

6575

①

Subject: _____

Date: _____

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ID: 6575

Final Term 2020

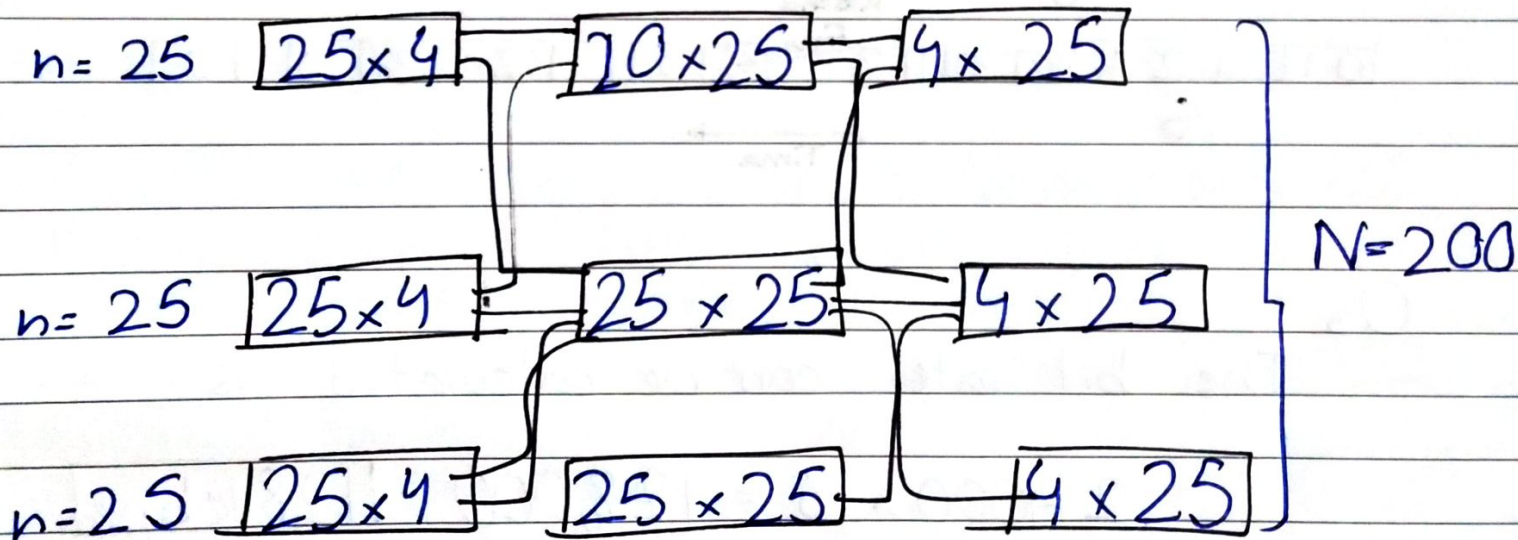
Q₁

a, i, The number of crossbars is 4

ii, 25
Crossbars

4
Crossbars

25
Crossbars



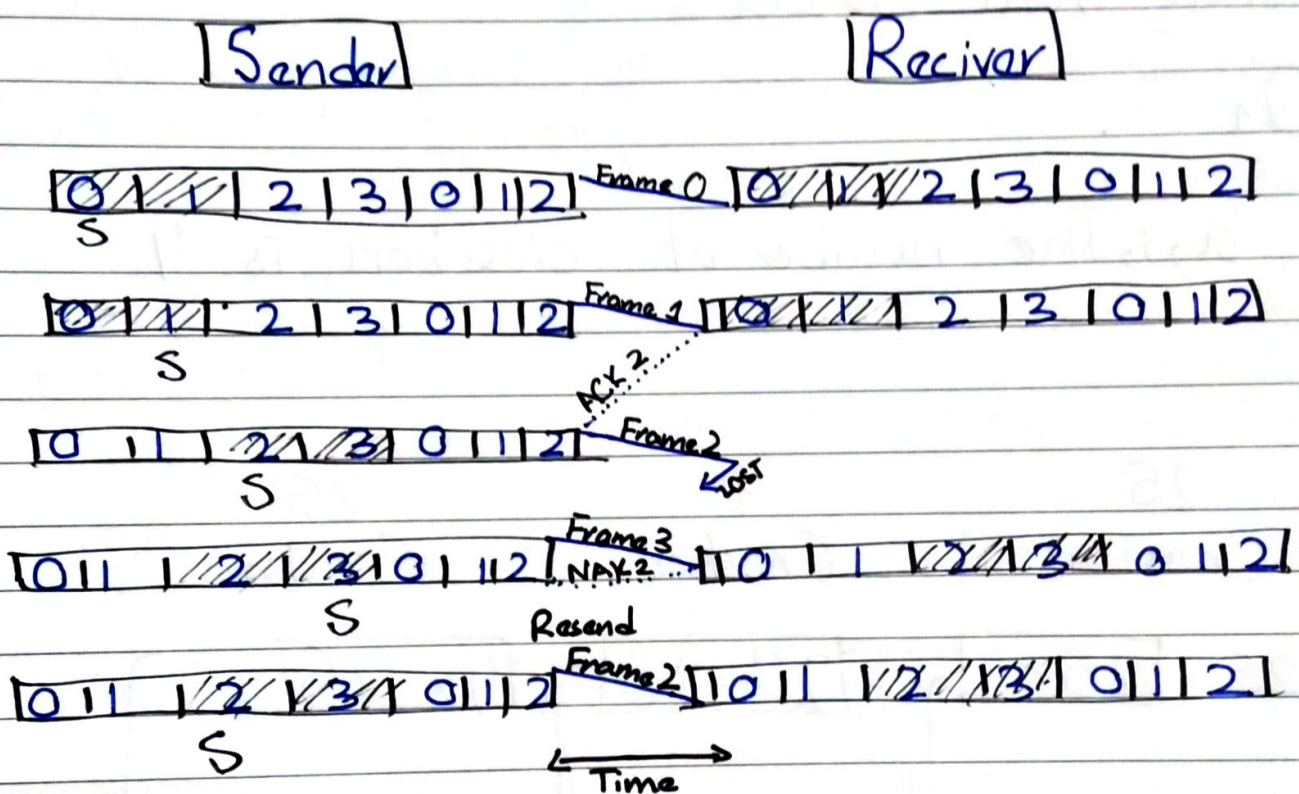
iii, The total numbers of crosspoints = $25(25 \times 4) + 4(25 \times 25) + 25(4 \times 25) = 7500$

6575 (2)

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Q2



Q3

The bit rate can be calculated as

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

6575 (3)

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Q4

Group 1

For this group each customer needs 256 addresses. This means that 8 ($\log_2 256$) bits are needed to define each host. The prefix length is then $32 - 8 = 24$. The addresses are

1st Customer 190.100.0.0/24 — 255/24
2nd Customer 190.100.1.0/24 — 255/24
64th Customer 190.100.63.255/24 — 3255/24

Group 2

For this group each customer needs 128 addresses. That means that 7 ($\log_2 128$) bits are needed to define each host.

The prefix length is then $32 - 7 = 25$.

The addresses are,

1st Customer 190.100.64.0/25 — 127/25
2nd Customer 190.100.64.128/25 — 255/25
128th Customer 190.100.63.255/25 — 255/253

Group 3

6575 (4)

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For this group, each customer needs 64 addresses. This means that $6(\log_2 64)$ bits are needed each host.

The prefix length is then $32 - 6 = 26$

The addresses are

1st Customer 190.100.128.0/26

2nd Customer 190.100.128.64/26

128th Customer 190.100.159.192/26

Total numbers $128 \times 64 = 8192$

Granted address ISP = 65,536

Allocated address ISP = 40,960

Available address = 24,576

657505

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~~Q5~~

~~b, 64 kbps~~

Q5

~~Q5~~ Application layer, Transport layer, Network layer, Data link layer.

~~Q5~~ It shows that two computers communicating via internet. The sending computer is running three processes - at this time with port addresses a , b , & c . The receiving computer is running two processes at this time with port addresses j & k . Process a in the sending computer needs to communicate with process j in the receiving computer. Note that, Although physical addresses change from hop to hop logical port address remain the same from the source to destination.