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ID = 14452 BS(ST-4) Sec A. (I)

Q.1:- Ans:- As we know that

$$101.10.11.x / 1D_{4+5}$$

$$x = 16 \quad \{ \therefore ID = 14452 = 1+4+4+5+2 = 16 \}$$

$$1D_{4+5} = 5+2$$

$$1D_{4+5} = 7.$$

put it in eq.

$$\boxed{101.10.11.16 / 7}$$

First Address:-

Convert it into binary.

$$01100101 \quad 00001010 \quad 00001011 \quad 00010000$$

Set 32-7 right bits to 0.  $\{ 32-7=25 \}$

$$01100100 \quad 00000000 \quad 00000000 \quad 00000000$$

OR

$$\boxed{100.0.0.0.}$$

Last Address:-

to binary

$$01100101 \quad 00001010 \quad 00001011 \quad 00010000$$

Set 32-7 right bits to 1.  $\{ 32-7=25 \}$

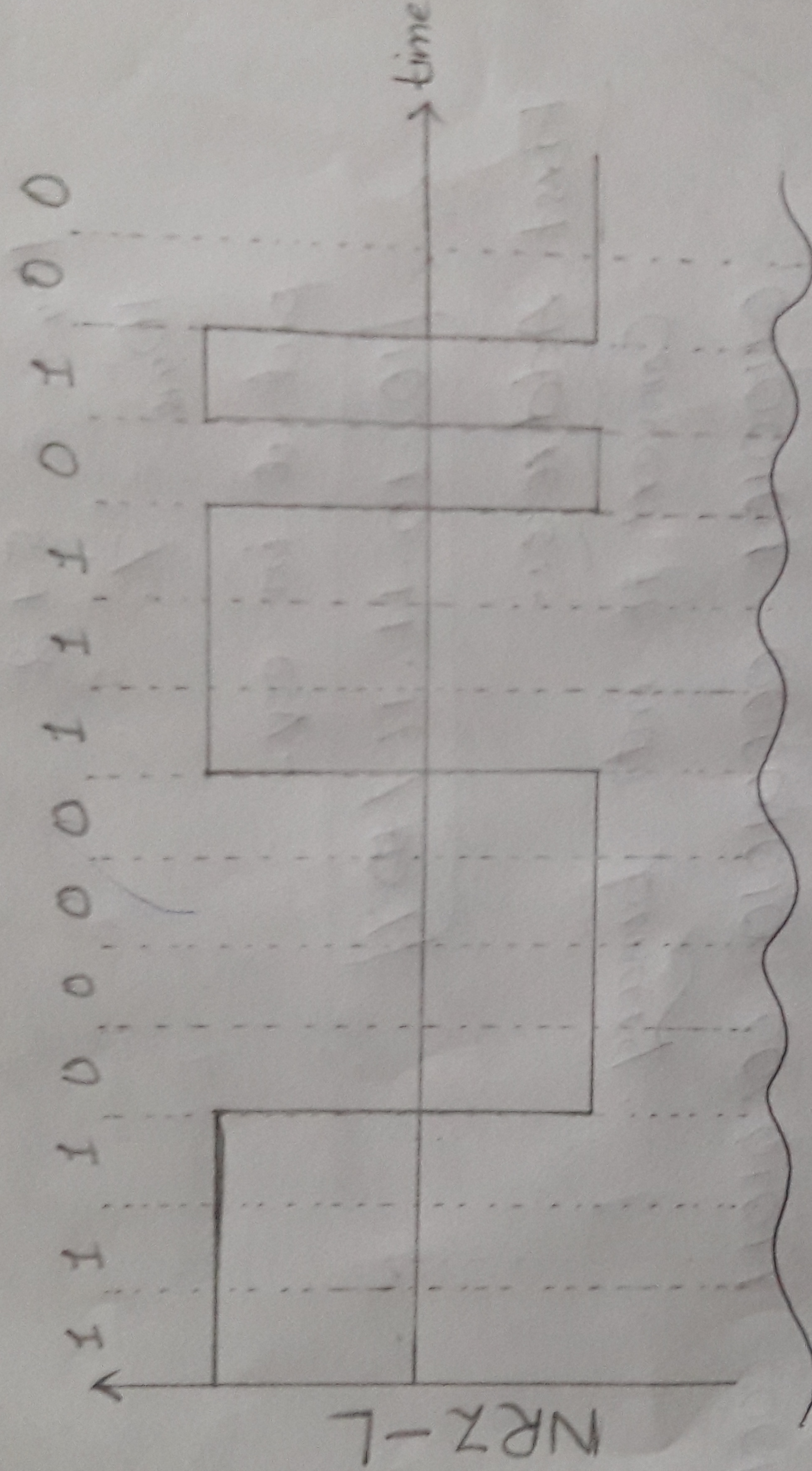
$$01100101 \quad 11111111 \quad 11111111 \quad 11111111$$

$$\boxed{101.255.255.255.}$$

Q2: - Ans: - ID = 14452.

→ Binary

11100001110100.



Q3: - Ans: - ID = 14452.

last digit = 2.

Window size = 2.

A → Before A sends any frame.

Sender:-

0 1 2 3 4 5 6 7

Window of PDU may transmitted = 2 bit Window.

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Receiver:- $\boxed{01}$  2 3 4 5 6 7

$\beta \Rightarrow$  After A sends frames 0, 1, 2, 3, 4 and receive acknowledgment from B for 0, 1, and 2.

Sender:- A has transmitted shrunk its window as it has transmitted 5 PDU's but received 3 PDU's hence keeping 2 PDU.

0 1 2 / 3 4  $\boxed{5 6}$  7Receiver:-0 1 2 / 3 4  $\boxed{5 6}$  7

Receiver has received all its data hence window remains 2 bit size

$0 \Rightarrow$  After A sends frame 5, 6 and B ack 5 the Ack is received by A.

Sender:-0 1 2 3 4 5 / 6  $\boxed{7 0}$  7Receiver:-0 1 2 3 4 5 / 6  $\boxed{7 0}$  7

Ack received by

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Q4:- Ans:- (a)  $\rightarrow$  First group 16 ~~customer~~ customer each need 64 address.

$8(\log_2 64)$  bits are needed.  
prefix length  $32 - 8 = 24$ .

1st Customer

~~160.16~~

160.16.9.0/24

160.16.9.63/24.

2nd Customer:-

160.16.10.0/24

160.16.10.63/24.

64th Customer:-

160.16.63.0/24      160.16.63.63/24.

Total =  $16 \times 64 = 1024$ .

B:-

$7(\log_2 32)$

1st Customer:-

160.16.64.0/25

160.16.64.31/25.

2nd Customer:-

160.16.64.32/25

160.16.64.63/25.

32nd Customer:-

160.16.95.32/25

160.16.95.63/25.

Total =  $64 \times 32 = 2048$ .

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$$C = 6 (\log_2 16), \quad 32 - 6 = 26.$$

1st Cur

$$160 \cdot 16 \cdot 96 \cdot 0 / 26$$

$$160 \cdot 16 \cdot 96 \cdot 15 / 26.$$

2nd Cur

$$160 \cdot 16 \cdot 96 \cdot 16 / 26$$

$$160 \cdot 16 \cdot 96 \cdot 81 / 26.$$

16th Cur

$$160 \cdot 16 \cdot 112 \cdot 80 / 26$$

$$160 \cdot 16 \cdot 112 \cdot 63 / 26$$

$$\boxed{\text{Total} = 64 \times 16 = 1024.}$$