Final Term

Submitted By:

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BS (SE)

Subject :

CCN

a Khan Afridi

half. The

00.10.31/27
00.10.255/27
0.31.255/27

sp = 65,536
= 28,672
= 36,864.

Q1)

Sol

N = 200
n = 25
in the first stage we have
N/n
put the value in the formula
N/n = 200/25 = 8 so k is (8)

In the 2nd stage we have 8 crossbars
each size is
8 × 8 = 64

In the third we have 8 crossbars
= 8 × 25
= 200

The total number of capacity is
$2kN + k(N/n)^2$
putting values
$= 2(8)(200) + 8(200/25)^2$
$= 3,200 + 8(8)^2$
$= 3,200 + 8(8)^2$
$= 3200 + 8(64$
$= 3712.$

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The total number of crossroads

crossroads is $= (N/2)^{1/2}$

value put

$= (200/2)^{1/2}$

$= (100)^{1/2} = 10$

$K = 2n-1$

$= 2(25)-1 = 50-1 = 49$

crossroad is $4N[(2N)^{1/2}-1]$

$= 4(200)[2(200)^{1/2}-1]$

$= 800[(400)^{1/2}-1]$

$= 800[(49-1$

$= 800[79]$

$= 3200$

Q2)

Ans| Out of sequence delivery is permitted but out of sequence ACK is not. When last frame is detected, NAK is sent.

If last frame is lost, then receiver does nothing.

Last ACK Handled the same way as in go-back-n.

In selective Repeat ARQ only the erroneous or lost frames are retransmitted while correct frames are received and buffered.

The receiver while keeping track of sequence numbers, buffers the frames in memory

Send NACK for missing or damaged.

The sender will send retransmitted packet for NACK is received.

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(Q 3)

Sol/

The bit rate can be calculated as :-

$2 \times 4000 \times 16 = 128,000 = 128$ Kbps

Ans

Q4)

Sol) ISP is grated a block of address starting with 10.100.10.0/

Ans)

ISP

Group 1 → 10.100.10.0 to 10.100.63.255
- customer 1: 10.100.10.0/25
- customer 128: 10.100.63.128/25

Group 2 → 10.100.10.0 TO 10.100.127.0
- c-1 : 10.100.10.0/25
- c-128 : 10.100.127.128/25

Group 3 → 10.100.10.0 TO 10.100.31.32
- c-1 : 10.100.10.0/27
- c-32 : 10.100.31.255/27

Group 1 :-

This group customer need 128 address. This mean that 7 (log2 128) bits are needed to defined each host. The prefix length is then 32-7=25

The 1st customer : 10.100.10.0/25 → 10.100.10.127/25

2nd customer : 10.100.10.127/25
↳ 10.100.10.255/25

64th customer: 10.100.63.128/25 → 10.100.63.255/25

Total = 64 × 128
= 8,192.

Group 2 :-
This group, each customer needs 128 address. This means that 7 (log2 128) bits are needed to define each host. The prefix length is 32 - 7 = 25

1st - customer = 10.100.10.0/25 → 10.100.10.127/25
2nd - " = 10.100.10.128 → 10.100.10.255/25
128th - customer = 10.100.127.128/25 → 10.100.127.255/25

Total = 128 × 128
= 16,384

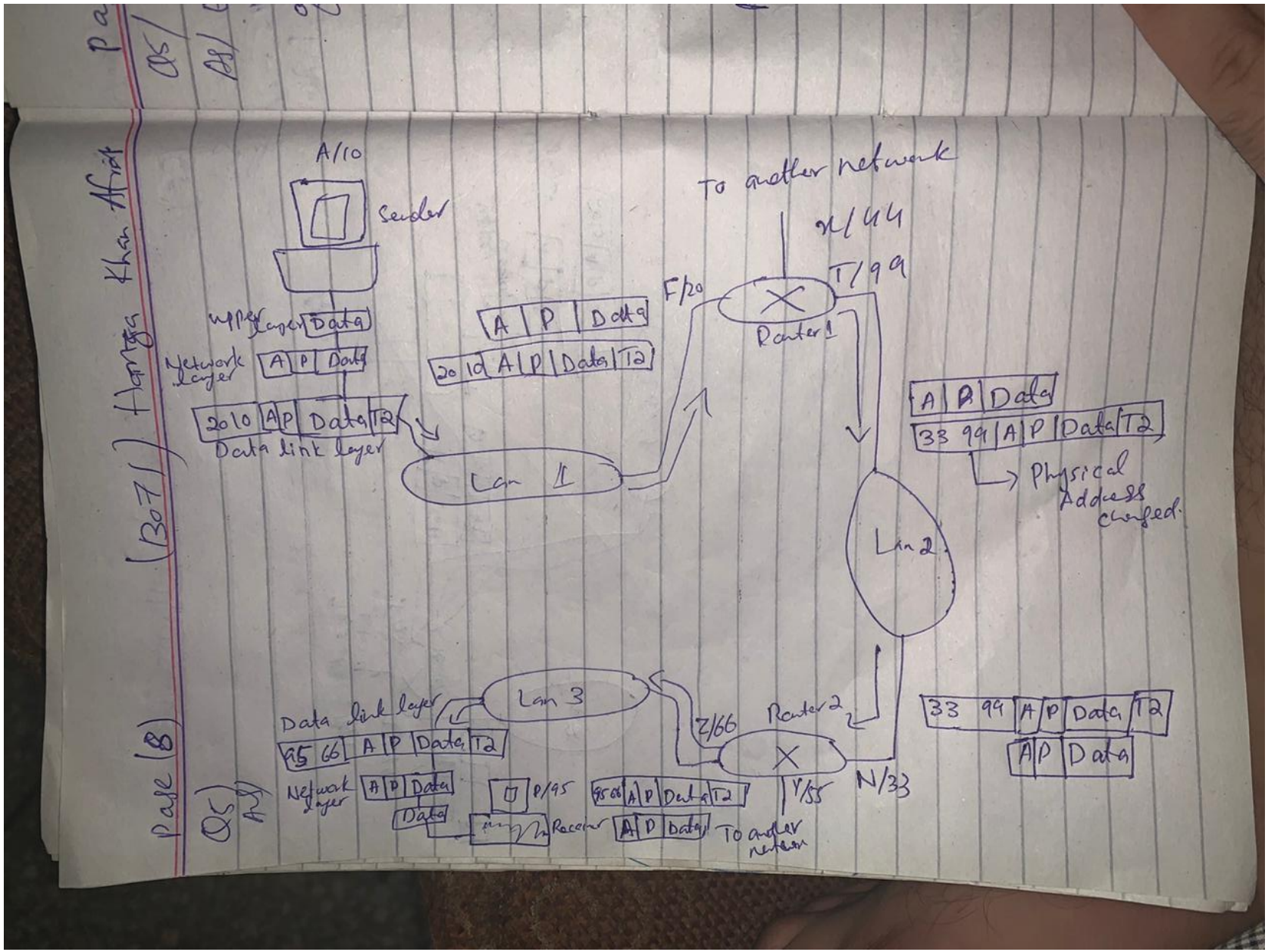
Group 3 :-
This group, each customer needs 32 address. This means that 5 (log2 32) bits

are needed to define each half. The prefix length is 32 − 5 = 27

1st customer = 10.100.10.0/27 → 10.100.10.31/27
2nd " = 10.100.10.32/27 → 10.100.10.255/27
32 " = 10.100.31.32/27 → 10.100.31.255/27

Total = 32 × 128
= 4096

Number of granted addresses ISP = 65,536
" " allocated " C1 = 28,672
" " available " C1 = 36,864.


A/10
Sender
To another network
x/44
T/99
F/20
Router1
Upper layer Data
Network layer A P Data
2010 A P Data T2
Data link layer
A P Data
2010 A P Data T2
Lan 1
A P Data
33 99 A P Data T2
Physical Address changed
Lan 2
Lan 3
Data link layer
95 66 A P Data T2
Network layer A P Data
Data
P/95
Receiver
Z/66
Router 2
95 66 A P Data T2
A P Data
To another network
Y/55
N/33
33 99 A P Data T2
A P Data

Q5/

Ans/ Explanation:-

Each device has a pair of addresses (logical and physical) for each connection. In this case, each computer is connected to only one link and therefore only one pair of addresses. Each router, however, is connected to three networks. So each router has three pairs of addresses one for each connection. At the device (A/10) there is ~~sender~~ the computer with Physical address (10) is the sender and the computer with physical address (20) is the receiver. At the router the sender address is (99) and receiver is 33 Now at router 2 the sender address is (66) and receiver is 95.