

NAME # AWAIS MALIK

ID # 14741

PAPER # COMPUTER COMMUNICATION AND NETWORK

DEPARTMENT # SE

SECTION # B

①

Q1) $101.10.11.X/10_{4+5}$

IP address

$101.10.11.17/5$

Convert this ip address
into binary

$$id = 14741$$

$$= 144 + 7 + 4 + 1$$

$$X = 17$$

$$id = 4 + 1$$

$$id = 5$$

$1100101\ 1010101\ 10001 /$
 101

First address:-

Subtract last digit in ip from
second last

$$17 - 5 = 12$$

Now convert last 12 bits of
binary into zero -

②

1100101 1010 0000 0000 0000

Convert this binary code into decimal

101.10.0.0/0

This is the first address

2) Last address

Convert eight most 4 bit into 1 in binary code

1100101 1010 1011 1001 111

Convert this binary code into decimal -

101.10.11.17/7

This is the last address -

3

Question # 2

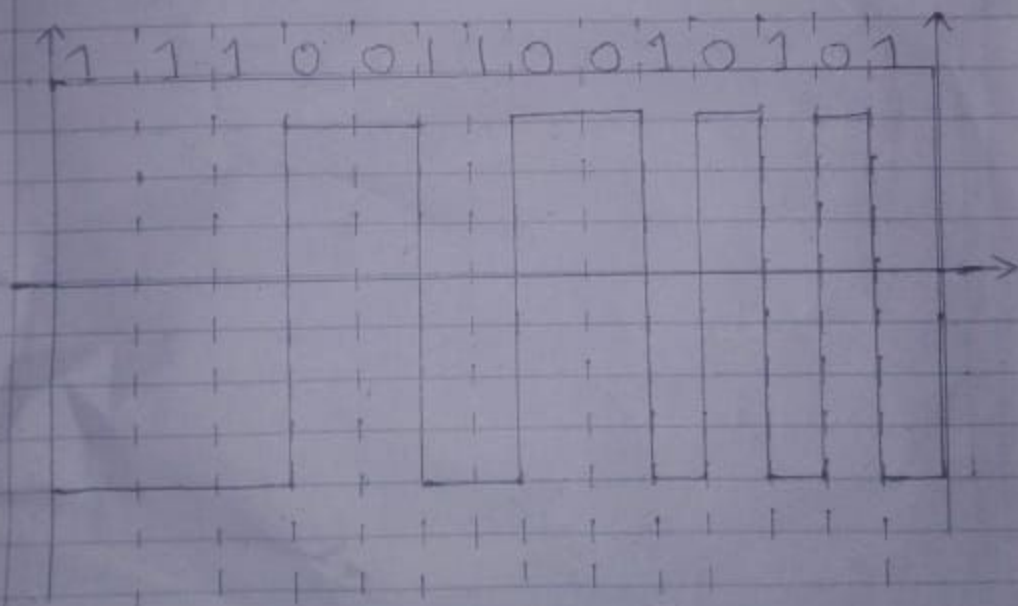
Answer: 10# 14741

Convert 10 into binary

11100110010101

NRZ1 GRAPH :-

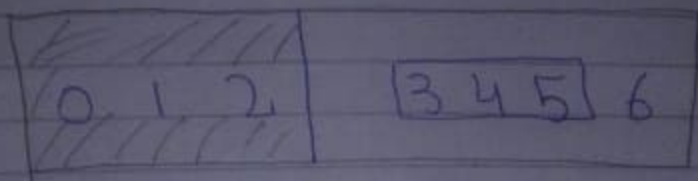
In NRZ1 0 is positive and
1 is negative



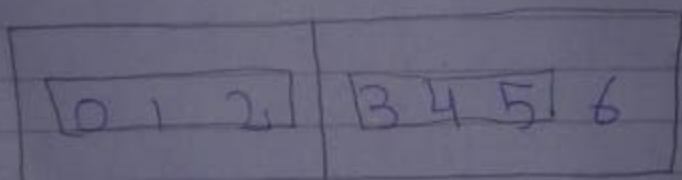
(5)

Sender:-

A has shrunk its window as it has transmitted five bits but has received ACK_{seq=3} for 3 hence it is keeping copy of one PDU -



Receiver:-



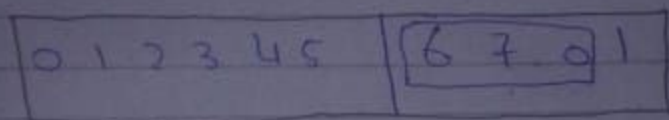
Receiver has received all data hence the window remains in 3 bit size

(6)

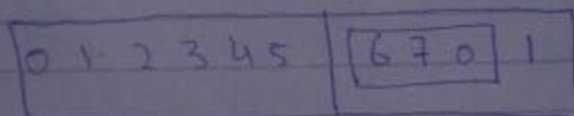
Part c :-

After A sends frame 5, 6
and B acknowledges 5
and the Acknowledge is
received by A

Sender:



Receiver:



Acknowledgment receive for
3-bit

Window Size :- ID = 14741

ID Lost = 1

So window size = 4

(2)

Second group :-

For this group each customer needs 32 addresses means

$$5 (\log_2 32) = 5$$

$$32 - 5 = 27$$

1st customer	160.17.11.0/16	160.17.11.255/16
Second customer	160.17.11.1/16	160.17.11.255/16
...		
64 th customer	160.17.11.63/16	160.17.11.255/16

$$\text{Total } 64 \times 32 = 2048$$

Third group

for this group each customer need 16 addresses so

$$4 (\log_2 16) = 4$$

$$32 - 4 = 28$$

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1st customer	160.17.11.0/16	160.17.11.255/16
2nd customer	160.17.11.1/16	160.17.11.255/16
16 th customer	160.17.11.15 th /16	160.17.11.255/16

$$\text{Total} = 16 \times 64$$

$$= 1024$$