

①

WP

Page

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Bs	software engineering
Section	B
I.D	14713

Q1

Ans

$101.10.11.X / \text{I.D} = 45$
 $101.10.11.16 / 4$
Binary = 11001011010101110000
First address = $16 - 4 = 12$
Now convert last 12 digit to zero.
 1100101100000000000000
Convert to decimal
 $101.10.0.010$
Last Address? Convert last 4 digit to \uparrow
 1100101101010101111111
Convert to decimal
 $101.10.11.16 / 15$

(3)

Q3:-

Answer:- (a) Before a A send any frame
Sender: A [0 | 1 | 2 | 3 | 4 | 5 | 6] → B

Here is sliding protocol, that may
be transmitted.

In the above figure, A send
transmits 4 bits.

Receiver:

0	1	2	3	4	5	6
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Window position before A send any frame is 4.

D) After A sends frame 0, 1, 2, 3, 4 and
receives acknowledgment from B for 0, 1, 2.

A window shrinks because of
transmitting 3 bit (0, 1, 2) and received
acknowledgment of 3 bit (0, 1, 2). So
it is keeping copy of one
PDU.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

↓
Acknowledgment received for 3 bits.

Receiver:

0	1	2	3	4	5	6
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The window will remain in 4 bits
because as receiver received all
data.

(2)

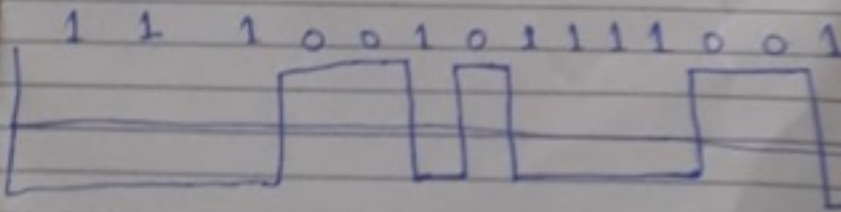
Q2:

Answer: NRZ-L scheme

ID = 14713

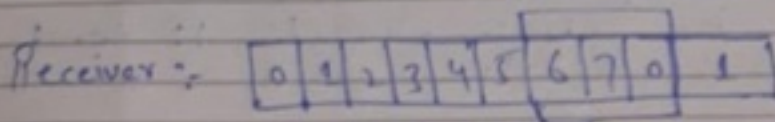
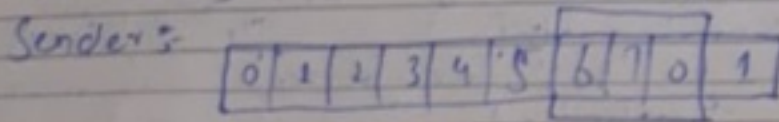
Binary of ID =

2	14713
2	7356-1
2	3678-0
2	1839-0
2	919-1
2	459-1
2	229-1
2	114-1
2	57-0
2	28-1
2	14-0
2	7-0
2	3-1
	1-1



(4)

c) After A sends frames 5, 6 and B acknowledges 5 and ACK is received by A.



↓
Acknowledgment received for 3 bit

Now window size

$$ID = 14713$$

As given $ID_{\text{start}}/2$

$$\text{last} = 3$$

So

$$\frac{3}{2} = 1 \text{ window size}$$

(5)

Q4

$$160 \cdot (X) \cdot (10) \cdot 0/16$$

Ans:-

a) first group has 16 customers each need 64 address

$$\begin{aligned} ID &= 14713 \\ &= 1+4+7+1+3 \\ &= 16 \end{aligned}$$

$$\begin{aligned} ID_{3+4} &= 7+1 \\ &= 8 \\ \cdot 160 \cdot 16 \cdot 8 \cdot 0/16 \end{aligned}$$

* 16 customer need each 64 addresses
this so 6 bit ($\log_2 64$) are needed.

Since $32 - 26 = 26$

$$1st = 160 \cdot 16 \cdot 8 \cdot 0/26 = 160 \cdot 16 \cdot 8 \cdot 63/26$$

$$16 \cdot 16 \cdot 8 \cdot 15/26 = 160 \cdot 16 \cdot 8 \cdot 255/26$$

$$16 \cdot 64 = 1024 \text{ Total}$$

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b) Second Group:- This group need 32 customer for each So

5 bits ($\log_2 32$) = 5 are needed

$$32 - 5 = 27$$

$$1^{st} = 160.16.8.0/27 = 160.16.8.255/27$$

$$3^{rd} \text{ customer} = 160.16.8.1/27 = 160.16.8.255/27$$

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

c) 3rd Group:- 16 customer need 16 address
So 4 bit ($\log_2 16$) = 4 are needed.

Since

$$32 - 4 = 28$$

$$1^{st} = 160.16.8.0/28 = 160.16.8.255/28$$

$$2^{nd} = 160.16.8.1/28 = 160.16.8.255/28$$

$$16^{th} = 160.16.8.15/28 = 160.16.8.240/28$$

$$16 \times 64 = 1024$$

