

# ITAS003 - Data Communication and Networking

Class Number -

VL2022230105122

Slot -

E2+TE2

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## DIGITAL ASSIGNMENT

Q → Station A needs to send a message consisting of 10 packets to Station B using a sliding window (window size 3) and go back n error control strategy. All packets are ready and immediately available for transmission. If every 6<sup>th</sup> packet that A transmits gets lost (but no ACKs from B gets lost), then what is number of packets that A will transmit for sending the message to B?

Ans → Given,  
Total number of packets = 9  
to be sent

Go Back N with window size 3

Every 6<sup>th</sup> packet gets lost

### Step 1

Since sender window size is 3, so sender sends 3 packets (1, 2, 3) -

3	2	1
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Total packets sent till now = 3  
from sender side

### Step 2

After receiving the acknowledgement for packet 1, sender sends 4 and slides the window.

4	3	2
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Total packets sent till now = 4  
from sender side

### Step 3

After receiving acknowledgement for packet-2, sender slides its window and sends packet-5

5	4	3
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Total packets sent till now = 5  
from sender side



#### Step 4

After receiving acknowledgment for packet - 3,  
sender slides its window and sends packet-6

6	5	4
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Total packets sent till = 6  
now from sender side

#### Step 5

After receiving acknowledgement for packet - 4,  
sender slides its window and sends packet-7

7	6	5
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Total packet sent till = 7  
now from sender side

#### Step 6

After receiving acknowledgement for packet - 5,  
sender slides its window and sends packet-8

8	7	6
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Total packet sent till = 8  
now from sender side

## Step 7

According to question, 6th packet every gets lost.

So packet-6 gets lost and when time out occurs, sender retransmits packet-6

In Go Back N, all the following packets are also discarded by receiver

So, packet-7 and 8 are also discarded and retransmitted from sender side.

That is entire window (8, 7, 6) gets retransmitted.

8	7	6
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Total packets sent till = 11

now from sender side

## Step 8

After receiving acknowledgement for packet-5, sender slides its window and sends packet-9

9	8	7
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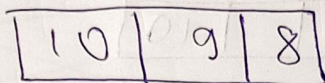
Total packets sent till = 12

now from sender side



### Step 9

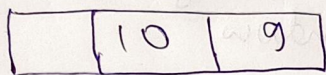
After receiving acknowledgement for packet-7, sender slides the window and sends packet-10.



Total packets sent = 13  
till now

### Step 10

After receiving acknowledgement for packet-8, sender slides its window



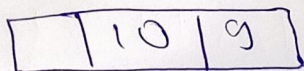
Total packets sent till now = 13  
now from sender side

### Step 11

Since packet-9 is the ninth packet transmitted, it gets lost.

After timeout sender retransmits the entire window (10, 9) again.

packet-10 is discarded at receiver side.



Total packets sent till now = 15  
now from sender side

## Step 12

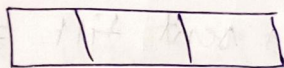
After receiving acknowledgement for packet-9 sender slides the window.



Total packets sent till = 15  
now from sender side

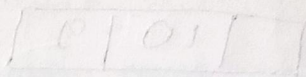
## Step 13

After receiving acknowledgement for packet-10, sender slides the window



Total packets sent till = 15  
now from sender side

Therefore, all 10 packets got transmitted which took total 15 number of transmissions.





Sender

Receiver

