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Part-B

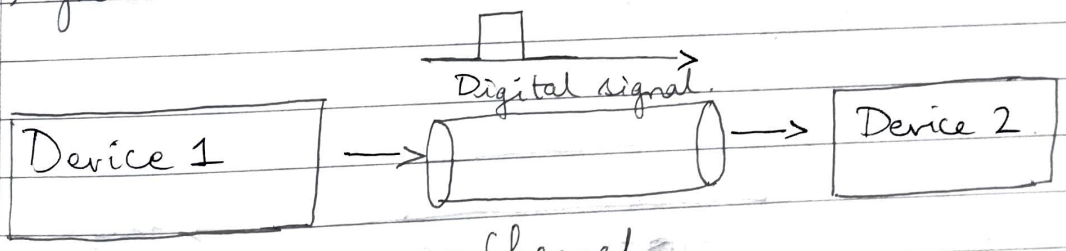
8.2] Transmission of digital signals:-

Transmission is the act of transferring signals from one end to another. We can transmit digital signals in 2 ways:-

(1) Baseband transmission.
(2) Broadband transmission (using modulation).

(1) Baseband Transmission:-

Baseband transmission involves sending a digital signal over a channel without changing the digital signal to an analog signal.

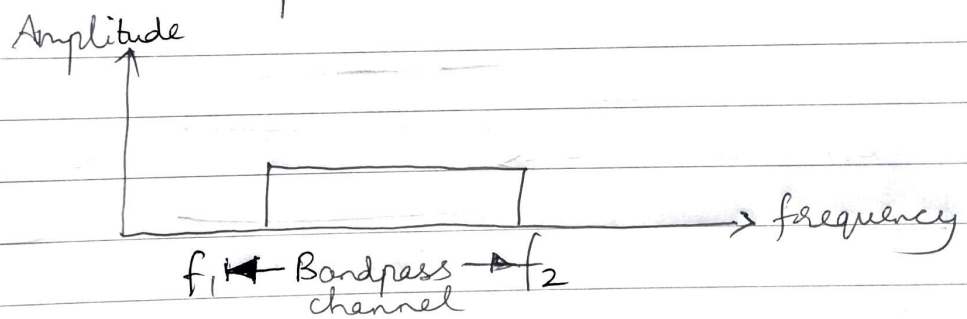


- Altough, the output is not an exact replica of original signal, the data can still be deduced from the received signal. Altough some frequencies are blocked by medium they are not critical.
- To preserve the shape of digital signal as it is, it is possible only if we have a low pass channel with infinite or very wide bandwidth.
- Eg:- An example of a dedicated channel where the entire bandwidth of the medium is used as one single channel is a LAN. Every LAN

today uses a dedicated channel for 2 stations communicating with each other. In a bus topology a LAN with multipoint connections, only two stations can communicate with each other at each moment i.e. timesharing. In a star topology LAN, entire channel between each station & hub is used for communication between 2 entities.

(2) **Broadband Transmission :-**

- Broadband transmission or modulation means changing the digital signal into analog signal for transmission.
- Modulation allows to use a bandpass channel i.e- a channel with a bandwidth that does not start from zero. This is available than a low-pass channel. It looks like :-



- Examples :- (1) Digital Subscriber line (DSL)
  (2) Modem (cable modem)
  (3) Fiber
  (4) Wireless
  (5) Satellite
  (6) Broadband over powerlines (BPL)