Q1

- In slow start, a sender doubles its window size every RTT if all sent packets were acknowledged
-
- T/F

Answer = True

Q2

- In steady state, a sender increases its window size by one packet for each acknowledgement
-
- T/F

Answer = False

Q3

- A sender that underestimates the round-trip time of a connection may unnecessarily induce a TCP timeout
- T/F

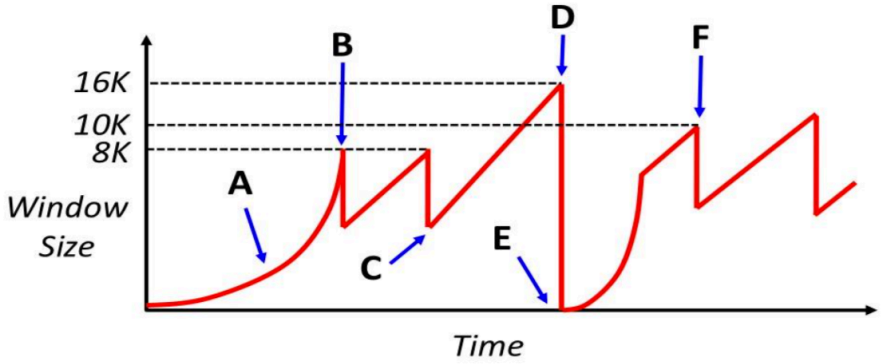
Answer = True

Q4

- After detecting packet loss through a timeout, TCP halves its window size as a response to the path congestion
-
- T/F

Answer = False

Q5

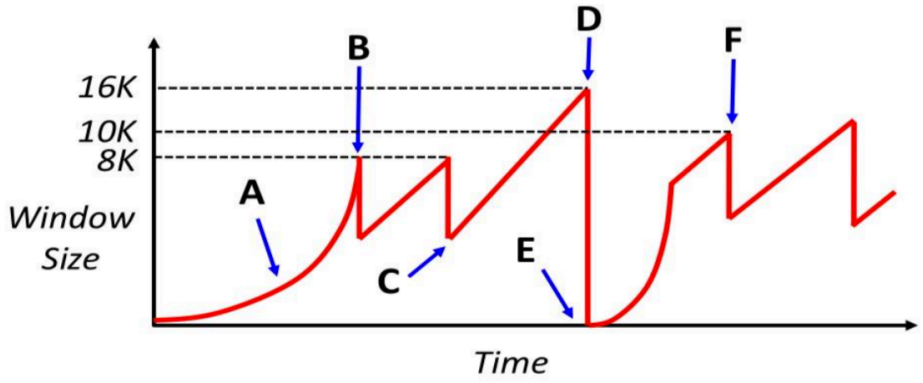


1. Name the event at B which occurs that causes the sender to decrease its window

(a) Triple Duplicate Ack
(b) Slow Start
(c) Packet loss
(d) Time out

Answer = A

Q6

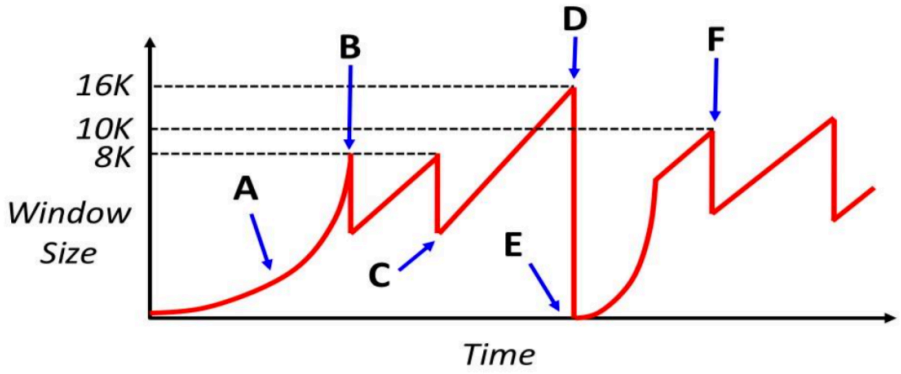


2. Does the event at B necessitate that the network discarded a packet ?

(a) Yes
(b) No
(c) Don't know

Answer = B

Q7

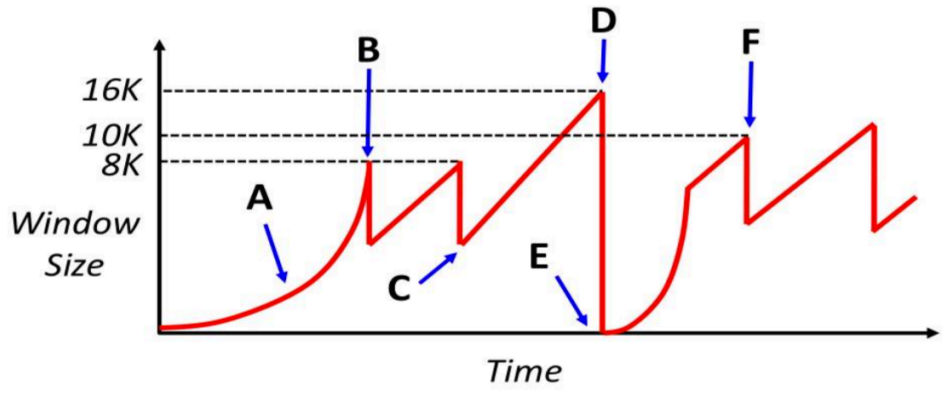


3. Name the event at D which occurs that causes the sender to decrease its window.

(a) Triple Duplicate Ack
(b) Slow Start
(c) Packet loss
(d) Time out

Answer = D

Q8

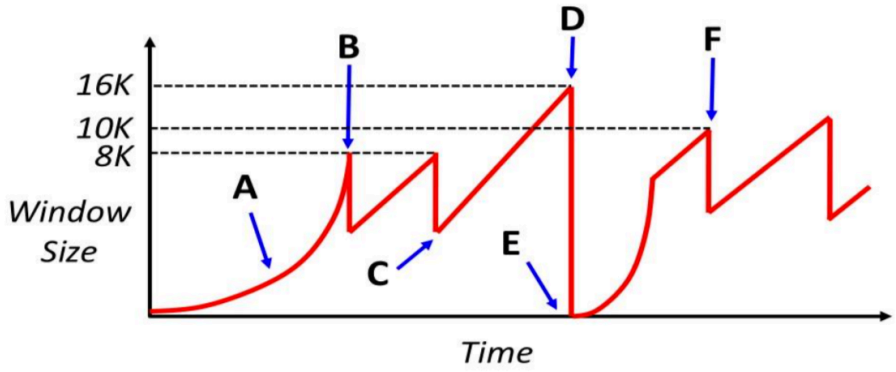


4. Does the event at D necessitate that the network discarded a packet

(a) Yes
(b) No
(c) Don't know

Answer = B

Q9

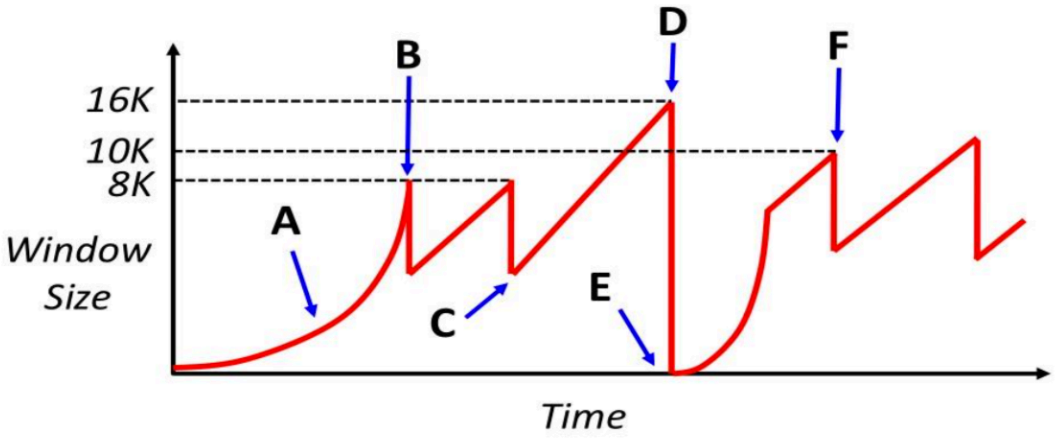


5. For a lightly-loaded network, is the event at D MORE likely or LESS likely to occur when the sender has multiple TCP segments outstanding

(a) MORE
(b) LESS
(c) ALMOST SAME

Answer = B

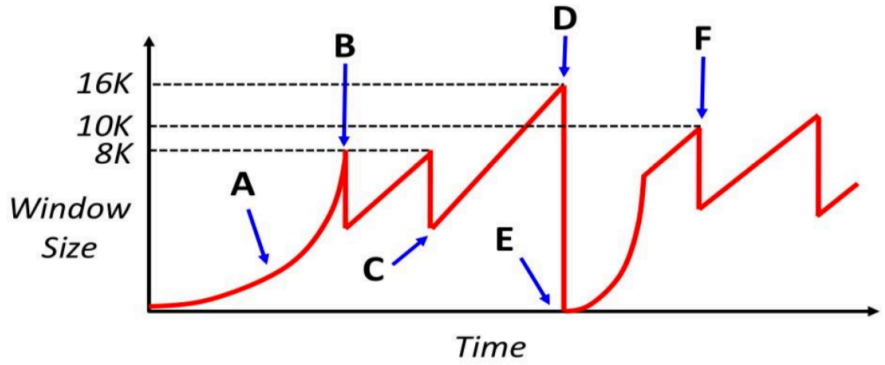
Q10



6. Consider the curved slope labeled by point A. Why does the TCP window behave in such a manner, rather than have a linear slope? (Put another way, why would it be bad if region A had a linear slope?)

the cwnd get to 1/2 of its value before time out and the slow start discovers the max acceptable throughput that path supports. or additive increase could take a longer period.

Q11



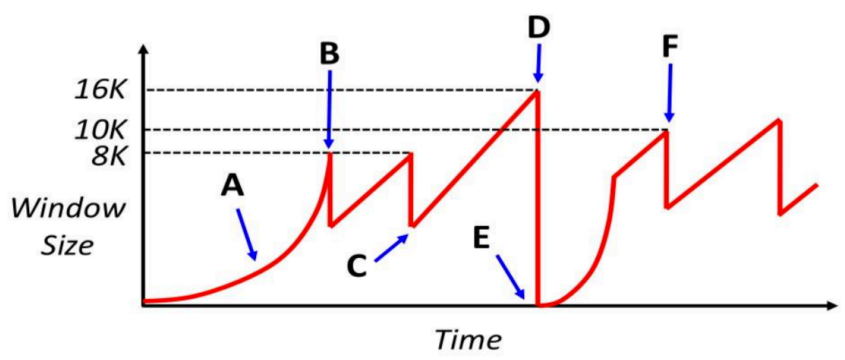
Assume that the network has an MSS of 1000 bytes and the round-trip-time between sender and receiver of 100 milliseconds.

Assume at time 0 the sender attempts to open the connection.

Also assume that the sender can "write" a full window's worth of data instantaneously, so the only latency you need to worry about is the actual propagation delay of the network.

Answer = Not sure what to answer for this question

Q12

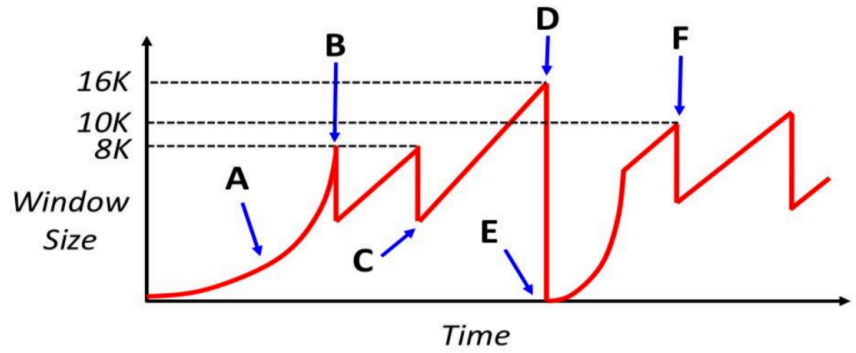


RTT = 100ms, MSS = 1000 bytes
7. How much time has progressed by point B ?

(a) 200ms
(b) 300ms
(c) 400ms
(d) 600ms
(e) 700ms

Answer = c

Q13

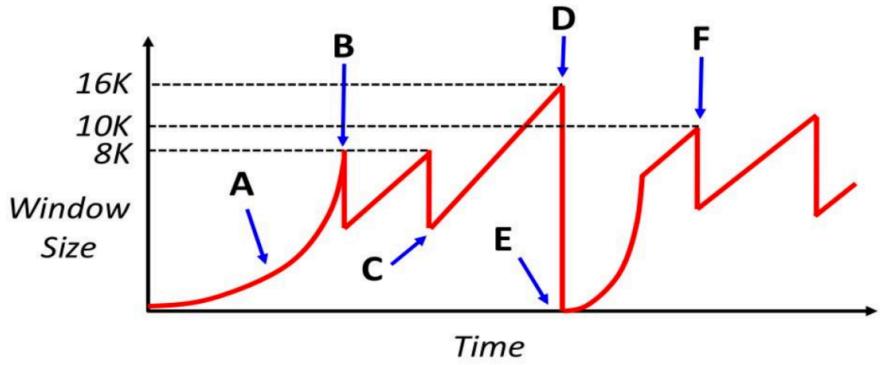


RTT = 100ms, MSS = 1000 bytes
8. How much time has progressed between points C and D?

(a) 800ms
(b) 1000ms
(c) 1200ms
(d) 1400ms

Answer = C

Q14

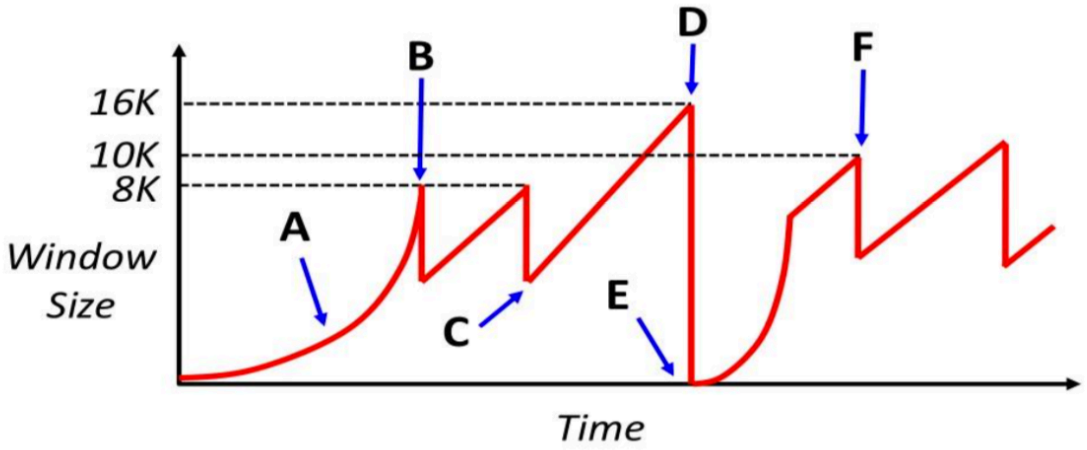


RTT = 100ms, MSS = 1000 bytes
9. How much time has progressed between points E and F?

(a) 400ms
(b) 600ms
(c) 800ms
(d) 900ms

Answer = B

Q15



10. If the sender shares its network with other clients whose traffic traverses the same IP routers, give one explanation for why point D is higher than point B?

Answer = Changing cross-traffic by other concurrent senders across same routers