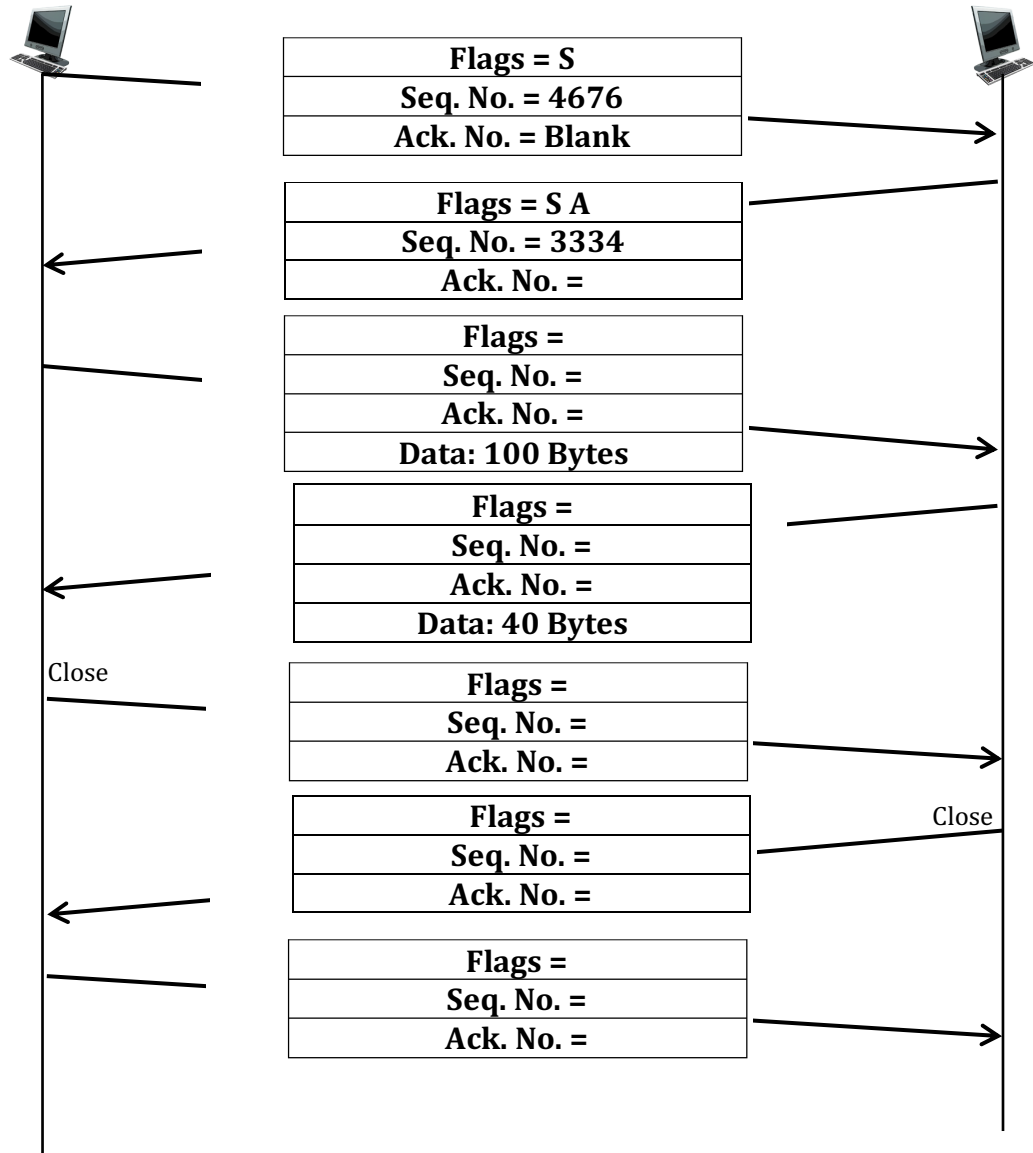# Transport Layer (2) - Questions

Q1) Given the following scenario, populate the TCP header fields that follow for the Sequence Number, Acknowledgement Number, and Flags.

Flags = S
Seq. No. = 4676
Ack. No. = Blank

Flags = S A
Seq. No. = 3334
Ack. No. =

Flags =
Seq. No. =
Ack. No. =
Data: 100 Bytes

Flags =
Seq. No. =
Ack. No. =
Data: 40 Bytes

Close

Flags =
Seq. No. =
Ack. No. =

Close

Flags =
Seq. No. =
Ack. No. =

Flags =
Seq. No. =
Ack. No. =

Q2) TCP waits until it has received three duplicate ACKs before performing a fast retransmit. Why do you think the TCP designers chose not to perform a fast retransmit after the first duplicate ACK for a segment is received?

Q3) Consider transferring an enormous file of L bytes from Host A to Host B. Assume an MSS of 536 bytes and ISN is 1.
   a. What is the maximum value of L such that TCP sequence numbers are not exhausted?
   b. For the L you obtained in part (a), find how long it takes to transmit the file. Assume that a total of 66 bytes of transport, network and data link layer headers are added to each segment before it is sent out on a 155Mbps link. Ignore flow control and congestion control so that A can pump out packets continuously in a back-to-back manner