TYPES OF COMPUTER NETWORKS

Computer Network

A computer network is a group of computers linked to each other that enables the computer to communicate with another computer and share their resources, data, and applications.

Networks are used to: (Benefits of computer network)
- **Resource sharing** such as printers and storage devices
- Exchange of information by means **of e-Mails and FTP**
- Information **sharing by using Web** or Internet
- **Interaction with other users** using dynamic web pages
- IP phones(**VoIP phone)-**is a **phone** that uses internet protocol
- **Video conferences**
- **Parallel computing-in** which many calculations or the execution of processes are carried out simultaneously
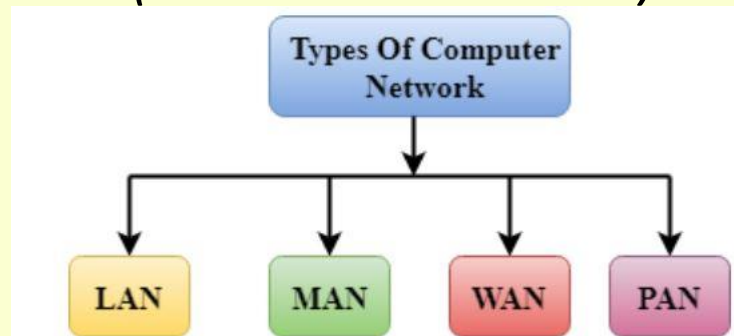- **Instant messaging**

Disadvantages of Computer Network
- Lack of robustness(overcome adverse conditions),
- security issue,
- cost of network

Types of Network

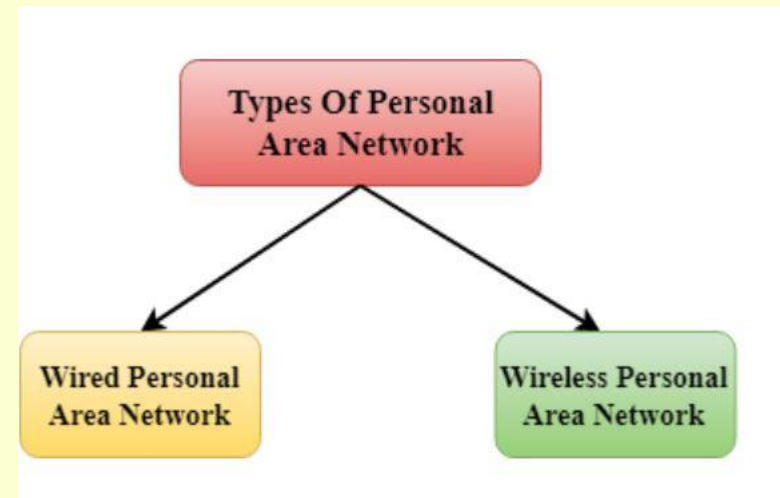A computer network can be categorized by their size.

1. Personal Area Network (PAN)
2. **Local Area Network** (**LAN**)
3. *Wireless **Local Area Network** (WLAN)*
4. *Campus Area Network (CAN)*
5. **Metropolitan Area Network** (MAN)
6. **Wide Area Network** (**WAN**)
7. *Storage-Area Network (SAN)*
8. *System-Area Network (also known as SAN)*

ONLY THESE FOUR ARE IN CBSE SYLLABUS

PERSONAL AREA NETWORK(PAN)

1. Personal Area Network is a network arranged **within an individual person,** typically within a range of **10 meters**.
2. Personal Area Network is used for connecting the **computer devices of personal use** is known as Personal Area Network.
3. Personal Area Network covers an area of **30 feet**.
4. Personal computer devices that are used to **develop the personal area network** are the **laptop, mobile phones, media player and play stations**.
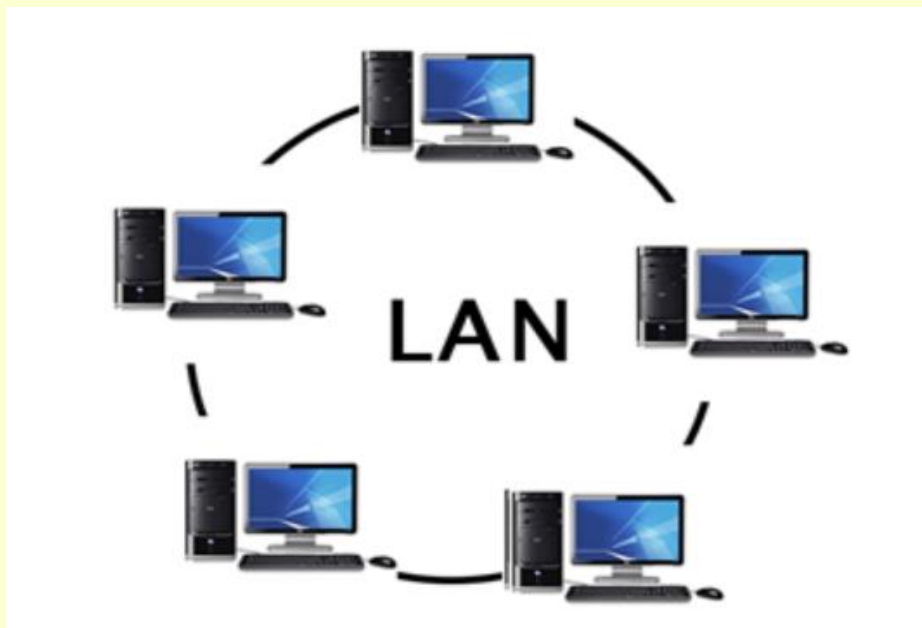

Types Of Personal Area Network

Wired Personal Area Network

Wireless Personal Area Network

Wireless Personal Area Network: -using wireless technologies such as WiFi, Bluetooth. It is a low range network.
Wired Personal Area Network:-is created by using the USB.

LOCAL AREA NETWORK(LAN)

1. Local Area Network is a group of computers connected to each other in a **small area (0-10 kms) such as building, office.**
2. LAN is used for connecting two or more personal computers through a communication **medium such as twisted pair, coaxial cable**, etc.
3. It is **less costly** as it is built with **inexpensive hardware** such as hubs, network adapters, and ethernet cables.
4. The data is transferred at an **extremely faster rate in Local Area Network**.
5. Local Area Network provides **higher security**.
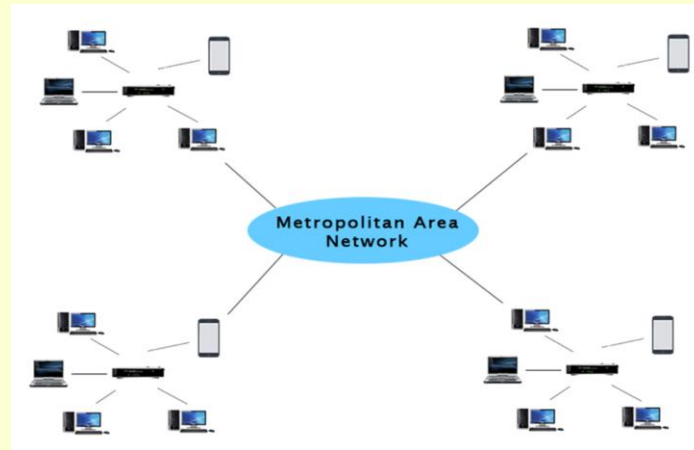
Advantages of LAN

- Resource Sharing
- Software Applications Sharing
- Easy and Cheap Communication
- Centralized Data
- Data Security
- Internet Sharing

Disadvantages of LAN

- High Setup Cost
- Privacy Violations
- Data Security Threat
- LAN Maintenance Job
- Covers Limited Area

METROPOLITAN AREA NETWORK(MAN)

1. It covers a **larger geographic area (10-100 kms**) (**within city)** by interconnecting a different LAN to form a larger network.
2. Government agencies use MAN to connect to the citizens and private industries.
3. In MAN, various LANs are connected to each other through a telephone exchange line.
4. The most widely used protocols in MAN are ATM, ISDN,ADSL etc.
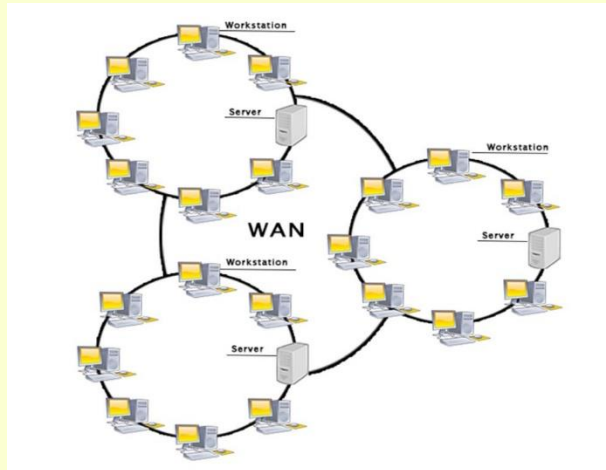5. It has a higher range than Local Area Network(LAN).

Uses Of Metropolitan Area Network:
1. MAN is used in communication between the banks in a city.
2. It can be used in an Airline Reservation.
3. It can be used in a college within a city.
4. It can also be used for communication in the military.

WIDE AREA NETWORK(WAN)

1. This is a network that extends over a **large geographical area(above 100 kms)** such as within multiple city/states/countries.
2. It is quite bigger network than the LAN.
3. It is not limited to a single location, but it spans over a large geographical area through a **telephone line, fibre optic cable or satellite links**.
4. The **internet** is one of the biggest WAN in the world. **Communication medium like satellite, public telephone networks etc and routers are used establish connection**
5. It is widely used in the field of **Business, government, and education**.

Uses Of Wide Area Network:

Mobile Broadband: A 4G network is widely used across a region or country.

Reliance Telecom: A telecom company is used to provide the internet services to the customers in hundreds of cities by connecting their home with fiber.

Private network: A bank provides a private network that connects the 44 offices. This network is made by using the telephone leased line provided by the telecom company.

Advantages of WAN

- Long distance business can connect on the one network.
- Shares software and resources
- Messages can be sent very quickly to wide range of nodes
- Hardware devices can be shared.

Disadvantages of WAN

- Need a good firewall to restrict unauthorized access
- Setting up a network can be an expensive, slow and complicated.
- Maintaining a network is a full-time job
- Security is a major issue when many different people have the ability to use information.

Difference between The Internet and The Web

The Internet is a global network of networks .
while the Web, also referred formally as World Wide Web (www) is collection of information which is accessed via the Internet.

	Internet	World Wide Web
Estimated year of beginning	1969, though opening of the network to commercial interests in 1988	1993
First version	ARPANET	NSFnet
Components	Network of Computers, wires, optical fiber, wireless network	Files/folders/ documents stored in computers
Governed by	Internet Protocol	Hyper Text Transfer Protocol
Dependency	Independent of the World Wide Web	Depends on Internet to work
Nature	Hardware	Software