BBD University

Assignment -01

Computer Network

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Q-1 what is computer Network will all the feauters of computer network?

A computer network is a collection of interconnted devices that communicate with each other to share resources and information. Here are some key feature of computer Network.

① Communication:-
Network enable devices to exchange and information.

② Resource sharing :-
Devices can share resources such as printers, files and internet access.

③ Scolability :-
Network can be exponded ta acommodate more devices and users.

④ Realiability :-
Redundant path and backup system can ensure network reliability and availbility.

① connectivity :-

Different types of network (LAN, MAN, WAN etc.) connect devices locally an over long distance.

Q2 Write the type of connection in Computer Network and elaborate nodes of computer Network?

Types of connection:-

① wired connection :-

• Ethernet :-

The most common type of wired connection, using cables (like cat5. cat6) to connect devices through switch, routers an directly to each other.

• Fiber optics :-

Uses light signal to transmit data, at very high speed over long distance, priority higher bandwidth and over lotency compared to copper cables.

② wireless connection :-

- wi-fi (wireless fidelity) uses radio waves to connect devices within a specific range, typically in a home an office enviourment.

③ cellular Network :-
3G, 4G, 5G

④ UPN :-
Virtual private Network.

Nodes in computer Network :-
① Client Nodes :-
- Workstation / Pcs / Laptops
- Mobile Devices

② Server Nodes :-
- file sources
- Web server
- Database server
- Application server

③ Network devices :-

- Router
- Switch
- Hub
- Modem

④ Peripheral Nodes :-

- printer / Scanner
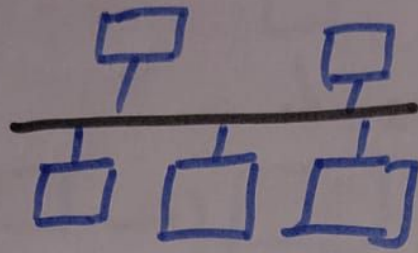- Network Attached storage (NAS)

Q3 Write all topology of computer Network explain the advantage and disadvantage of topology?

Topology refer to the arrangement of different elements (Links nodes etc) in a computer types of Network of topology.

① Bus Topology :-

All devices all connected to lingal cabel knows as the backbone of cabel. data sent from a device travels alongs the bus until it reaches its destination.

Advantage:-

- simple and cost effective.
- Good for small network.

Disadvantage:-

- Limited cabel length and number of Nodes.
- performance issue.

② Star Topology:-

All devices are connected to a central hub or switch The hub act as a repeater for data flow.
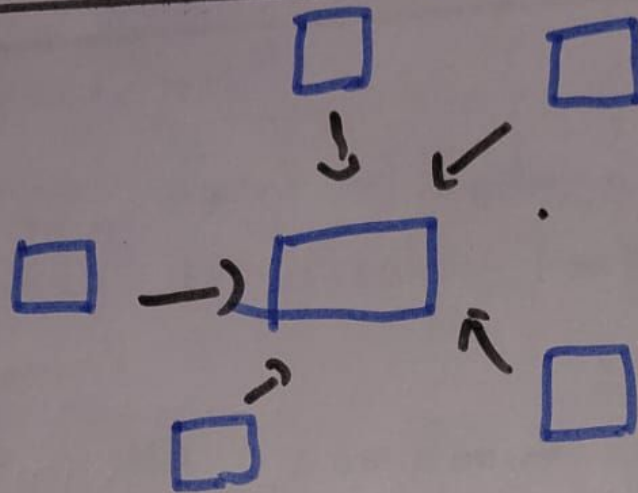
Advantage:-

- Easy to manage
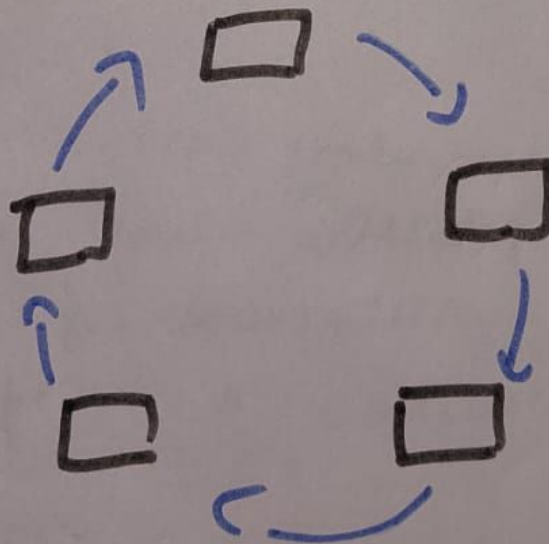- Reliable

Disadvantge:-

High depensy on control node.

- More cobility.

③ Ring topology :-

Each devices is connected to two other devices forming a circular data path. Data travels in one direction

Advantage :-

Efficient data transfer.

Easier data transfer

Disaduantage :-

- Single paint of failure
- Easir to isolate faults.

Q-4

Write the component of data Communicate explain it with proper diagram?

Data communication refers to the exchange of data between two or more devices through a transmission medium.

① Sender :-

The sender is the device an entity that initiates the communication by transmitting data. This would be a Computer.
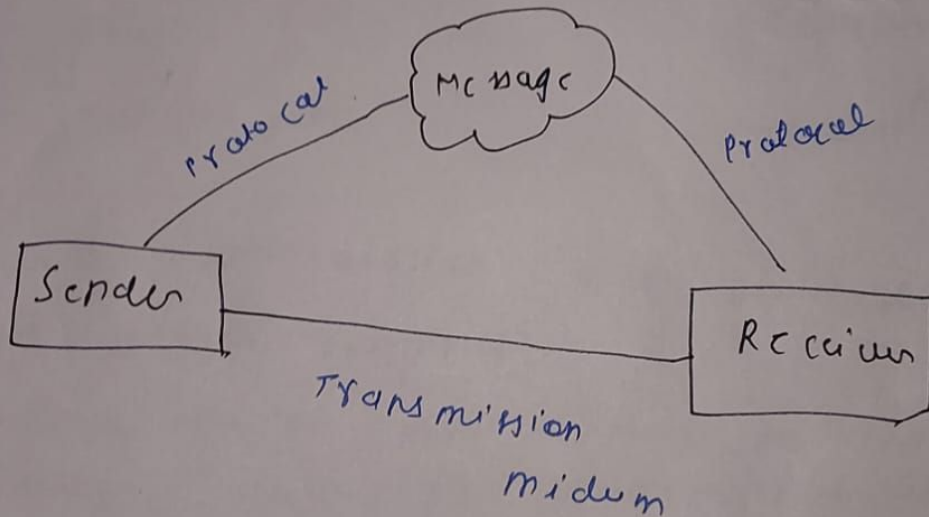
② Reciver :-

The reciver is the device the recive data sent by sender.

③ Message :-

It is a actual data an information that be transmitted.

Protocals :-

- TCP/IP
- HTTP
- FTP
- SMTP

Q.) Explain transmission media with their Types?

Transmission media are the physical pathway that connect computer, other devices, and people on a network. They carry data from one devices to another. Transmission media.
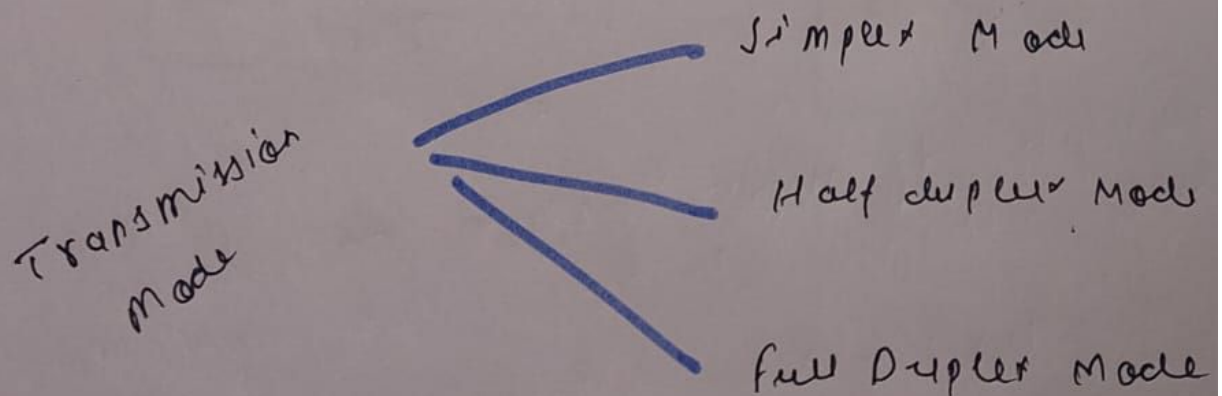
①

Transmission Media

```
        ┌──────────────┴──────────────┐
        ↓                             ↓
   Guided Media                   Unguided
   ┌ Coaxial                      ┌ Radio wave
   ├ Fiber                        ├ Microwave
   ├ Twisted pair                 ├ Infrared
```

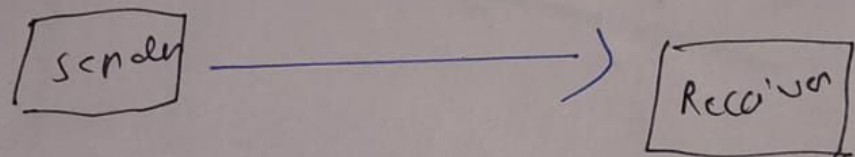**Q-6** Write transmission mode and explain it proper examples?

Transmission mode refers to the way data is transmitted between two devices in a network. It defines the direction of singal flow between two the communication.

```
                          ┌──────  Simplex Mode
Transmission
mode          ────────────┼──────  Half duplex Mode
                          └──────  full Duplex Mode
```
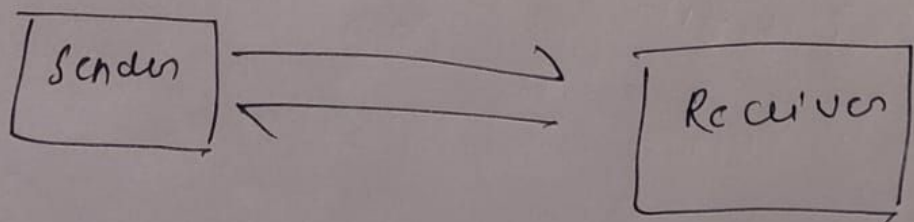
① Simplex mode :-

This mode of communication is unidirectional meaning data flow only in one direction.

e.g. -> Tu Broocast.

Sender ————————————> Receiver

② Half Duplex :-

is bidirectional In this, communication but not at same time

Sender ⟺ Receiver

e.g. -> Vaki-Taki

3. Full-Duplex :-

In this mode communication is bidirectional and data can flow simentaneously.

e.g. -> Telephone.

```
┌─────────┐      ─────────────→     ┌──────────┐
│ Sender  │      ←─────────────     │ Receiver │
└─────────┘                         └──────────┘
```