



Biyani Girls College
I Internal Examination 2019
BCA (III Year)

Subject: - Network Technologies (BCA 303)

Time: 1 ½ Hrs

MM:40

[I] Answer the following questions in one line only (5*2=10)

1. How many types of topologies we use?

Ans. There are four categories: Star **topology**, Bus **topology**, Ring **topology** and Mesh **topology**. Hybrid combinations of these topologies also exist. Star **topology** – all computers and devices are connected to a main hub or switch.

2. What is star topology?

Ans. A star topology is a topology for a Local Area Network (LAN) in which all nodes are individually connected to a central connection point, like a hub or a switch. A star takes more cable than e.g. a bus, but the benefit is that if a cable fails, only one node will be brought down.

3. What is transmission mode?

Ans. Transmission mode means transferring of data between two devices. It is also known as communication mode. Buses and networks are designed to allow communication to occur between individual devices that are interconnected. There are three types of transmission mode:-

Simplex Mode

Half-Duplex Mode

Full-Duplex Mode

4. What is switches?

Ans. Network switch (also called switching hub, bridging hub, officially MAC bridge) is networking hardware that connects devices on a computer network by using packet switching to receive, and forward data to the destination device

5. How many types of networks in data communications?

Ans. Communication Networks can be of following 5 types:

Local Area Network (LAN)

Metropolitan Area Network (MAN)

Wide Area Network (WAN)

[II] Answer the following questions in 50 words (2*5=10)

1. What are various characteristics of data communication?

Ans. The effectiveness depends on four fundamental characteristics of data communications

1. Delivery: The data must be deliver in correct order with correct destination.

2. Accuracy: The data must be deliver accurately.

3. Timeliness: The data must be deliver in a timely manner late delivered Data useless.

4. Jitter: It is the uneven delay in the packet arrival time that cause uneven quality.

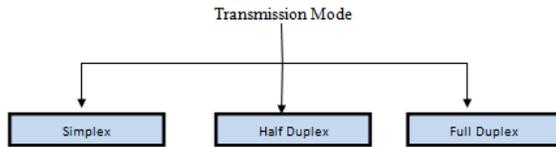
2. Explain various data transmission modes.

Ans. Transmission Modes in Computer Networks

Transmission mode refers to the mechanism of transferring of data between two devices connected over a network. It is also called Communication Mode. These modes direct the direction of flow of information. There are three types of transmission modes. They are:

Simplex Mode

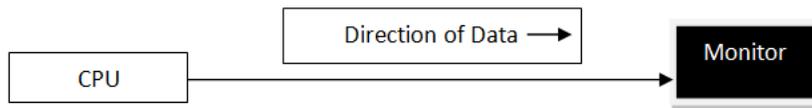
Half duplex Mode
Full duplex Mode



SIMPLEX Mode

In this type of transmission mode, data can be sent only in one direction i.e. communication is unidirectional. We cannot send a message back to the sender. Unidirectional communication is done in Simplex Systems where we just need to send a command/signal, and do not expect any response back.

Examples of simplex Mode are loudspeakers, television broadcasting, television and remote, keyboard and monitor etc.

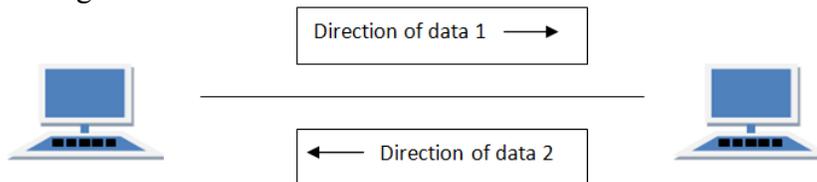


HALF DUPLEX Mode

Half-duplex data transmission means that data can be transmitted in both directions on a signal carrier, but not at the same time.

For example, on a local area network using a technology that has half-duplex transmission, one workstation can send data on the line and then immediately receive data on the line from the same direction in which data was just transmitted. Hence half-duplex transmission implies a bidirectional line (one that can carry data in both directions) but data can be sent in only one direction at a time.

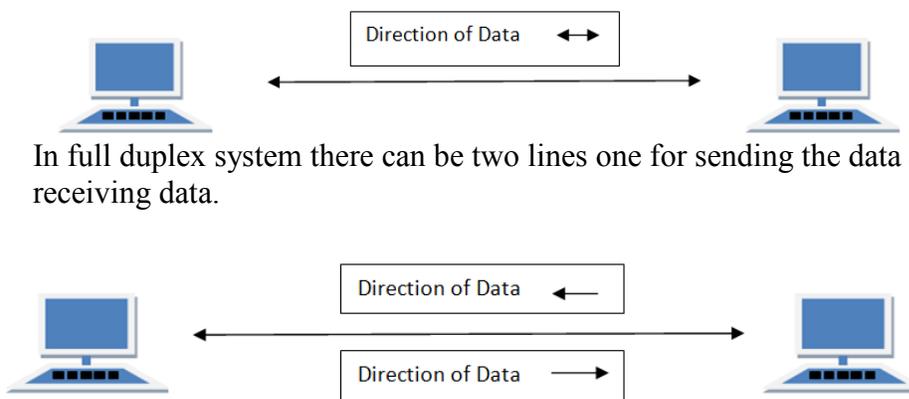
Example of half duplex is a walkie- talkie in which message is sent one at a time but messages are sent in both the directions.



FULL DUPLEX Mode

In full duplex system we can send data in both the directions as it is bidirectional at the same time in other words, data can be sent in both directions simultaneously.

Example of Full Duplex is a Telephone Network in which there is communication between two persons by a telephone line, using which both can talk and listen at the same time.



[III] Answer the following questions in 150 words.

(2*10=20)

1. Difference between guided and unguided media?

Ans.

Guided media

The signal energy propagates within the guided media.

Guided media is mainly used for point to point communication.

The signal propagates in the guided media in the form of voltage, current or photons.

Examples: twisted pair cables, coaxial cable, optical fiber cable.

Unguided media

The signal energy propagates through the air.

Unguided media is mainly used for broadcasting purpose.

The signal propagates in the unguided media in the form of EM waves.

Examples: Microwave or radio links, infrared

2. Explain Physical and Data Link Layer.

Ans. Data Link Layer - OSI Model

Data link layer performs the most reliable node to node delivery of data. It forms frames from the packets that are received from network layer and gives it to physical layer. It also synchronizes the information which is to be transmitted over the data. Error controlling is easily done. The encoded data are then passed to physical.

Error detection bits are used by the data link layer. It also corrects the errors. Outgoing messages are assembled into frames. Then the system waits for the acknowledgements to be received after the transmission. It is reliable to send message.

The main task of the data link layer is to transform a raw transmission facility into a line that appears free of undetected transmission errors to the network layer. It accomplishes this task by having the sender break up the input data into data frames (typically a few hundred or few thousand bytes) and transmit the frames sequentially. If the service is reliable, the receiver confirms correct receipt of each frame by send back an acknowledgement frame.

Physical Layer - OSI Reference Model

Physical layer is the lowest layer of the OSI reference model. It is responsible for sending bits from one computer to another. This layer is not concerned with the meaning of the bits and deals with the setup of physical connection to the network and with transmission and reception of signals.