CS & IT ENGINEERING

Computer Network

Flow Control

DPP-02 (Discussion Notes)

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01 Question

02 Discussion

Q.1

A satellite has a propagation delay of 800ms and the bandwidth of the satellite is 40 Kbps. The transmission uses the "Go Back N-ARQ" protocol with N has a value of 10. If the size of each frame is 100 bytes then what is the maximum data rate possible in Kbps.

[NAT]

$P_d = 800\,msec$

$B = 40 * 10^3\ bits/sec$

$N = 10$

Frame size = 100 Byte

= 800 bits

$T_{d(F)} = \frac{800\ bits}{40 * 10^3\ bits/sec}$

$= 20 * 10^{-3}\ sec$

$= 20\,msec$

$$\text{Throughput} = \frac{N * \text{Framesize}}{\text{total time}}$$

$$= \frac{10 * 800 \text{ bits}}{T_d(F) + 2 * P_d + \cancel{Q_d} + \cancel{P_{qd}} + \cancel{T_d(A)}}$$

$$= \frac{8000 \text{ bits}}{20 + 2 * 800}$$

$$= \frac{8000 \text{ bits}}{1620 \text{ msec}}$$

$$= \frac{8000 \text{ bits}}{1620 * 10^{-3} \text{ sec}}$$

$$= 4.93 * 10^3 \text{ bits/sec}$$

$$= \boxed{4.93 \text{ Kbps}}$$

Q.2 If the maximum sequence number in Go-Back-N-ARQ is 'S' that what will be the receiver window size?

[MCQ]

A. $\frac{S+1}{2}$

B. $S+1$

C. S

D. 1

Q.3 Which of the following statement(s) is/are correct about Go-Back-N-ARQ?

[MSQ]

A. In Go-Back-N-ARQ if the maximum sequence number is K then sender window size will be K.

B. Go-Back-N-ARQ uses cumulative acknowledgment.

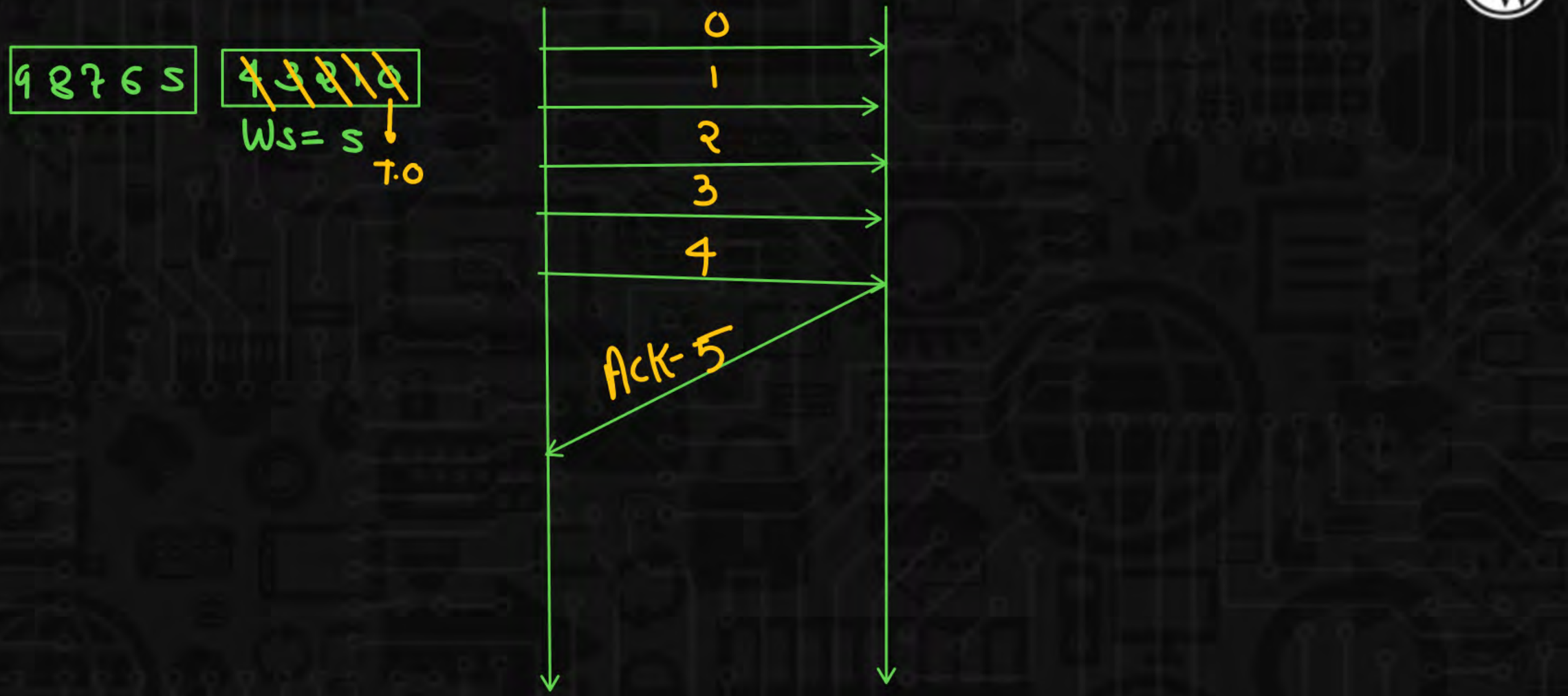
C. In Go-Back-N-ARQ time out timer is maintained only for the first frame of the window.

D. None of the above

(A, B, C)

SeqNo = 8 (0 — 7)
K

W_S	W_R
7	1
K	


9 8 7 6 5
4 3 2 1 0
Ws= 5
T.O
0
1
2
3
4
Ack-5

Q.4 If the maximum sender window size in Go-Back-N-ARQ is 15 then what will be the number of sequence bit? 4 **[NAT]**

$W_S = 15$

$W_R = 1$

Minimum Seq No required $= 15 + 1 = 16$

$2^K = 16$

$2^K = 2^4$

$K = 4$ bit

Q.5 In Go-Back-N protocol if the maximum window size is 16. Then what will be the range of sequence number.

Note: If the range is from a to b then write the answer in the from the $\frac{a+b}{2}$.

[MCQ]

A. 16

B. 4

C. 8 ✓

D. None of these

$W_S = 16$

$W_R = 1$

minimum sequence No required = 16+1 = 17

$\frac{a+b}{2} = \frac{0+16}{2} = 8$

(0 – 16)
a b


THANK YOU GW
SOLDIERS !