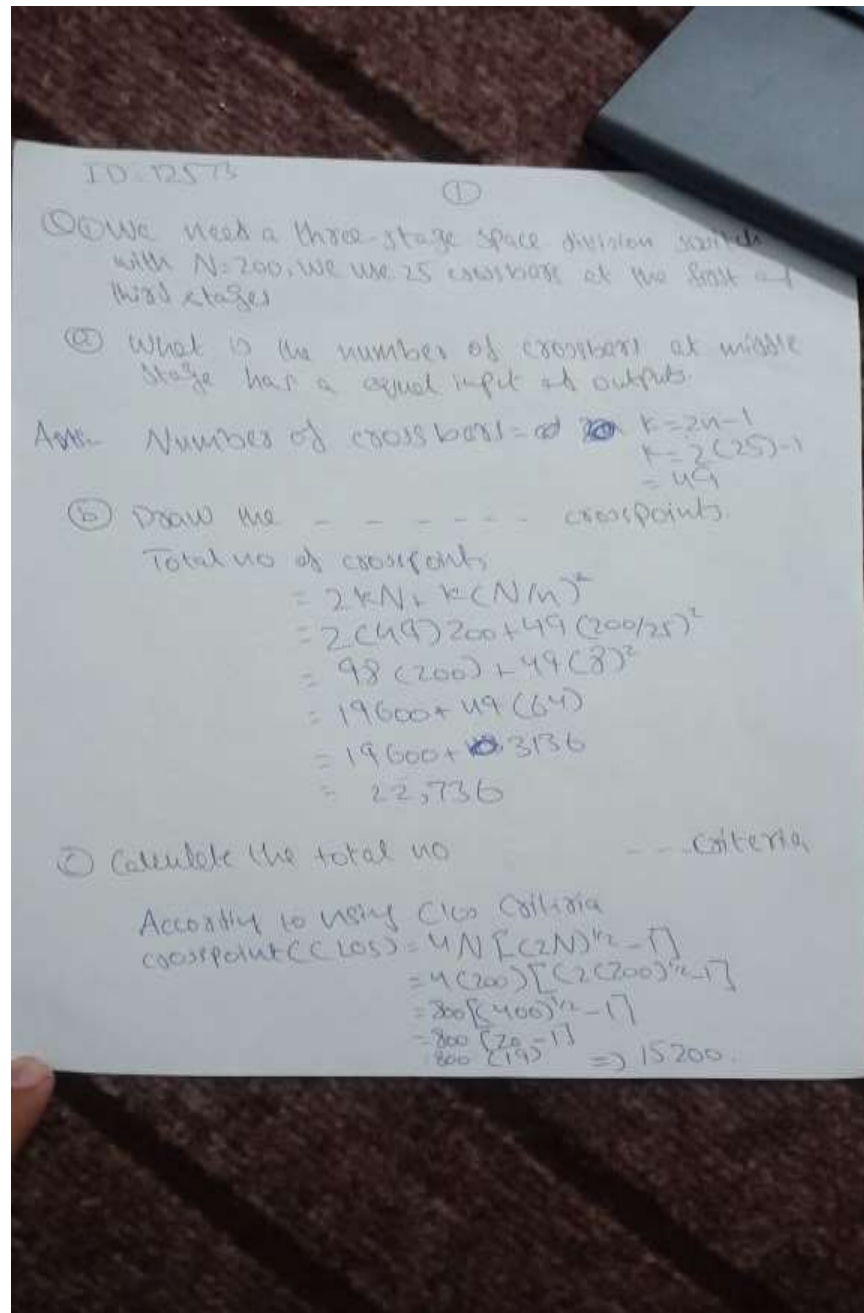


ID=12573

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Subject=Computer communication and network

Date=28/9/2020



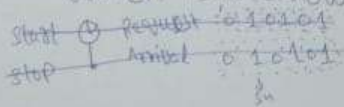
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②

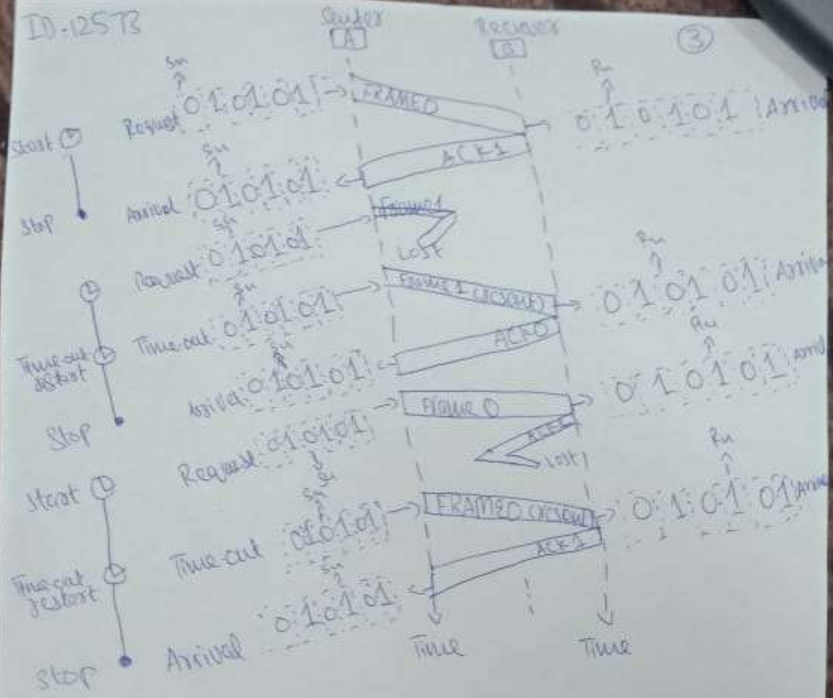
Q2 Explain and show graphically what will happen when frame 1 is lost using selective-repeat ARQ.

Ans This figure shows an example of stop-and-wait ARQ. Frame 0 is sent and acknowledged. Frame 1 is lost and resent after the time-out.

The resent frame 1 is acknowledged and the timer stops. Frame 0 is sent and acknowledged but the acknowledgment is lost. The sender has no idea if the frame or acknowledgment is lost, so after the time out, it resends frame 0, which is acknowledged.



ID-12573



ID: 12573

(13) A digitized voice channel is made by digitizing a 4 kHz bandwidth 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 can be calculated as.

~~Bandwidth~~
Bandwidth analog voice signal = 4 kHz
sample required = 16 bits
Bit rate = ?

$$\begin{aligned}\text{Bit rate} &= 2 \times 4000 \times 16 \\ &= 128,000 \text{ bps} \\ &= 128 \text{ kbps}\end{aligned}$$

ID=12573

⑤

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:

Ans④ The first group has 64 customers, each needs 128 addresses.

For this group each customer needs 128 addresses. This means 8 ($\log_2 128$) bits are needed to define each host. The prefix length is then $24 - 8 = 16$.

$$\text{Total} = 64 \times 128 = 8192$$

⑤ The second group has 128 customers, each need 128 addresses.

For this group each customer needs 128 addresses. This means that 7 ($\log_2 128$) bits are needed to define each host. The prefix length is then $32 - 7 = 25$.

$$\text{Total} = 128 \times 128 = 16,384$$

⑥ The third group has 128 customer, each needs 32 addresses.

For this group each customer needs 32 addresses. This means that 6 ($\log_2 32$)

ID: 12573

bits are needed to each ⁽⁶⁾ host. ~~then~~

~~to~~

$$\text{Total} = 128 \times 32 = 4,096$$

- (4) Design the sub blocks and find how many addresses are still available after these allocations.

Group 1

10.100.10.0/16 to 10.100.73.255/16 : Customer 001: 10.100.10.0/16
Customer 073: 10.100.73.0/16

Group 2

10.100.74.0/16 to 10.100.127.255/16 : Customer 002: 10.100.74.0/16
Customer 127: 10.100.127.0/16

Group 3

10.100.128.0/16 to 10.100.159.255/16 : Customer 002: 10.100.128.0/16
Customer 128: 10.100.159.255

Available

10.100.160.0 to 10.100.255.255

ID: 12573

⑦

Q5 Below shows a part of internet ———
----- each step.

