

## # DCC (Book - Frozen, William)

### ⇒ Characteristics of Data Communication

- ① Delivery :- The data should be delivered timely and correct destination. The data is broken down into data packets they contain the address of receiving destination.
- ② Accuracy :- The message that is being delivered must be accurate.
- ③ Timeliness :- The data must be delivered on time.

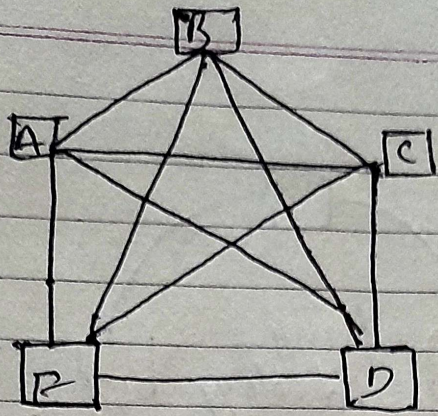
### ⇒ Components of Data Communication

- ① Message
- ② Sender
- ③ Receiver
- ④ Medium
- ⑤ Protocol

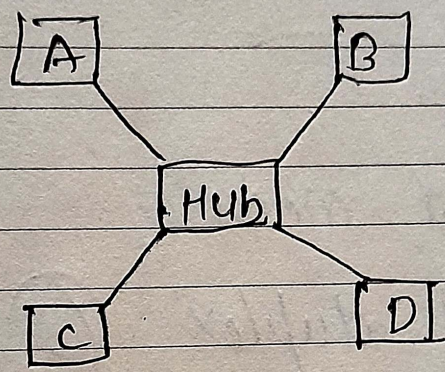
### ⇒ Types of Communication :-

- ① Point-to-Point Communication
- ② Multipoint Communication

# # Mesh topology

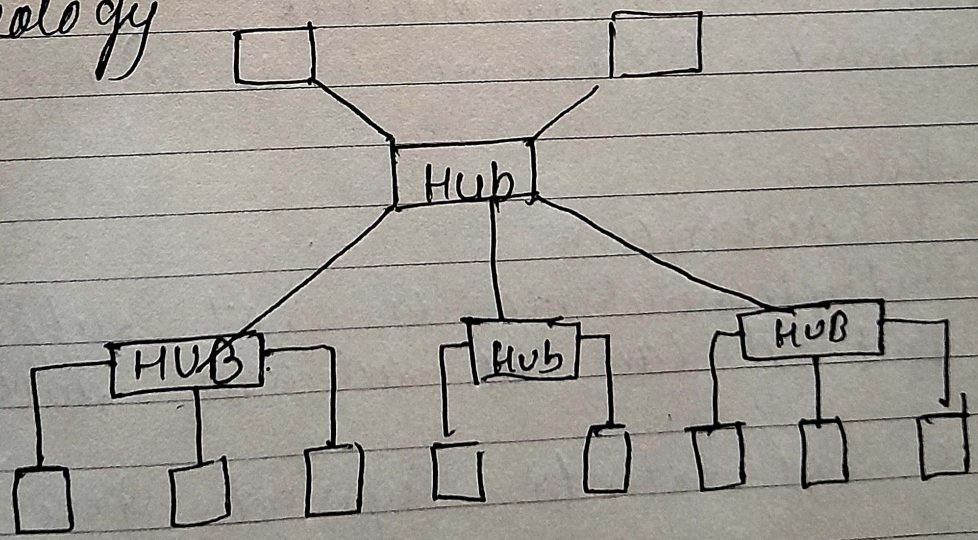


# # Star topology :-

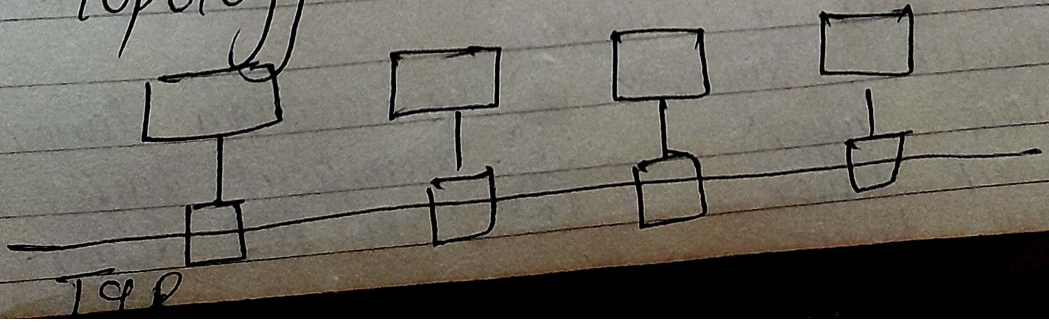


Advantages :-  
① All nodes are connected with central hub

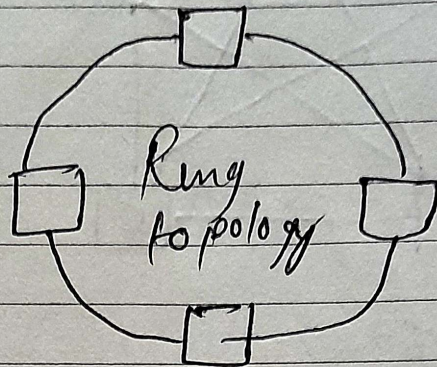
# # Tree topology



# # Bus Topology :-



## # Ring topology



## # Hybrid topology

## # Transmission mode:-

- ① Simplex ② Half duplex ③ full duplex

## # CYBER SECURITY

## # System is a 4 tier network

- ① Hardware ② firmware ③ OS ④ Application

## # Java

### # Inheritance :-

- ⇒ Multiple inheritance is not supported in java  
 ⇒ But it can be achieved using interfaces

we use extends keyword for inheritance

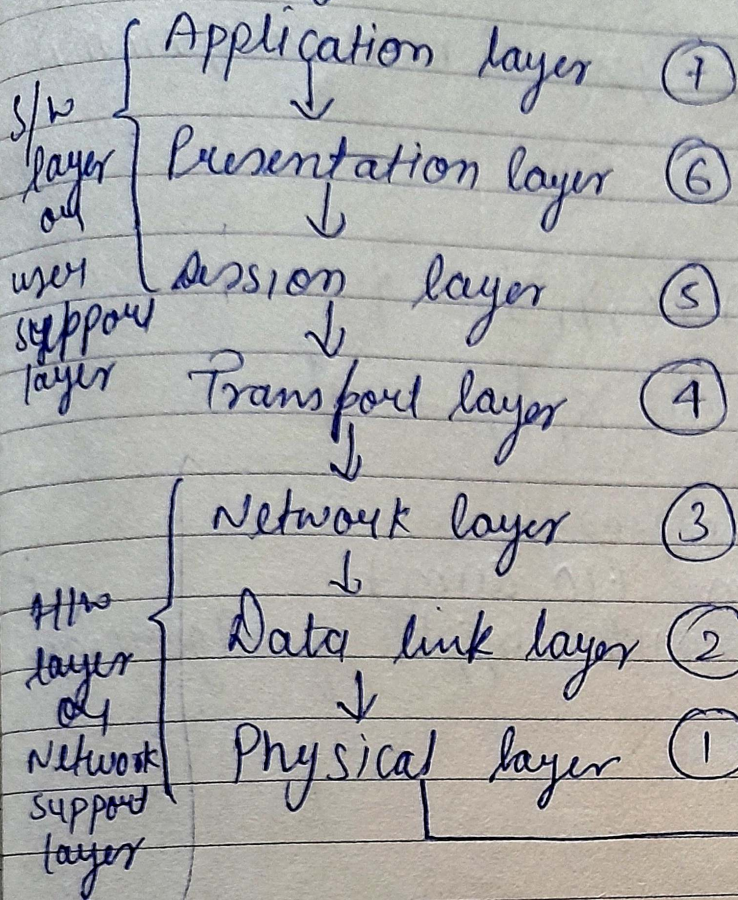
## # OSI Model :- Open source interconnection model

There are 7 layers

- |                     |                      |
|---------------------|----------------------|
| ① Application layer | ② Presentation layer |
| ③ Session layer     | ④ Transport layer    |
| ⑤ Network layer     | ⑥ Data link layer    |
| ⑦ Physical layer    |                      |

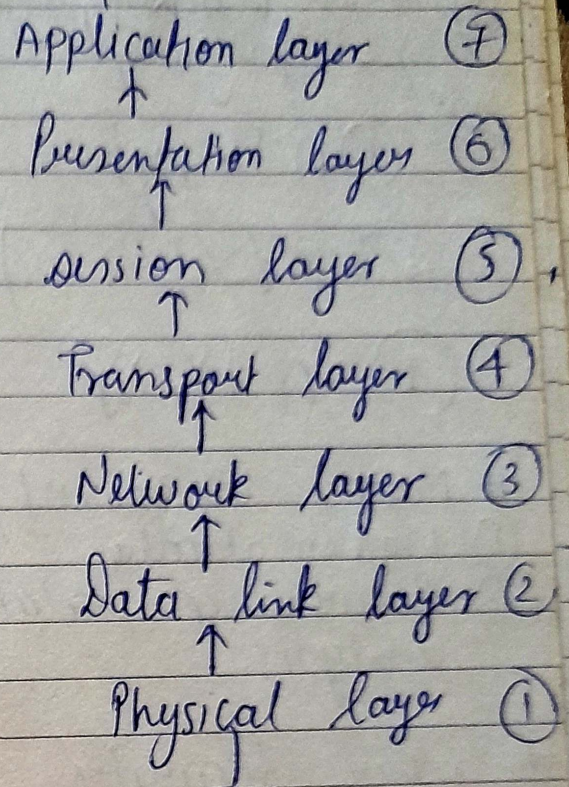
Transmitter

A



Receiver

B



① Physical layer :-

- ⇒ (i) Physical characteristics of interface and media
- ⇒ (ii) Representation of bits
- (iii) Data rate / Transmission rate
- (iv) Synchronization of bits
- (v) Lin configuration
- (vi) Physical topology
- (vii) Transmission mode

# Eship

Q1) Diff. b/w Creativity & innovation.

# ICANN (Internet Corporation for assigned names & number) formed in 1998. ICANN manages the Internet

# DCC

② Data link layer :- responsibilities are as follows

- ① Framing
- ② Physical addressing
- ③ flow control
- ④ error control
- ⑤ Access control

③ Network layer :- responsibility

- ① logical addressing
- ② Routing

④ Transport layer

- ① <sup>point</sup> to point addressing
- ② Segmentation and reassembly
- ③ Connection control
- ④ flow control
- ⑤ error control

⑤ Session layer :-

- ① Synchronization
- ② Dialogue control

⑥ Presentation layer :-

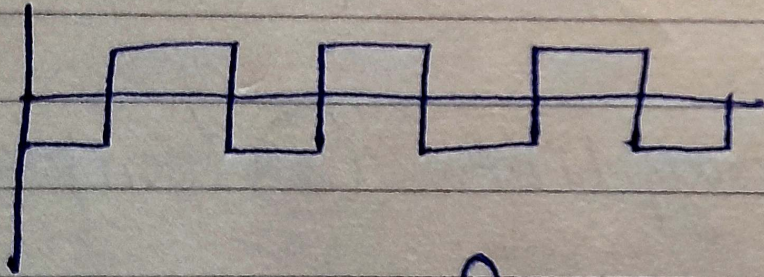
- ① Translation
- ② encryption
- ③ compression

⑦ Application layer :-

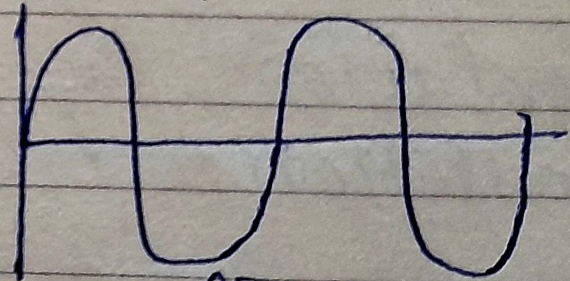
- ① Network virtual terminal
- ② file transfer, access and management (FTAM)
- ③ Mail services

## # DCC

- Analog = It set of specific points of data and all possible points b/w
- Digital = It is a set of specific points of data with no other points in b/w



~~analog~~ Digital

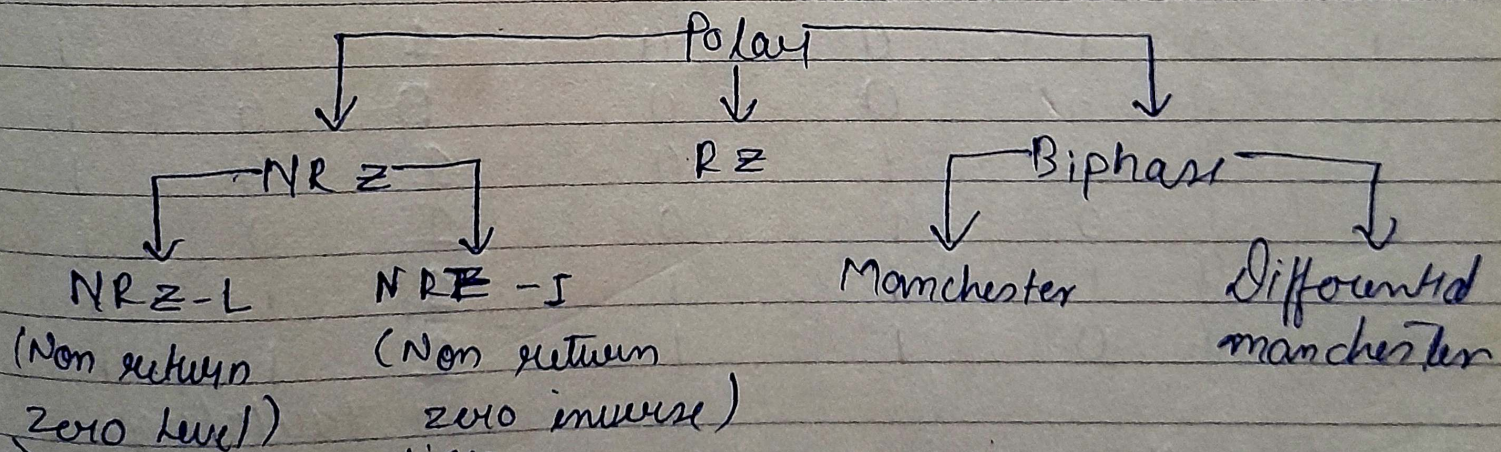
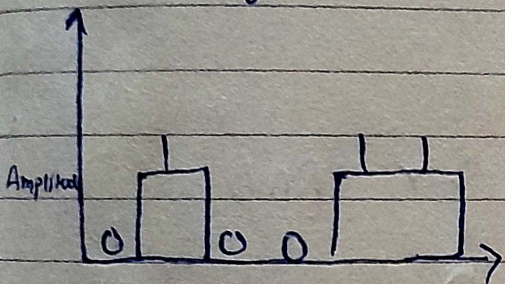
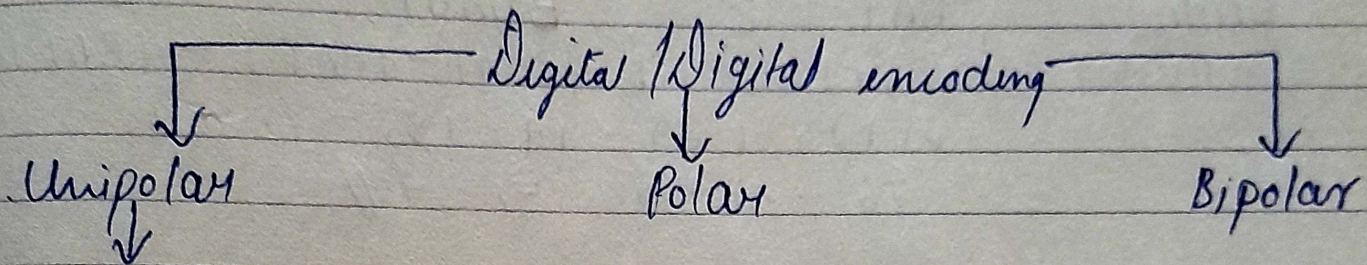


Digital Analog

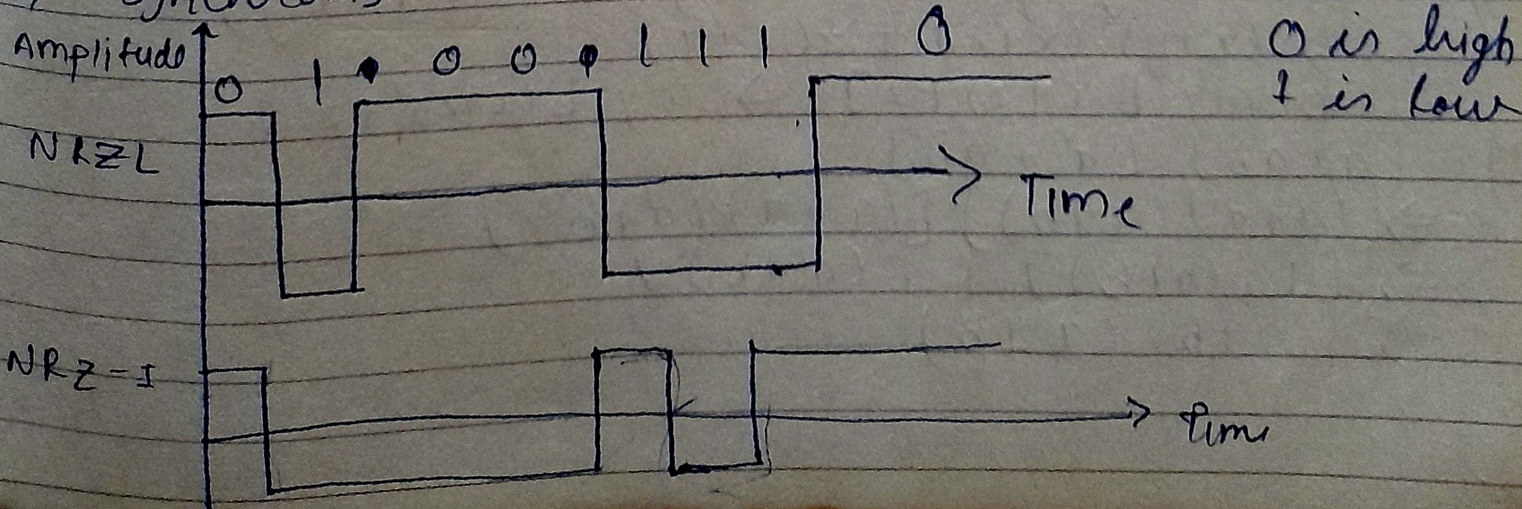
- amplitude is the maximum value of analog signal
- frequency means no. of cycle per second

# # DCC

## ★ Encoding and modulating



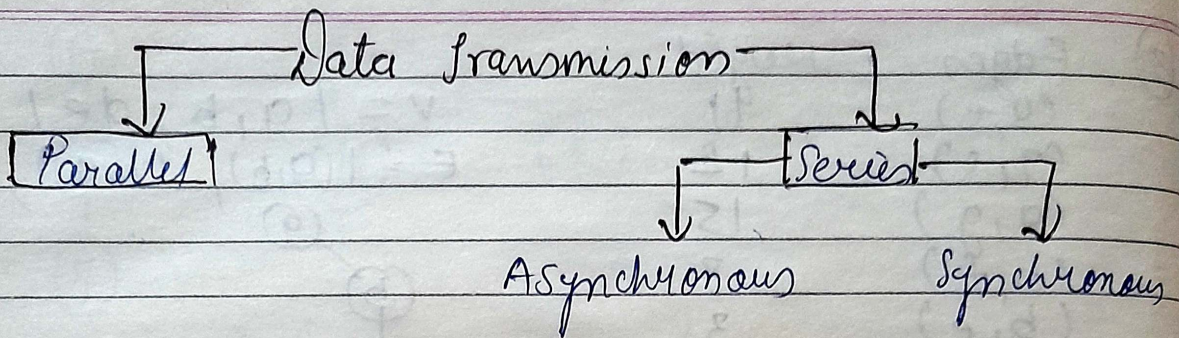
⇒ Synchronization



wednesday

# DCC

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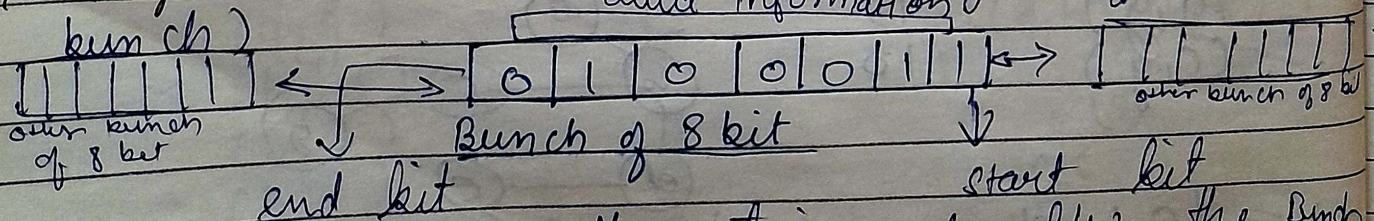


- ⇒ Parallel transmission is faster than serial
- ⇒ Data bus & address bus is the example of Parallel transmission
- ⇒ Parallel transmission has  $n$  ~~bit~~ lines for transmission
- ⇒ It is costlier,
- ⇒ It is used for short distance
- ⇒ By the use of parallel transmission the speed of system get enhanced.

→ Serial :- Transferring the data through single cable one by one.

- ⇒ It is slower
- ⇒ It is cheap
- ⇒ Example :- Multiplexer, demultiplexer
- ⇒ It can be used for long distance
- ⇒ It is divided in two types

⇒ Asynchronous :- Bits send as Byte of 8 bits



★ ideal time is the time gap b/w the Bunches of 8 bit of data packets.



\* ideal channel is a channel through which we are transmitting the data

⇒ Synchronous :- here there is no ideal channel here the transmission of 8 bits are continuous with clock pulse

⇒ Advantage :- (1) High speed of transmission.  
(2) No extra bit require like start, end

# DTE & DCE Interface :- Converts ll to serial or vice versa, ex:- MODEM

⇒ DTE :- Data terminal equipment, it is an interfacing device we can physically touch them

⇒ DCE :- Data circuit terminating equipment  
ex:- interfacing device in printer

# Transmission media :-

→ Guided media → Unguided media

# Cyber

⇒ UDP = User Datagram protocol.

⇒ Hackers mostly attacks on :- protocol, Port no.

⇒ IP Logger - to trace someone's location

⇒ Phish Tank - to find that is the link is safe or not.

31/03/2023

# Java

\* try with Resources (ARM)

⇒ Automatic resource management

⇒ Two ways to close a file

(1) `FileInputStream fin = new FileInputStream("a.txt");`  
`fin.close();`

# # DCC

⇒ Coaxial } adv. & disadv.

⇒ Fiber

⇒ Guided & unguided

⇒ Types of connector in Coaxial cable

⇒ Multiplexing application

⇒ OSI Model, adv. & disadv.

⇒ lusrmgr.msc = local user management  
microsoft console, to create a local user

⇒ gpedit.msc = gpedit.m

### # OCC

01/09/2023

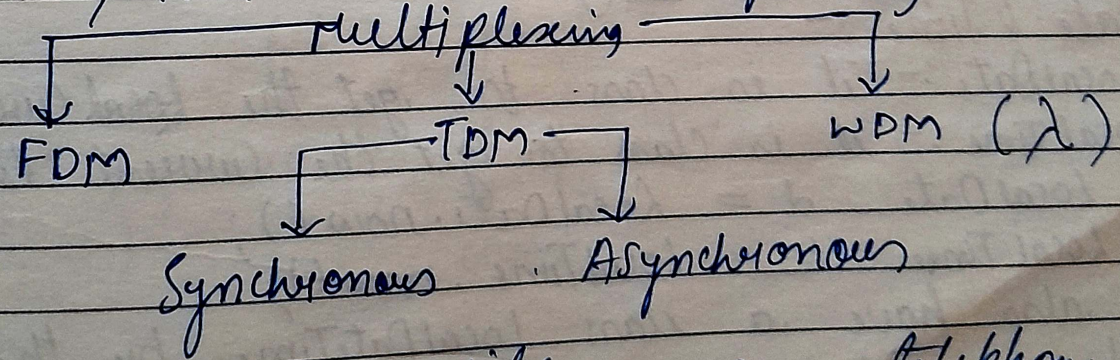
⇒ Propagation speed  
⇒ Propagation time

~~things~~ ~~are~~ ~~used~~ ~~to~~ ~~measure~~

### → UTP

- coaxial, optical fibres (adv & dis adv.)
- Unguided media
- Microwave, satellite, geo synchronous satellites, cellular telephonic
- Noise, distortion, measurement of performance.

• Multiplexing - ~~Def~~ Demultiplexing:- frequency division multiplexing, wave division multiplexing, Time division multiplexing.



example of multiplexing = telephone line

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