Data Communication

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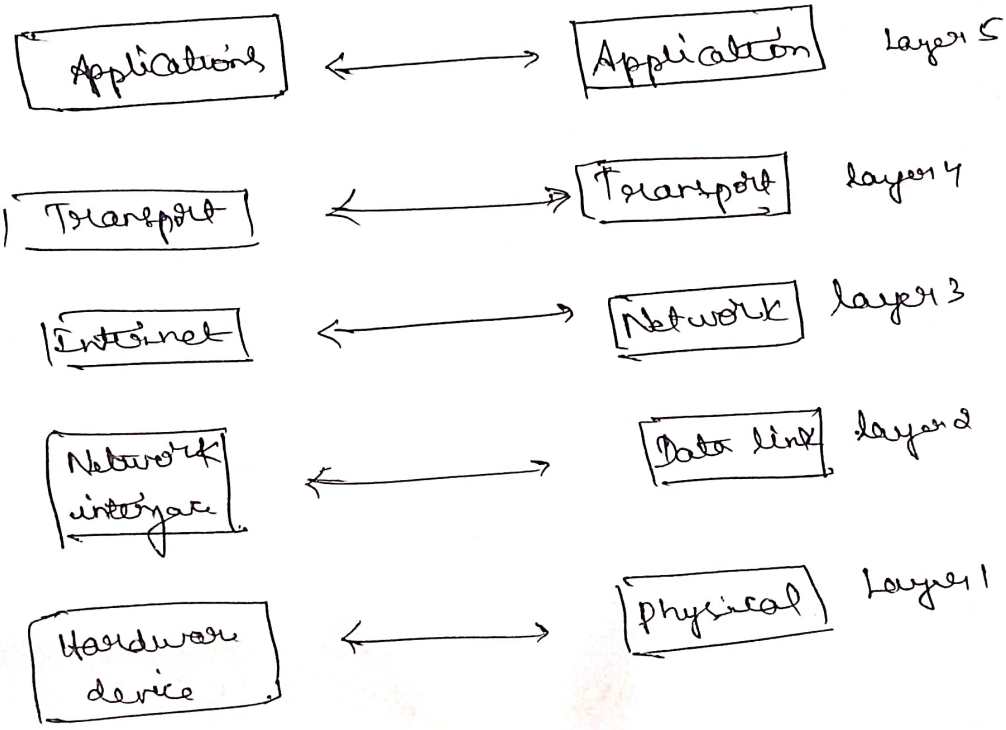
1KN18CS097
CSE 'A' Sec

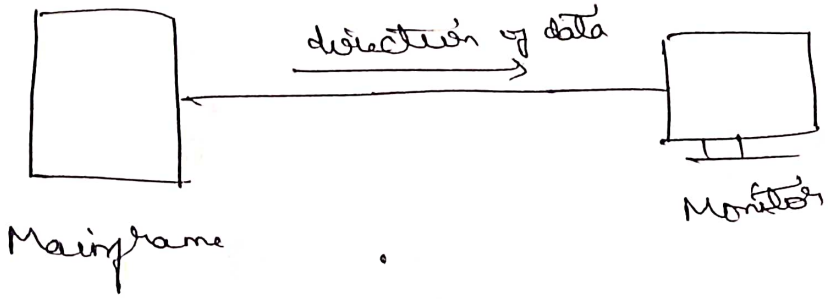
1a.



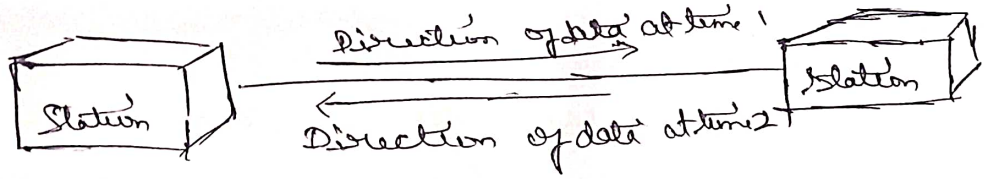
It is used in the internet today. It is a hierarchical protocol made up of interactive modules, each of which provides a specific functionality. The term hierarchical means that each upper level protocol is supported by the services provide by one or more lower level protocols. The original TCP/IP protocol suite was defined four software layers built upon the hardware.

18.

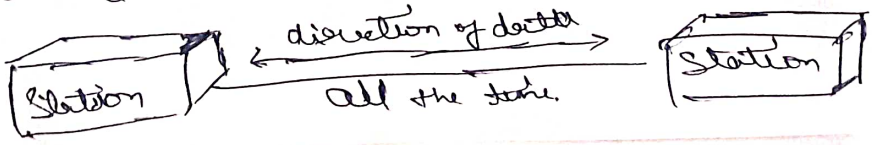
Simplex: Here communication is unidirectional, as on a one way street. Only one of the two devices on a link can transmit; the other can only receive. keyboards and traditional monitors are example.



Half duplex: Here each station can both transmit & receive, but not at the same time. when one device is sending, the other device can only receive. and vice versa.
The entire capacity of a channel is taken by whichever of the two devices is transmitting at the time.
Ex: walkie-talkie.



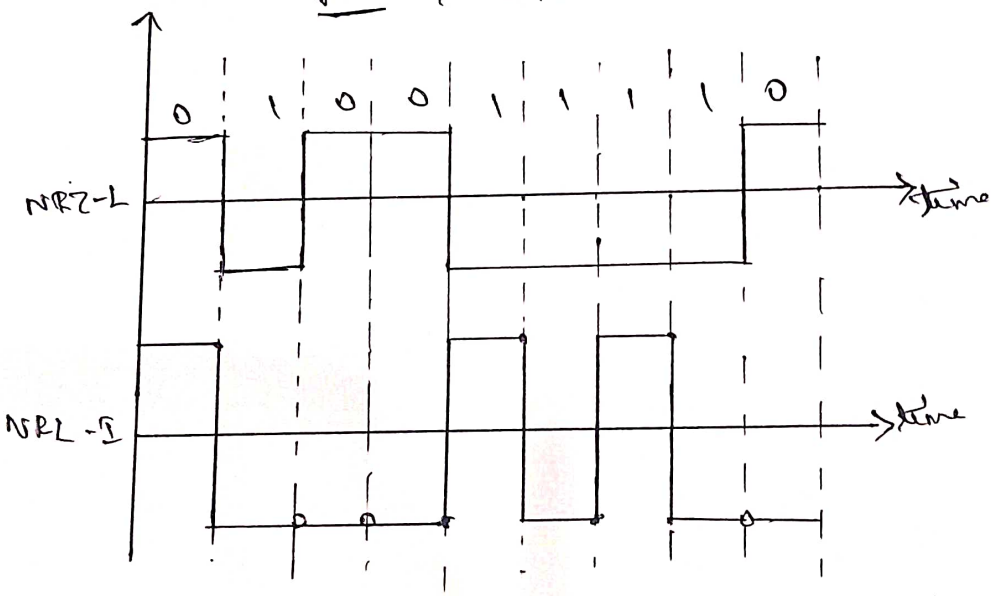
Full duplex:
Here both stations can transmit and receive simultaneously Signal going in one direction share the capacity of the link with signals going in the other direction.
It is used when communication of both directions is required all the time. Capacity of channel must be divided between 2 directions. Ex: telephone network



4a. The process of converting ~~digital to digital~~ data to digital signal is called line coding.

- The data may be in the form text, numbers, graphical images, audio or video.
- The data is stored in computer's memory as sequence of bits
- line coding converts sequence of bits into digital signals
- At the sender, digital signal is encoded into a digital signal.
- At the receiver, digital - ~~data~~ signal is decoded into a digital data.

for → 0100111110



Polar NRZ-L and NRZ-I schemes.

4b. we have, Bit rate N = 8000 bps

Baud rate S = 1000 baud

r = ?

L = ?

$S = N \times \frac{1}{r}$

$r = N/S = \frac{8000}{1000} = 8$ bits/baud

$r = \log_2 L = 2^r$

$= 2^8 = 256$ //.