group, a church or synagogue social group, or a private club.

For professionals, the best networking opportunities may occur at trade shows, seminars, and conferences, which are designed to attract a large crowd of like-minded individuals. Networking helps a professional keep up with current events in the field, and develops relationships that may boost future business or employment prospects. Needless to say, it also provides opportunities to help other people find jobs make connections and catch up on the news.

Business Networking
Small business owners network to develop relationships with people and companies they may do business with in the future. These connections help them establish rapport and trust among people in their own communities.

Successful business networking involves regularly following up with contacts to exchange valuable information that may not be readily available outside the network.

Online Networking
Professional networking platforms such as LinkedIn provide an online location for people to engage with other professionals, join groups, post blogs, and share information. And, of course, they provide a place to post a resume that can be seen by prospective employers, to search for jobs, or to identify job candidates.

These days, a business-to-business customer pipeline can be developed almost entirely through the use of a social networking site. Online networking forum allows professionals to demonstrate their knowledge and connect with like-minded people. LinkedIn is the largest professional network, but there are many others. Some cater to particular subsets of people, such as Black Business Women Online. Others have a different focus, such as Meet Up, which encourages its members to meet in person off-site. Lunch meet is just what it sounds like: It's a mobile app that identifies folks in your field who are available locally for a meet-up.

TYPES OF NETWORKS:
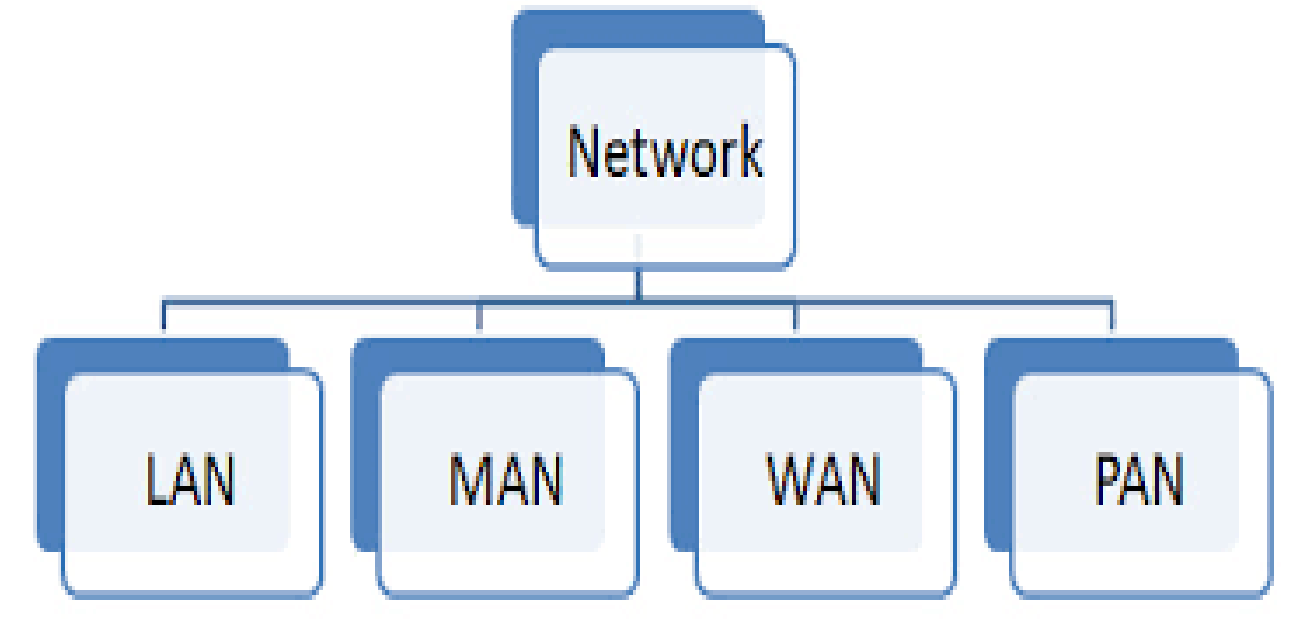
1. PAN Stands for Personal area network.
2. LAN Stands for Local area network.
3. MAN Stands for Metropolitan area network.
4. WAN Stands for Wide area network.

LAN (Local Area Network):

- Local Area Network is a group of computers connected to each other in a small area such as building, office.
- LAN is used for connecting two or more personal computers through a communication medium such as twisted pair, coaxial cable, etc.
- It is less costly as it is built with inexpensive hardware such as hubs, network adapters, and Ethernet cables.
- The data is transferred at an extremely faster rate in Local Area Network.
- Local Area Network provides higher security.

MERITS AND DEMERITS OF LAN:

MERITS	DEMERITS
Improves productivity due to faster work.	Limited number of system can only be connected.
Provides easy maintenance.	Cannot cover large area.
New system can be installed and configured easily.	Network performance degrades as number of users exceeds.

PAN (Personal Area Network):

PERSONAL AREA NETWORK(PAN)

- Personal Area Network is a network arranged within an individual person, typically within a range of 10 meters.
- Personal Area Network is used for connecting the computer devices of personal use is known as Personal Area Network.
- Thomas Zimmerman was the first research scientist to bring the idea of the Personal Area Network.
- Personal Area Network covers an area of 30 feet.
- Personal computer devices that are used to develop the personal area network are the laptop, mobile phones, media player and play stations.

There are two types of Personal Area Network:

- Wireless Personal Area Network
- Wired Personal Area Network

MERITS AND DEMERITS OF PAN:

| MERITS	DEMERITS
They are quick and easy, WPAN devices are easy portable, usually need less technical skill.	Have limited range, limited to relatively low data rates, devices are not compatible with each other, devices with inbuilt WPANs are more expensive.

MAN (Metropolitan Area Network):
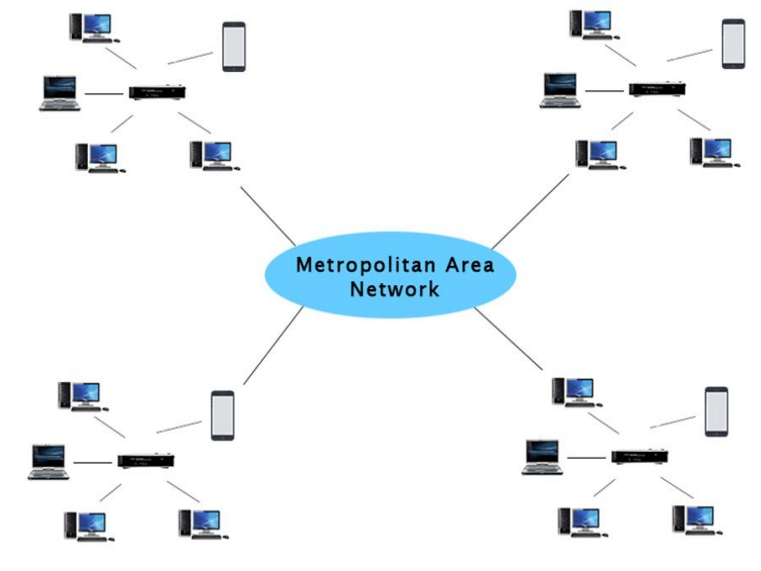
- A metropolitan area network is a network that covers a larger geographic area by interconnecting a different LAN to form a larger network.
- Government agencies use MAN to connect to the citizens and private industries.
- In MAN, various LANs are connected to each other through a telephone exchange line.
- The most widely used protocols in MAN are RS-232, Frame Relay, ATM, ISDN, OC-3, ADSL, etc.
- It has a higher range than Local Area Network (LAN).

MERITS AND DEMERITS OF MAN:

MERITS	DEMERITS
It provides a good back bone for a large network and provides access to WANs.	More cable required for a MAN connection from one place to another.
The dual bus used in MAN helps the transmission of data in both directions simultaneously.	It is difficult to make the system secure from hackers and industrial espionage graphical regions.

WAN (Wide Area Network):
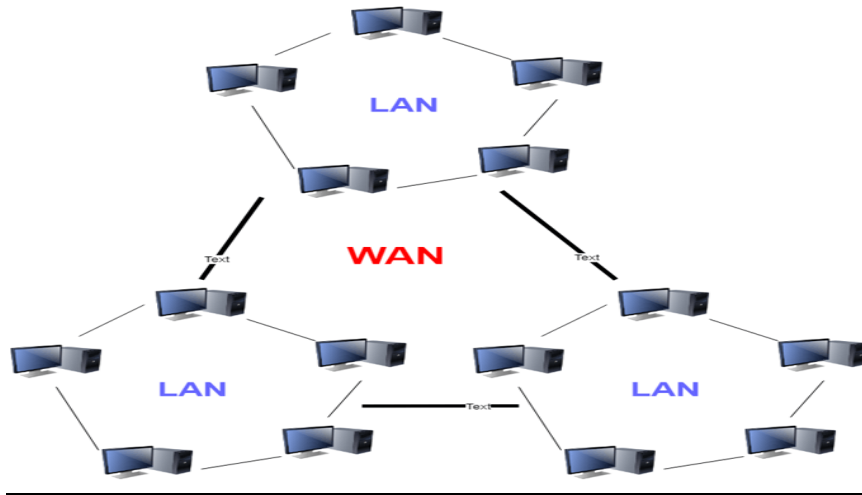
- A Wide Area Network is a network that extends over a large.
- A Wide Area Network is quite bigger network than the LAN.
- A Wide Area Network is not limited to a single location, but it spans over a large geographical area through a telephone line, fiber optic cable or satellite links.
- The internet is one of the biggest WAN in the world.
- A Wide Area Network is widely used in the field of Business, government, and education.

MERITS AND DEMERITS OF WAN:

MERITS	DEMERITS
Share information/ files over a large area.	Expensive and generally slow.
Large network cover.	Need a good firewall to restrict outsiders from entering and disrupting the network.
Message can be sent very quickly to anyone else on the network.	

<u>**ADVANTAGES AND DISADVANTAGES OF COMPUTER NETWORKING:**</u>

These are main advantages of Computer Networks:

1. **Central Storage of Data –**
   Files can be stored on a central node (the file server) that can be shared and made available to each and every user in an organization.
2. **Anyone can connect to a computer network –**
   There is a negligible range of abilities required to connect to a modern computer network. The effortlessness of joining makes it workable for even youthful kids to start exploiting the data.
3. **Faster Problem solving –**
   Since an extensive procedure is disintegrated into a few littler procedures and each is taken care of by all the associated gadgets, an explicit issue can be settled in lesser time.
4. **Reliability –**
   Reliability implies backing up of information. Due to some reason equipment crash, and so on, the information gets undermined or inaccessible on one PC, another duplicate of similar information is accessible on another workstation for future use, which prompts smooth working and further handling without interruption.
5. **It is highly flexible –**
   This innovation is known to be truly adaptable, as it offers clients the chance to investigate everything about fundamental things, for example, programming without influencing their usefulness.
6. **Security through Authorization –**
   Security and protection of information is additionally settled through system. As just the system clients are approved to get to specific records or applications, no other individual can crack the protection or security of information.
7. **It boosts storage capacity –**
   Since you will share data, records and assets to other individuals, you need to guarantee all information and substance is legitimately put away in the framework. With this systems administration innovation, you can do the majority of this with no issue, while having all the space you requirement for capacity.

These are main disadvantages of Computer Networks:
1. **It lacks robustness –**
   If a PC system's principle server separates, the whole framework would end up futile. Also, if it has a bridging device or a central linking server that fails, the entire network would also come to a standstill. To manage these issues, gigantic systems ought to have a ground-breaking PC to fill in as document server to influence setting to up and keeping up the system less demanding.
2. **It lacks independence –**
   PC organizing includes a procedure that is worked utilizing PCs, so individuals will depend a greater amount of PC work, rather than applying an exertion for their jobs that needs to be done. Beside this, they will be subject to the primary document server, which implies that, in the event that it separates, the framework would end up futile, making clients inactive.
3. **Virus and Malware –**
   On the off chance that even one PC on a system gets contaminated with an infection, there is a possibility for alternate frameworks to get tainted as well. Infections can spread on a system effectively, in view of the between availability of different gadgets.4. Lack of Independence
4. **Cost of network –**
   The expense of executing the system including cabling and equipment can be expensive.