

Application Layer protocols

① HTTP

② File Transfer Protocol (FTP)

③ DNS

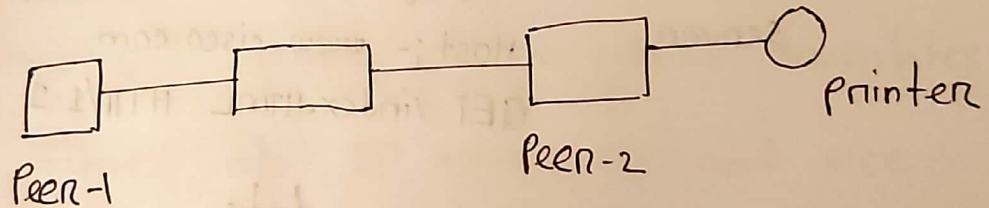
④ IMAP

(Internet Message Access)

⑤ DHCP

what is P2P?

→ Peer to peer network, two or more device connected via network and can share resources (printer, scanner, file) without having a dedicated server



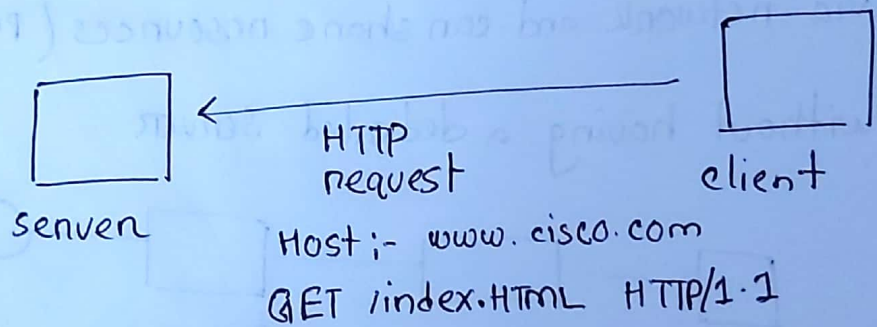
http:// www.cisco.com /index.html
↓ ↓ ↓
protocol server name specific requested filename

What is HTTP?

→ It is a ^{request/response} protocol that specifies the message type used for that communication.

3 common message type :-

① GET → a client (web browser) sends GET message to server to request for data on HTML pages.



② POST → uploads ^{data} file to the server (form data)

③ PUT → upload resources/content to the server (image)

Email protocol :-

(port:25) SMTP (simple mail transfer protocol) → used to send email

(port:110) POP & IMAP → receive mail
(post office protocol)

— o —

DNS (Domain Name service)

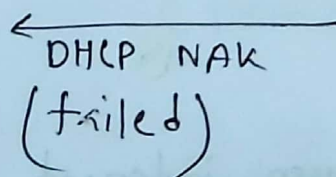
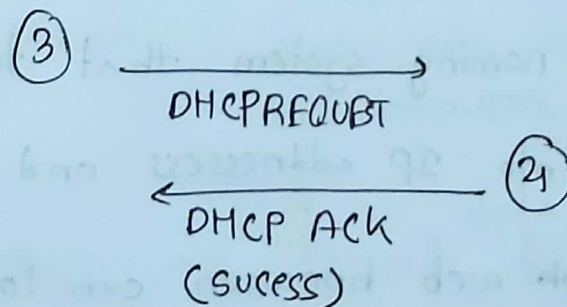
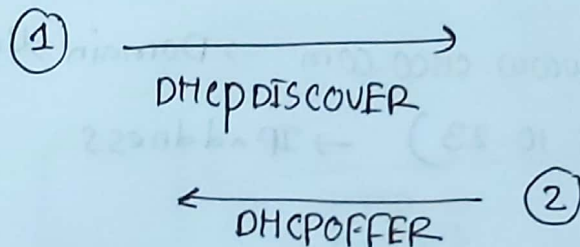
. http://www.cisco.com → Domain Name
(198.168.10.23) → IP address

→ is hierarchical naming system that translates domain names into IP addresses and vice versa so that web browsers can load Internet resources

web browsers interact with each other using IP

DHCP (Dynamic Host configuration protocol)

→ is a dynamic addressing ^{service} which automates the assignment of ip addressing, subnet mask, gateway and other networking parameters



Types of Network Threats

- ① Information Theft
- ② Data loss and manipulation
- ③ Identity Theft
- ④ Dos (~~Disruptor~~ Disruption of service)

Vulnerability

→ the degree of weakness in a network/device

- ① Technological Vulnerability
- ② Configuration "
- ③ Security Policy

Question

- ① what are the components of data communication system? (5)
- ② what is protocol?
- ③ what are the network components? (6)
- ④ what are the features of efficient network (3)?
- ⑤ what is peer to peer network?
- ⑥ what is point to point network?
- ⑦ what is network topology?

Ans the following question for Mesh, star, RING, BUS

- ① connection type?
(point to point or multipoint)
 - ② definition
 - ③ cable no. / physical links
 - ④ number of port for each port
 - ⑤ what if a connection fail
 - ⑥ unplugging a station
- ⑧ a Hybrid topology with Ring backbone and 2 bus network

- ⑨ Difference LAN vs WAN ?
- ★/⑩ Difference Intranets vs Extranets?
- ⑪ 7 layers of OSI Model ?
- ⑫ 4 layers of TCP/IP Model ?
- ⑬ what is multicasting?
- ⑭ Difference between physical, logical and port address?

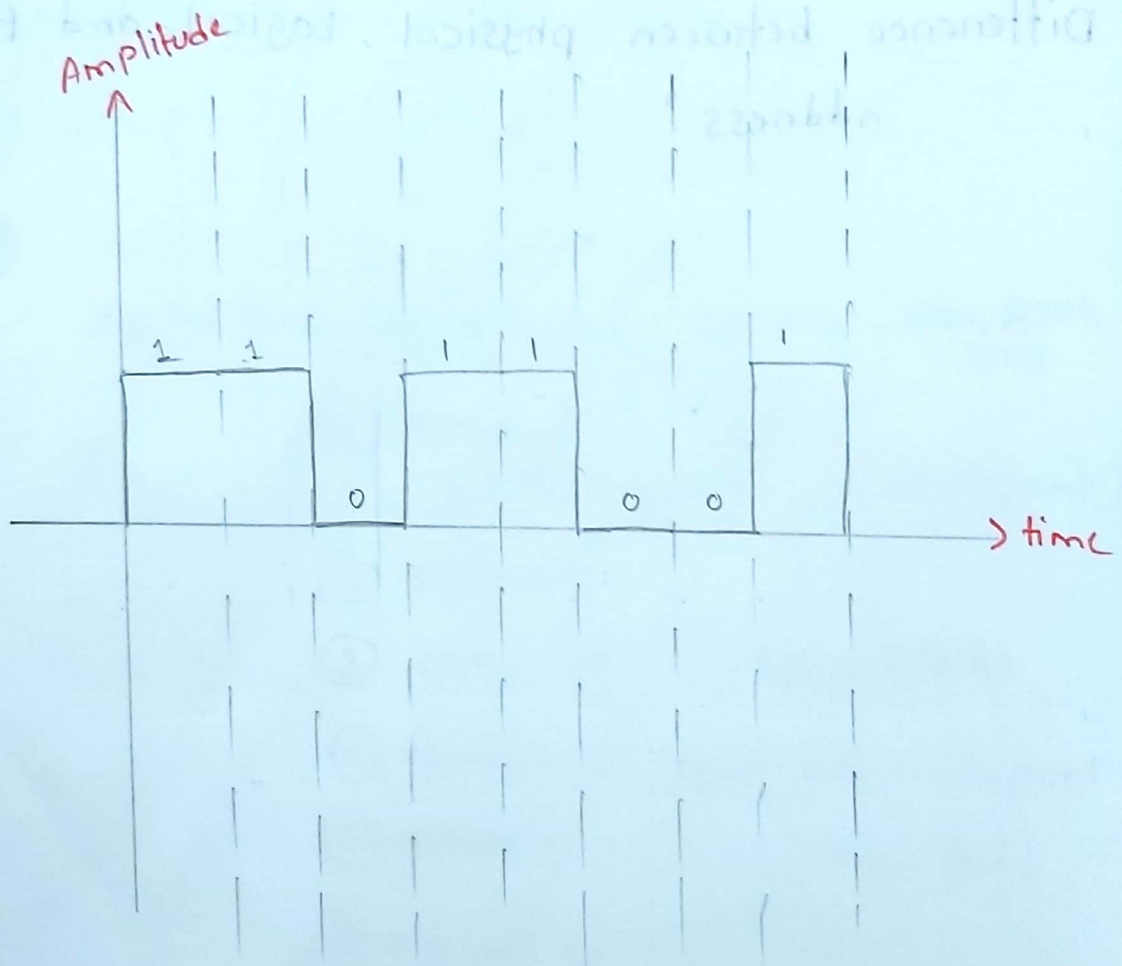
Line coding

Unipolar line coding

- 0 means zero voltage
1 means positive voltage

NRZ

Datastream:- 11011001



Polar Line coding

④

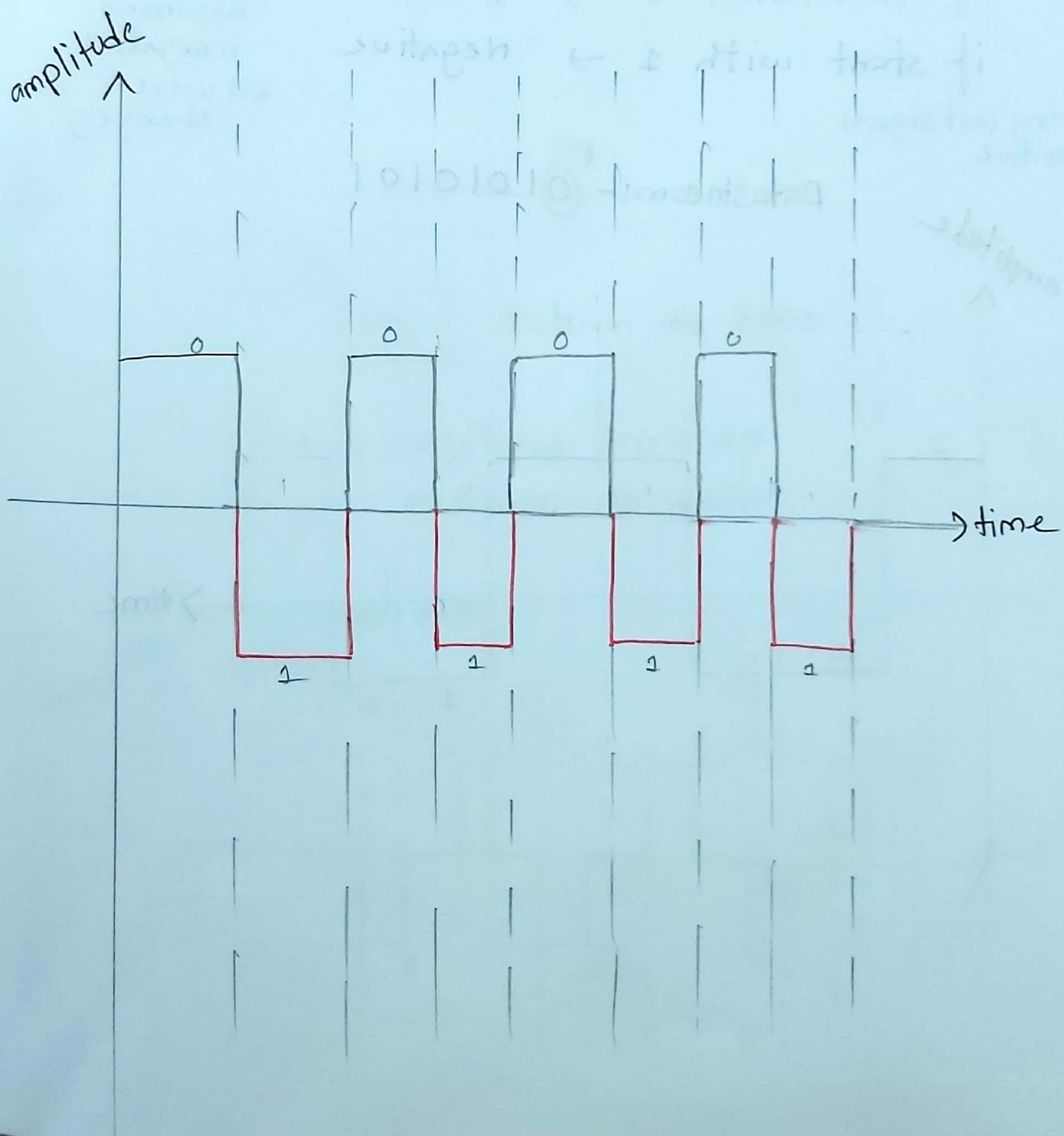
NRZ-L

Non return to zero level

'0' means positive

'1' means Negative not zero volt

Data schema :- 01010101



②

NRZ-I

Non-return to zero
Invented

if 0 \rightarrow no transition

1 \rightarrow transition

pos \rightarrow neg

neg \rightarrow positive

based on last signal

careful

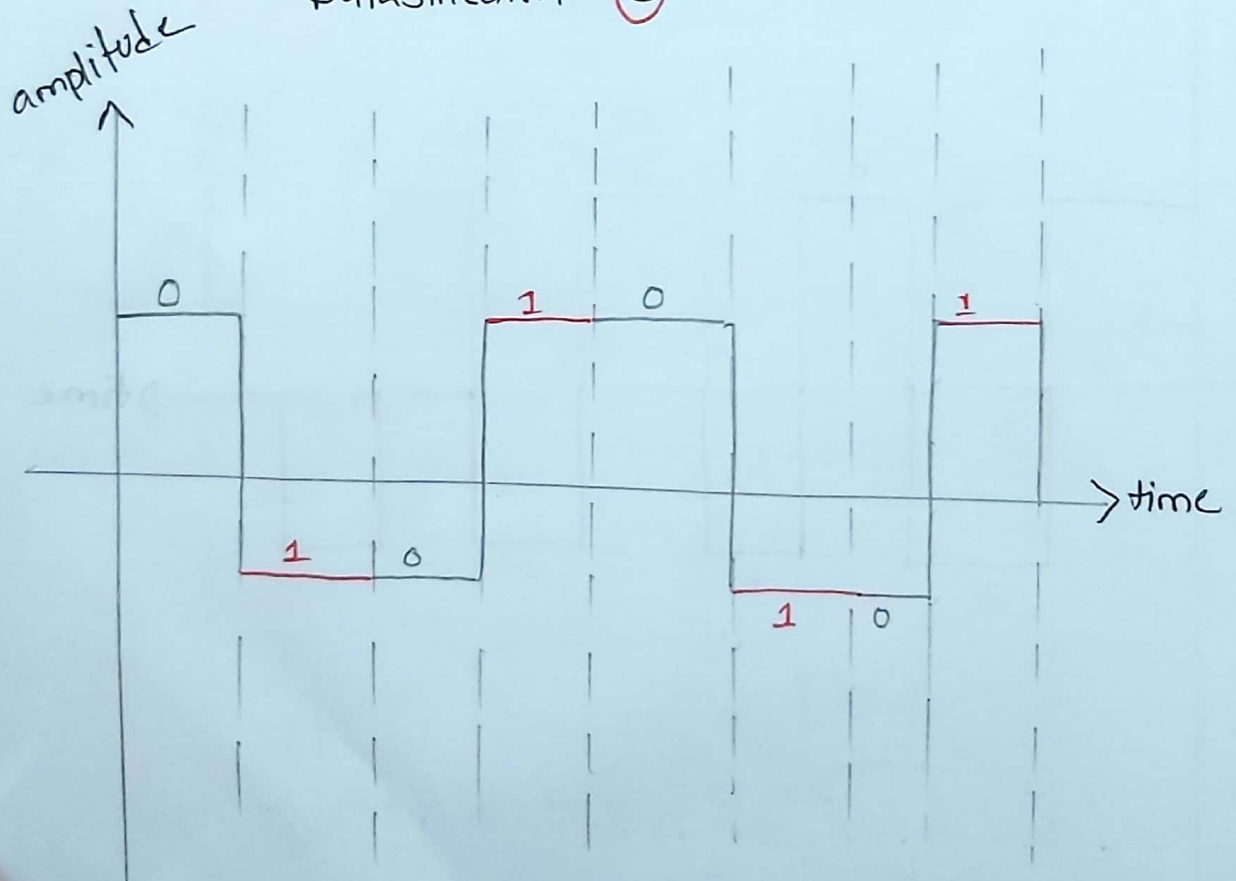
if start with 0 \rightarrow positive

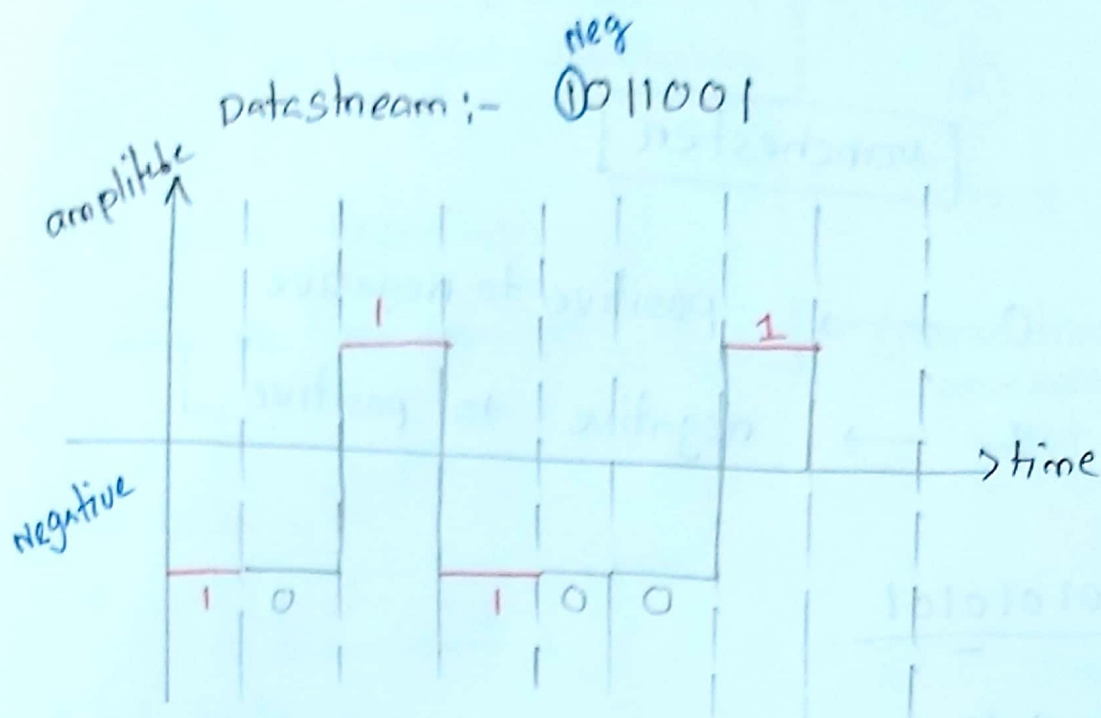
if start with 1 \rightarrow negative

assuming last signal
positive

if last
signal
assuming
is negative
all value
changes

datastream: - ^{pos} 0 1 0 1 0 1





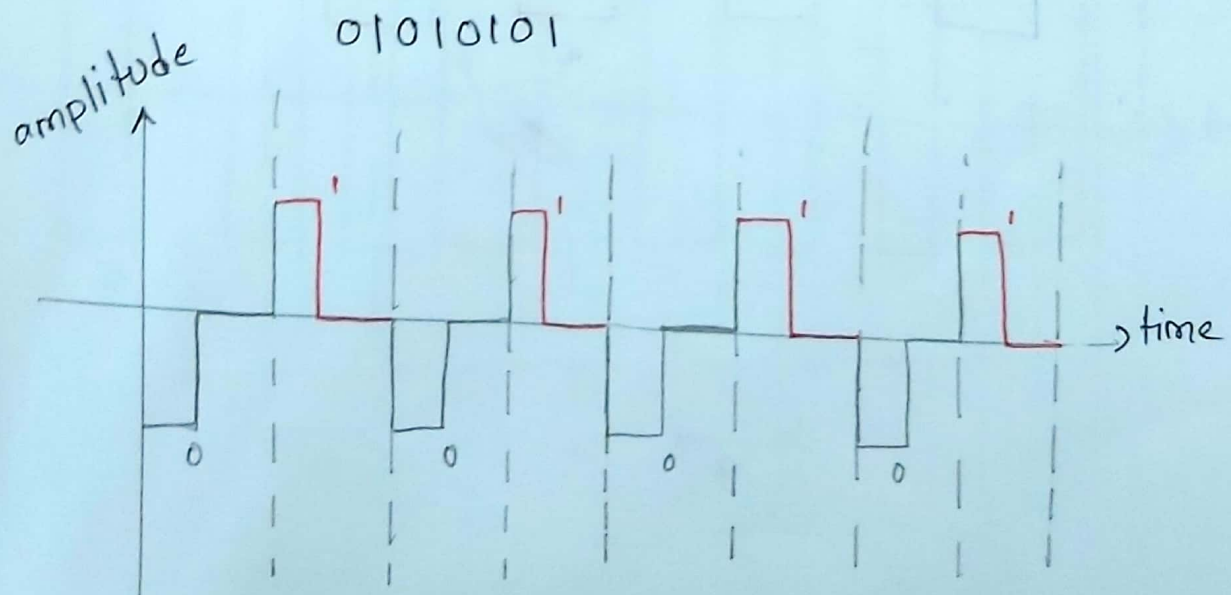
— 0 —

③

RZ Return to zero

0 → negative to zero

1 → positive to zero

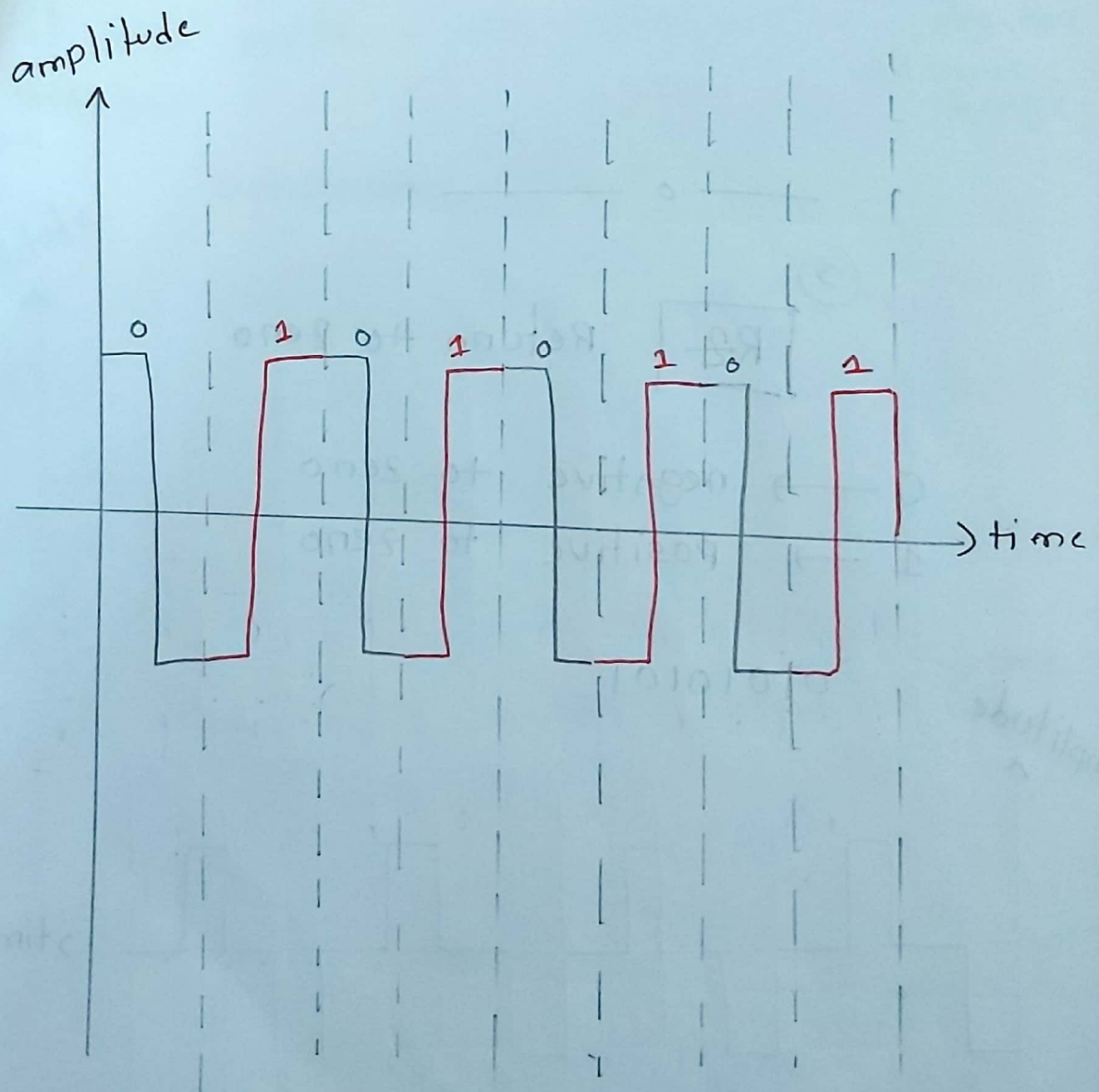


4

manchester


0 \rightarrow positive to negative
1 \rightarrow negative to positive

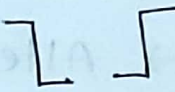
01010101




5

Differential Manchester


0 \rightarrow transition  (choose)

1 \rightarrow no transition  (choose form here according to last)

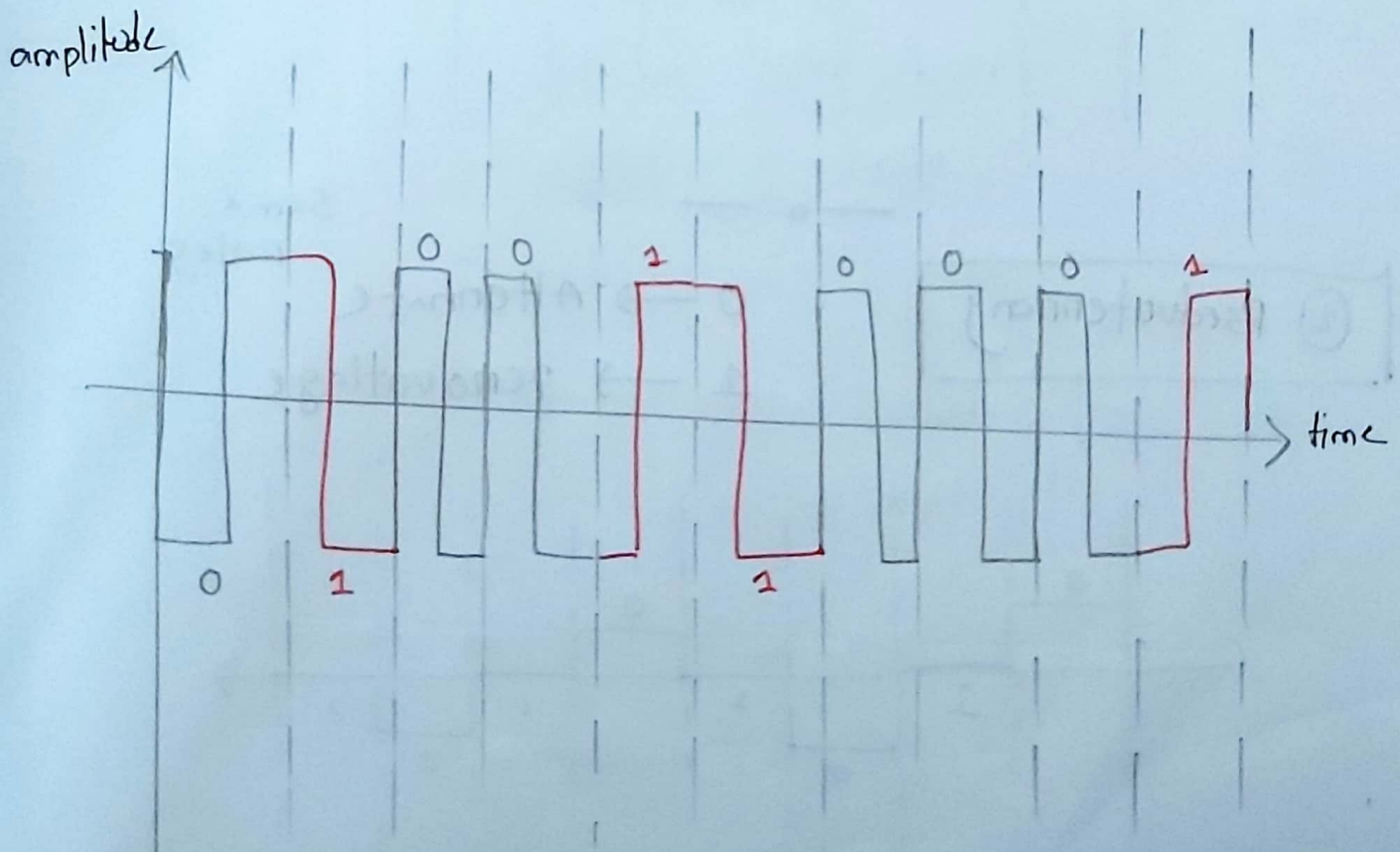
if start with 0

(low to high) 

start with 1

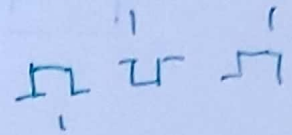
(high to low)
(high to low) 

0100110001



Bipolar

① AMI (Alternate Mark Inversion)

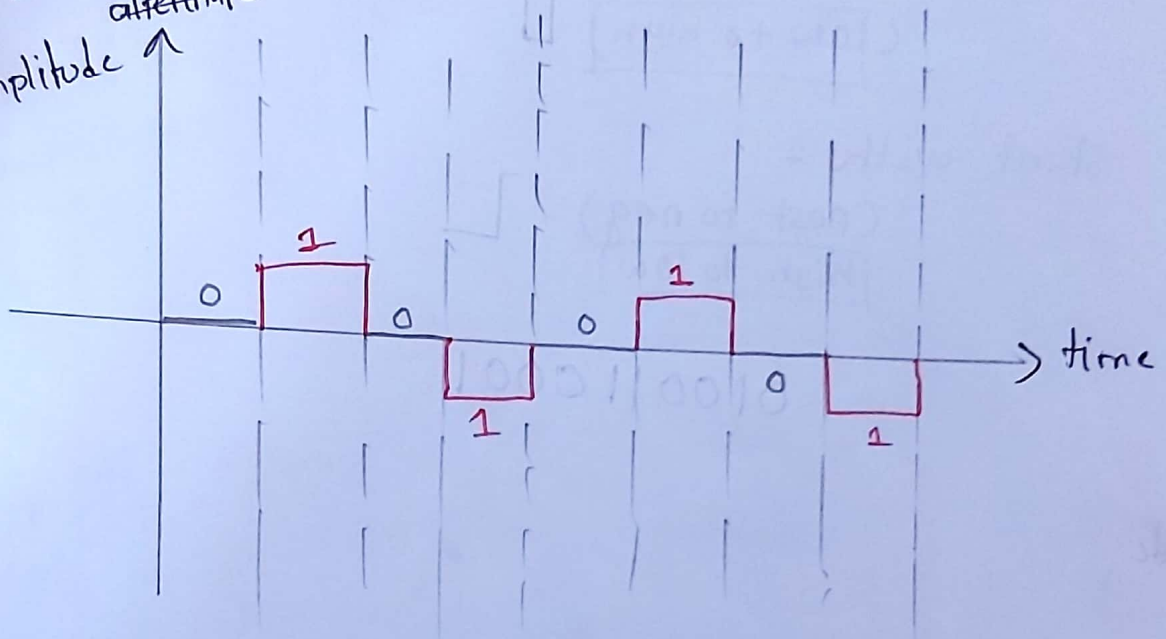


0 \rightarrow zero voltage

1 \rightarrow Alternate bit

assume last bit negative: if starts with 1 (positive)

amplitude \uparrow
alternate

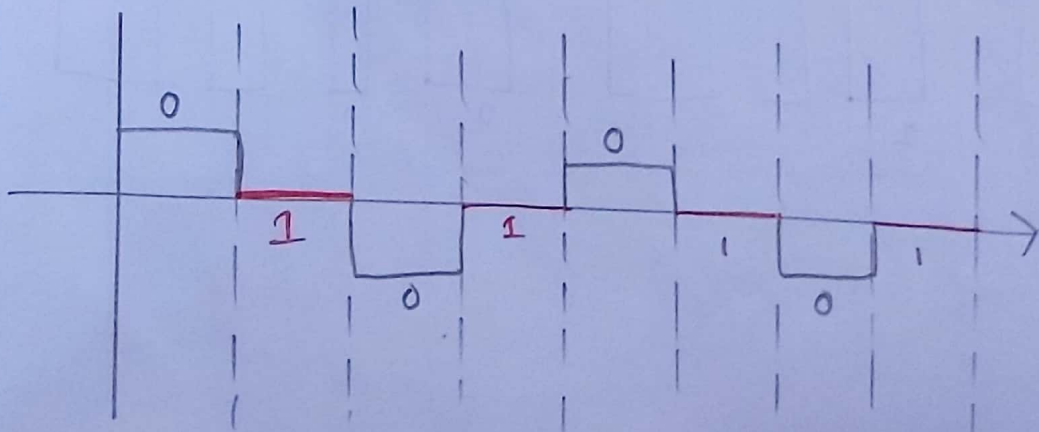


② Pseudoternary

Same Rules

0 \rightarrow Alternate

1 \rightarrow zero voltage



MULTIline Transition

MLT-3

Focus on
voltage
(not bit)

Rules:

Assuming

last level = zero voltage

last non zero level = negative

① if current level = ^{zero} pos. neg

next bit = 0

∴ no transition (same like last)

② if current level = zero volt

next bit = 1

∴
opposite of last non zero level

③ if current level = positive on
negative

next bit = 1

∴
next ^{zero} voltage

