

JS2 - BASIC COMPUTER COMMUNICATION NETWORKS

Meaning of Computer Communication Network

Communication means sending and receiving information between two or more people or devices. A **computer communication network**, also called a **computer network**, is a group of two or more computers and other digital devices connected together to communicate and share information and resources.

The devices connected to a network may include:

- Desktop computers
- Laptop computers
- Smartphones and tablets
- Printers and scanners
- Servers
- Routers

The connection may be made with physical cables or without cables through wireless technologies such as **Wi-Fi** and **Bluetooth**.

For example, when all the computers in a school laboratory are connected so that they can use the same printer and internet connection, they form a computer network.

Need for Computer Networks

Computer networks are important for the following reasons:

1. **Sharing information:** Users can send and receive documents, pictures, videos and other files.
2. **Sharing hardware:** Many computers can use the same printer, scanner or other device. This reduces the cost of buying separate equipment for every computer.
3. **Sharing an internet connection:** Several computers and mobile devices can connect to the internet through one router.
4. **Easy communication:** People can communicate through email, instant messages, voice calls and video calls.
5. **Central storage:** Information can be stored on a central computer called a **server** and accessed by authorised users.
6. **Saving time and money:** Information can be transferred quickly without printing documents or moving them physically from one place to another.
7. **Collaboration:** Students, teachers and workers can work together and share materials through a network.
8. **Access to online services:** Networks make online learning, banking, shopping, registration and electronic payments possible.

Types of Computer Networks

Computer networks are classified according to the geographical area they cover. The three main types are **LAN**, **MAN** and **WAN**.

Local Area Network (LAN)

LAN means **Local Area Network**. It connects computers and other devices within a small geographical area.

A LAN may cover:

- A room
- A computer laboratory
- A home
- An office building
- A school compound

For example, computers connected within a school computer laboratory form a LAN.

A LAN is usually owned and managed by one person, school or organisation. It is relatively cheap to establish, easy to manage and usually provides fast communication.

Metropolitan Area Network (MAN)

MAN means **Metropolitan Area Network**. It connects computers and smaller networks across a city or large town.

A MAN is larger than a LAN but smaller than a WAN. It may connect several offices, schools or bank branches located in different parts of the same city.

For example, a network connecting bank branches in Ikeja, Yaba, Surulere and Lagos Island is a MAN because all the branches are located within Lagos.

A MAN is more expensive and more difficult to manage than a LAN.

Wide Area Network (WAN)

WAN means **Wide Area Network**. It connects computers and smaller networks over a very large geographical area.

A WAN may cover:

- Different states
- An entire country
- Several countries
- Different continents
- The whole world

For example, a bank network connecting branches in Lagos, Abuja, Kano and Port Harcourt is a WAN. The **internet** is the largest example of a WAN because it connects millions of computers and smaller networks around the world.

A WAN may use fibre-optic cables, telephone lines, mobile networks and satellites to transmit information over long distances.

Differences Between LAN, MAN and WAN

Feature	LAN	MAN	WAN
Full meaning	Local Area Network	Metropolitan Area Network	Wide Area Network
Area covered	A small area	A city or large town	A country, continent or the world
Example	School computer laboratory	Bank branches across Lagos	Bank branches across Nigeria
Size	Smallest	Larger than LAN	Largest
Cost	Relatively low	Higher than LAN	Very high

Summary

A computer network is a group of connected computers and digital devices that communicate and share information and resources. Networks are needed for sharing files, hardware, internet connections and information. They also support communication, teamwork and online services.

The three main types of networks are:

- **LAN:** Covers a small area, such as a school or office.
- **MAN:** Covers a city or large town.
- **WAN:** Covers a country, continent or the whole world.

Evaluation Questions

1. What is a computer communication network?
2. State four reasons computer networks are needed.
3. Write the full meanings of LAN, MAN and WAN.
4. What type of network is used in a school computer laboratory?
5. State one example each of LAN, MAN and WAN.
6. Why is the internet described as a WAN?