Date: 23/6/20 Day M T W T F S

ID: 13579

Computer Communication Network
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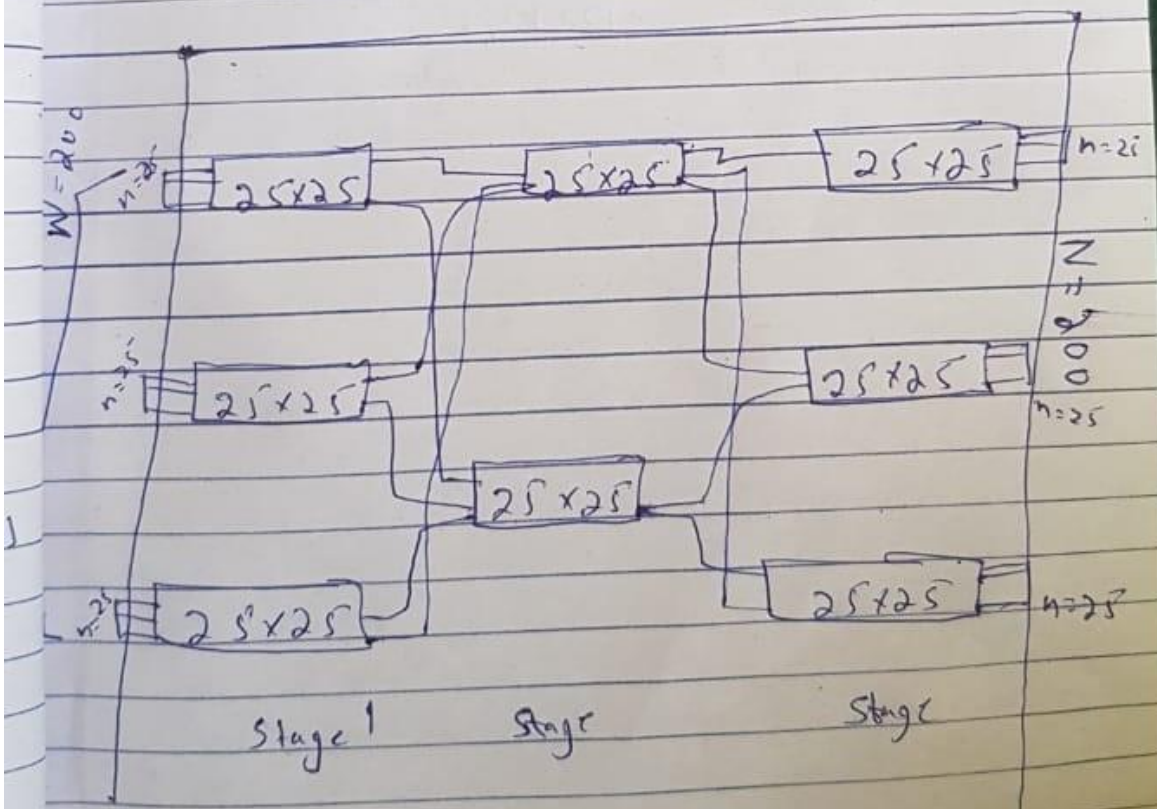
Q1

We need three stage space devition switch with N=200. We use 25 crossbars at the first and third stages.



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Total Numbers of Crosspoints

$= 25(25 \times 25) + 25(25 \times 25) + 25(25 \times 25)$

$= 25^{5}(625) + 25\ (625) + 25(625)$

$= 15,625 + 15,625 + 15,625$

$= 46875$

$= \quad = \quad =$

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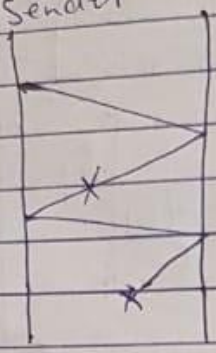
Q2

Explain and show graphically what will happen when Frame 1 is lost using Selective ARQ

Ans:



So the sender will send re trasmit frame 1 alone and as usual another frame will trasmit

Lets asume frame no is curropted or lost so the reciever will not send Acnolodgment for frame No 1 either the frame is lost or acknowledgment will lost it, it goes back in ARQ

The reciever will reciev frame No but it diclered this frame and the sender will re transmitting all the frames in current window like 0 are repeater, In this case the reciever might have Acknolege frame 0 but the sender will not send further frame because it knows that

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Q: 3

A digilized voice channel is made by digitilizing a 4KHz bandwidth ~~8 marks~~ analog voice signal. We need to sample the signal at twice the highest frequency. We assume that each sample requires 16 bits. What is the required bit rate?

Ans:

The bit rate can be calculated as

$$2 \times 4000 \times 16 = 128{,}000 \text{ bps}$$

$$= 128 \text{ kbps}$$

Ans

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Q4.

An ISP is granted a block of addresses starting with 10.100.10.0/16 The ISP needs to distribute these addresses to three groups of customers as follows:

Ans For this group each customer needs 128 addresses. This means that 7 (log2 128) bits are needed to define each host. The Prefix length is then 32-7 = 25 The address are.

1st Customer = 10.100.64 0/25 10.100.64.127/25
2nd Customer = 10.100.64 0/25 10.100.64.255/25
⋮ ⋮
64th Customer = 10.100.127.128/25 190.100.127.255/25
Total 64 x 128 = 8,192

Group: 2

For this group, each customer needs 128 address This mean that 7 (log2 128) bits are needed to define each host. The Prefix length is then 32-7=25 The addresses are

1st Customer 10.100.64.0/25 10.100.64.127/25

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Group 3

For this group each customer needs 32 addesses This means that 5(log2 32) bit are needed to define each host. The prefix length is then 32-5 = 27 The addresses are:

1th Customer : 10.100.32.0/27 10.100.32.63/27
2nd Customer : 10.100 32 .0/27 10.100.32.128/27
⋮ ⋮
32nd Customer : 10.100.32.64/27 10.100.32.128/27

Total = 32x128 = 40,96

Number of granted addresses to the ISP: 65,536

Number of allocated addresses by the ISP: 28,672

Number of Avalible addreses : 36,864

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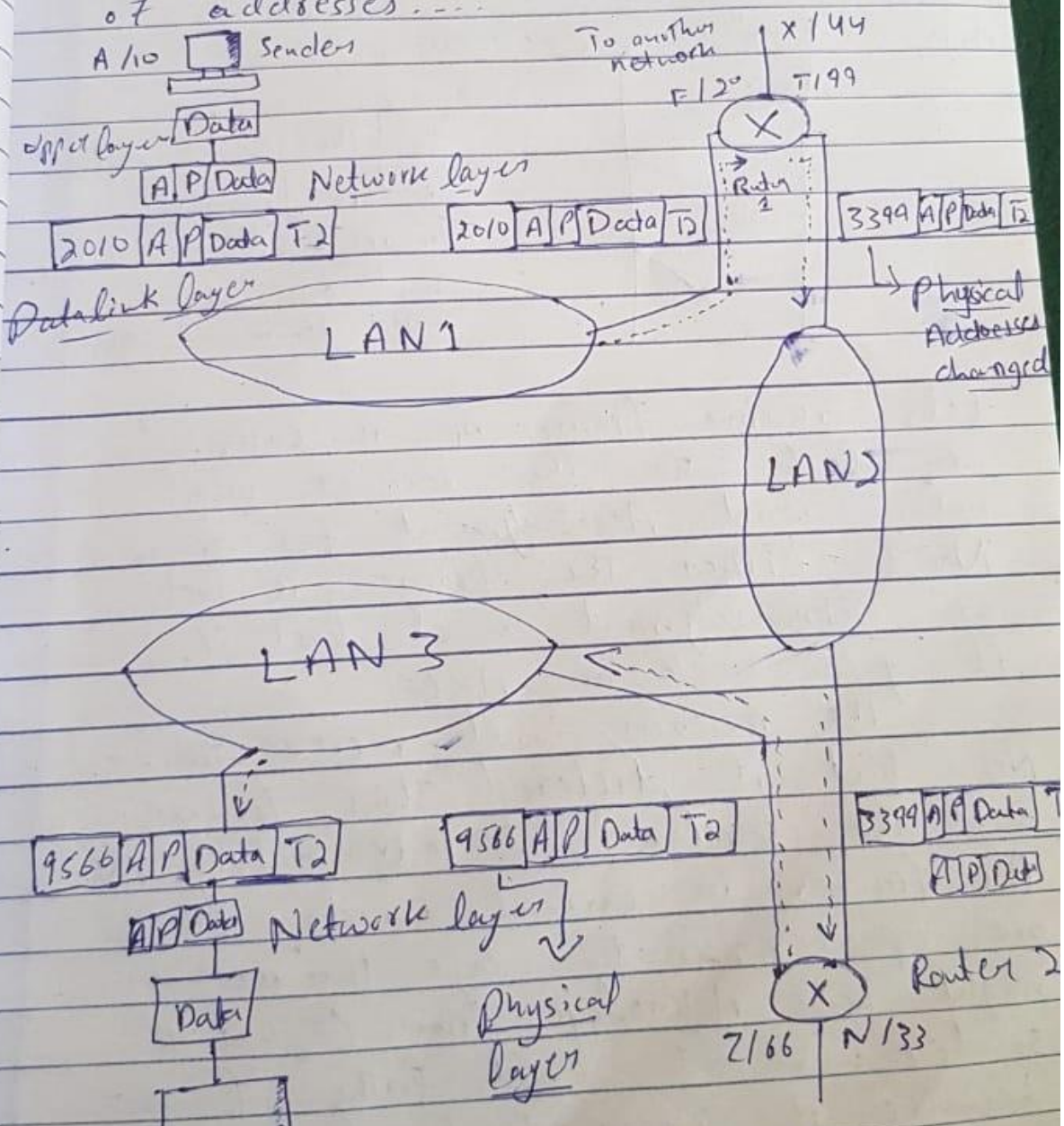
Q.5

Below shows a part of an internet with two routers connecting three LANs. Each device (computer or router) has a pair of addresses....



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Q5

Steps:

Figure shows

A part of an internet with two routers connecting three LANs.

Each device has a pair of addresses for each connection.

In each case, each computer is connected to only one link and therefore has only one pair of addresses.

Each router, however is connected to 3 networks.

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