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ID 14972.

BS (SE) Section "B".

Computer Communication & Networking.

:Q1: In a block of addresses, we know the IP addresses, ... (limited broadcast addresses) in this block?

:Answer:

IP address one host:

' 101.10.11.x/ID
4+5

:IP address:

101.10.11.23/9

convert this IP address to binary.

(00010111.00010111)

∵ Id = 14972
= 1+4+9+7+2
x = 23

4th digit = 7
5th digit = 2
ID = 7+2 = 9.

2 | 23 - 1
2 | 11 - 1
2 | 5 - 1
2 | 2 - 0
1 | 1

Address Mask = 13
N = 32 - 9 = 23

First IP address
00010111

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by convert 23 to binary.

IP addresses
1001
101.10.11.0

2	9 – 1
2	4 – 0
2	2 – 0
	1

Last IP address.
convert right most 4 bit into 1 in binary code.

11001011010 1011 10001111

convert this binary code into 101.10.11.23/9

this is the last address.

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:Q2: I took my Roll No as decimal notation, now convert it into Binary notation. ing also:

Drawing the graph of the NRZ-L ~~Science~~ scheme using the binary notation of your Roll No as data stream, assuming that the last signal level has been positive.

:Solution:

Roll No / ID = 14972.

2	14972 – 0
2	7486 – 0
2	3743 – 1
2	1871 – 1
2	935 – 1
2	467 – 1
2	233 – 1
2	116 – 0
2	58 – 0
2	29 – 1
2	14 – 0
2	7 – 1
2	3 – 1
	1 – 1

(11101001111100)

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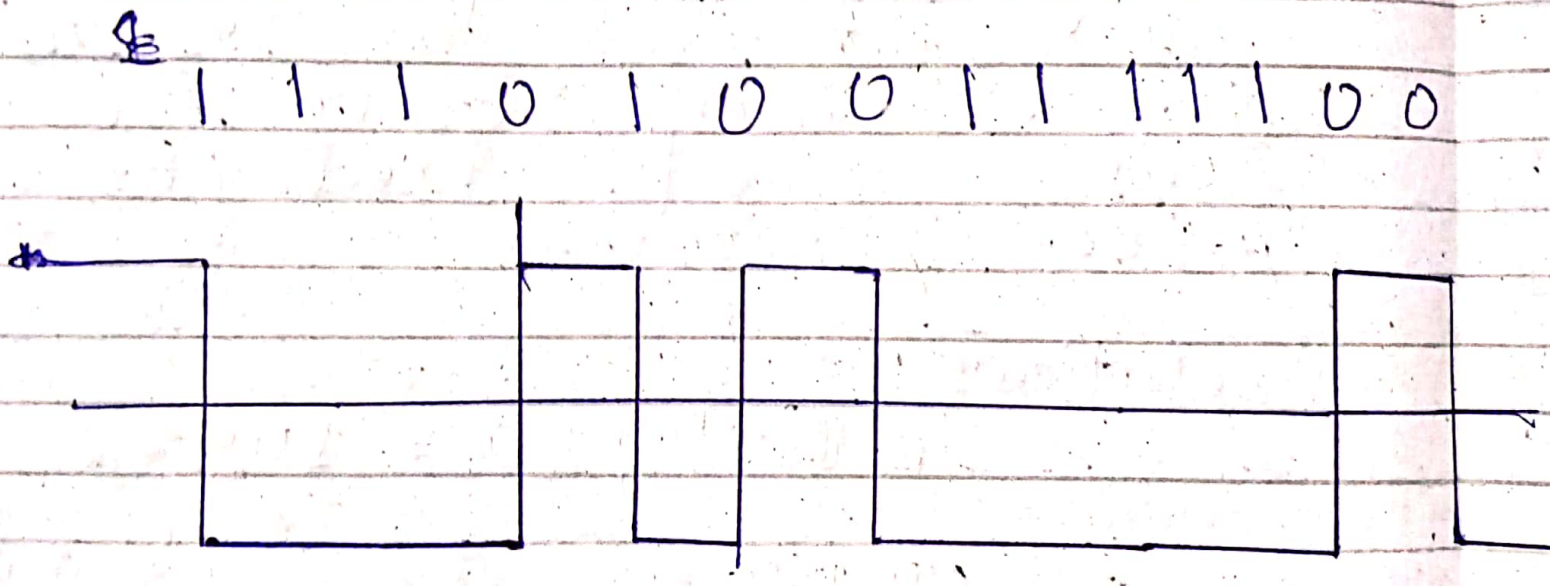
a: Graph:

(1110100111100)

initial:



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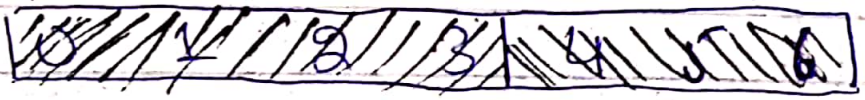
-: **Q 3:-** Two neighboring ~~so~~ nodes (A & B) use a sliding-window protocol with a 3-bit sequence number. As the ARQ mechanism, go-back-N is used with a window size of 10 last. Assuming A is transmitting and B is receiving, show the window positions for the following succession of events:

***A:** Before A sends any frames.

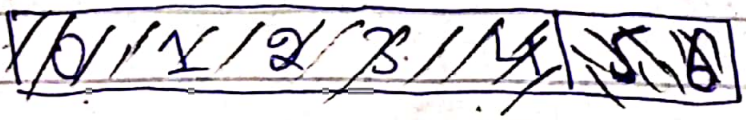
:Answer:

:Sender:



window of PDU that may be transmitted = 4 bit window.

:Receiver:



***B:** After A sends frames 0,1,2,3,4 and ~~receives~~ receives acknowledgment from B for 0, 1 & and 2.

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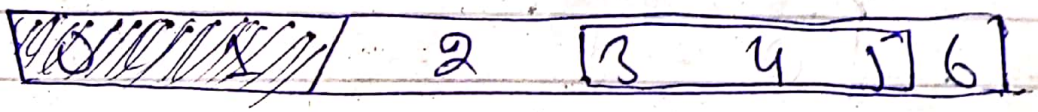
: Answer: Suppose B received all three frames.

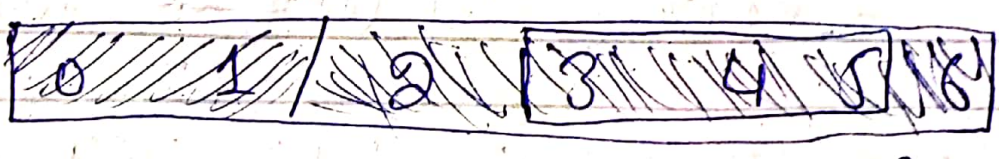
: Sender:-

A has shrunk its window as it has transmitted three PDU's but received ack for 2 PDU's, hence it is keeping copy of one PDU.



Acknowledgment received for two bits.

: Receiver:-



Receiver has received all data hence the window remains in 4 bit size.

~~: Answer~~

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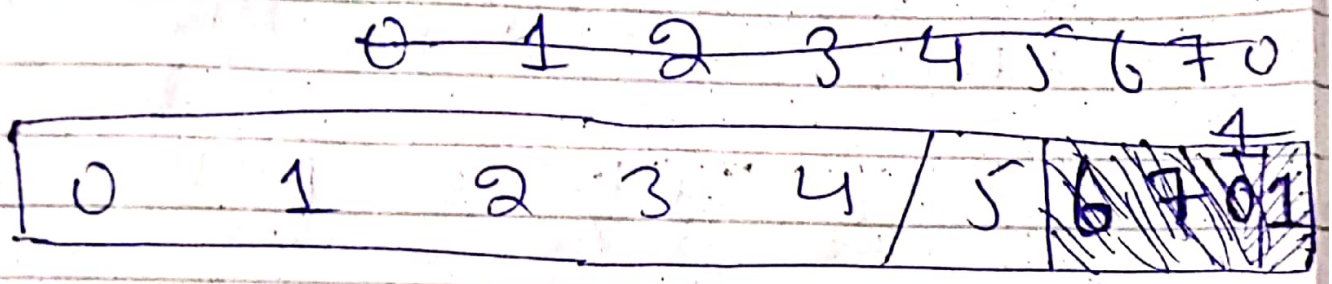
:★C: After A sends frames 5, 6 and B acknowlegdes 5 and the ACK is received by A.

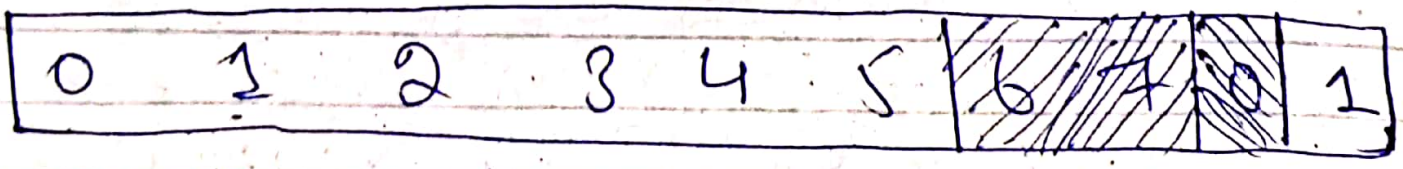
:: Answer:-

:: Sender:-



:: Receiver:-

Acknowlegdgment received for three ~~four~~ bits.



Acknowledgment receive for 3 bit, now window size: ID = 14972. by formula

ID Last = 7, since,

ID Last = 9

so 9 % 7 = 2 window size.

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:Q4: An ISP is granted a block of addresses starting with ..... ?

The ISP needs to distabe these addresses to three groups of customers as following.

:Answer: Group A:

The first group has 16 customers, each needs 64 addresses. This means that 6 ($\log_2 64$) bits are needed to each host, the prefix length is than 32-6=26, the addresses are:

* 1st = 160.23.17.6/26 190
* 2nd = 160.23.17.1/26
* 3rd = 160.23.17.6/26

Total = 16 x 64 = 1024

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: ~~Group~~

:Group B:

The second group has 64 customers, each needs 32 addresses, this means that 6(log2 32) bits are needed to each host, the prefix length is then 32-6 = 26, the addresses are.

* 1st = 160.23.17.6/27 190
* 2nd = 160.23.17.1/27
* 3rd = 160..23.17.6/27.

total = 16x64 = 1024.

:Group C: The third group has 64 customers; each needs 16 addresses. this means that 6(log2 16) bits are needed to each host, the prefix length is then 32-6 = 26, the addresses are:

* 1st = 160.23.17.6/28
* 2nd = 160.23.17.1/28
* 3rd = 160.23.17.6/28

Total = 16 x 64 = 1024.