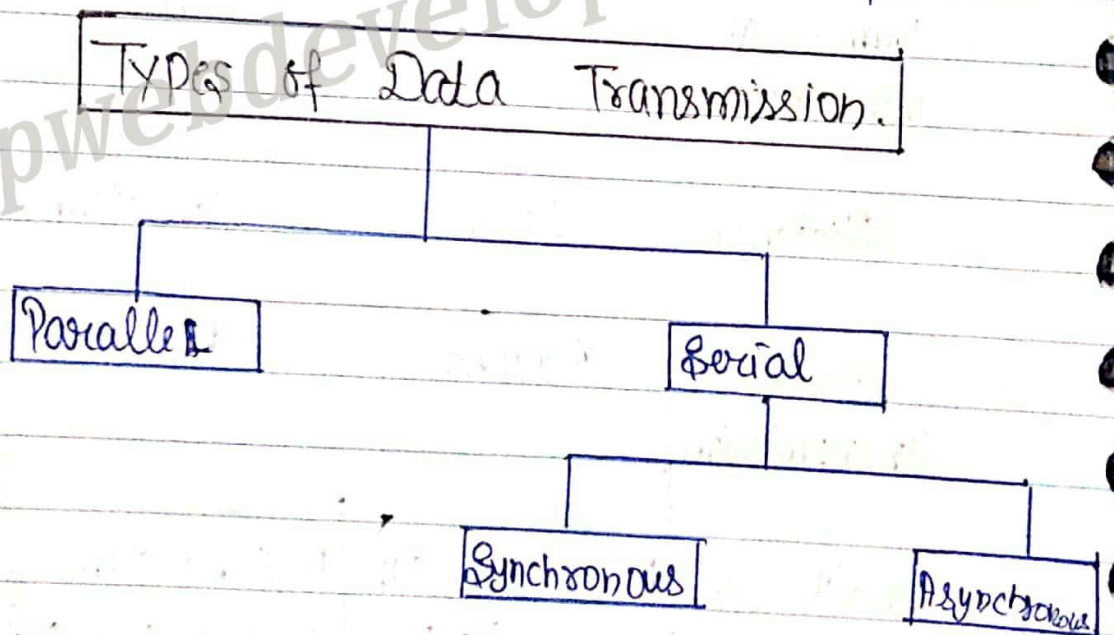


Data Transmission.

- Data Transmission refers to the movement of data in form of bits between two or more digital devices.
- The transfer of data takes place via some form of transmission media.
for example :- coaxial cable, fiber optics.

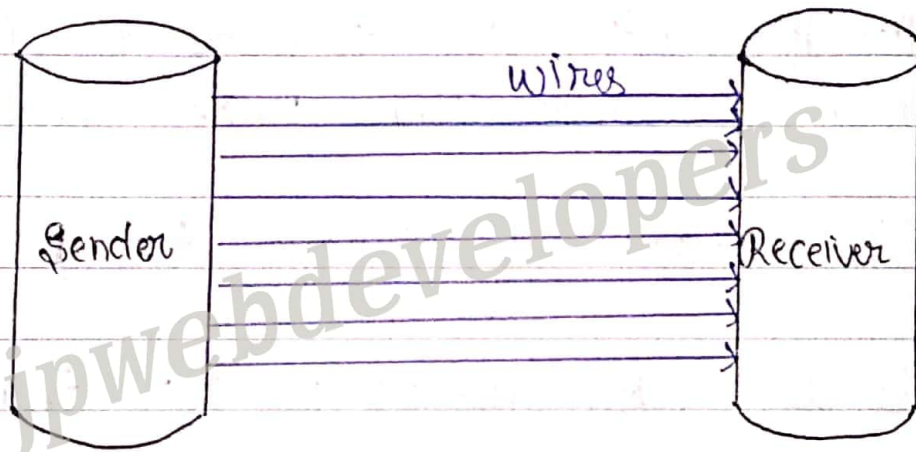


1. Parallel Transmission :-

→ In Parallel Transmission, all the bits of data are transmitted simultaneously on separate communication lines.

→ It means, it shares multiple data bits at a similar time over separate media.

→ Parallel transmission can be used with a wired channel that uses multiple, separate wires.



(Parallel Transmission that uses 8 wires to send 8 bits at the same time.)

→ It is used for short distance communication

→ In this, eight separate wires are used to transmit 8 bit data from sender to (Receiver).

→ In order to transmit n bits, n wires or lines are used. Thus each bit has its own lines.

→ Advantages of Parallel Transmission:-

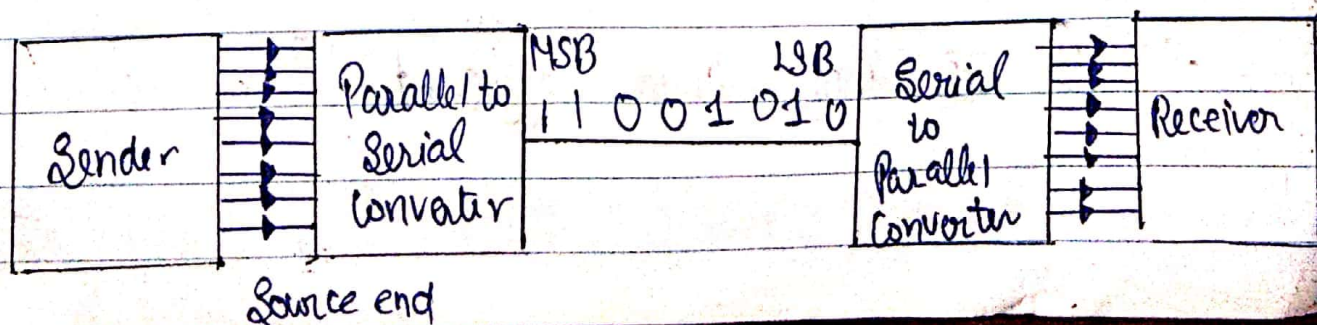
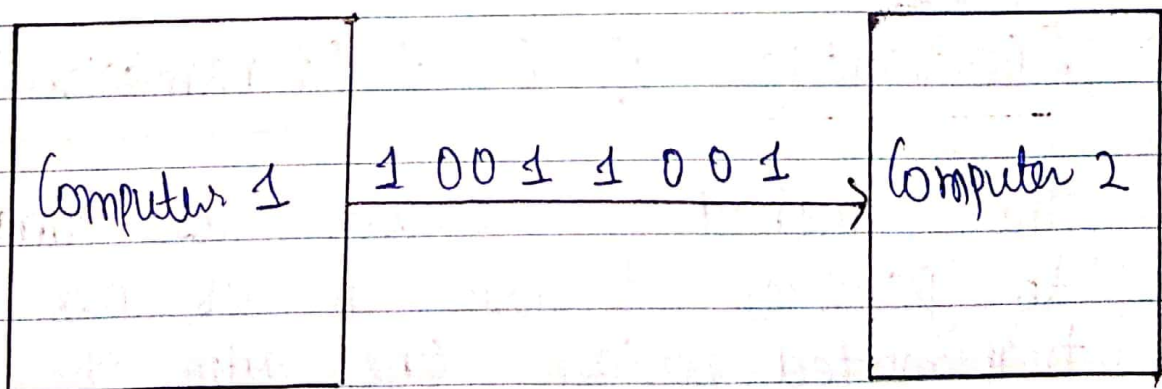
- (i) It can transmit N bits at the same time.
- (ii) It is speedy way of transmitting data.
- (iii) Multiple bits are transmitted simultaneously with a single clock pulse.

→ Disadvantages of Parallel transmission:-

- It is costly method of data transmission.
- It requires n lines to transmit n bits at the same time.
- It is usually limited to shorter distances.

2 Serial Transmission :-

- The alternative of parallel transmission, called Serial transmission.
- In serial transmission, the various bits of data are transmitted serially one after another.
- All of bits of data are transmitted on single line in serial fashion.
- It requires only one communication line.
- In Serial Transmission, 8 bits are transferred at a time having a start and stop bit.



→ Suppose an 8-bit data 11001010 is to be sent from source to destination.

The LSB i.e. 0 will be transmitted first first followed by other bits. The MSB i.e. 1 will be transmitted in the end via single communication line.

* Advantage of Serial Transmission:-

→ Serial Transmission is used for long distance communication.

→ Serial Transmission is cost-efficient.

→ The circuit used in serial transmission is simple.

* Disadvantages of Serial Transmission:-

→ This method is slower as compared to parallel transmission as bits are transmitted serially one after the other.

→ It is not cost-efficient.

* Comparison between Serial and Parallel Transmission

SNO	Basis for Comparison	Serial Transmission	Parallel Transmission
1.	Defination	Data flows in 2 directions, bit by bit.	Data flow in multiple directions 8 bits at a time.
2.	Number of bits transferred per clock pulse	One bit	8 bit or 1 byte or nbits.
3.	Number of lines required to transmit n bits	one line	n lines
4.	Speed	Slow	fast
5.	Cost	Low (as one line is required)	Higher (as n lines are required)
6.	Applications	Used for long distance communication	used for short distance communication
7.	Example	Computer to Computer	Computer to printer