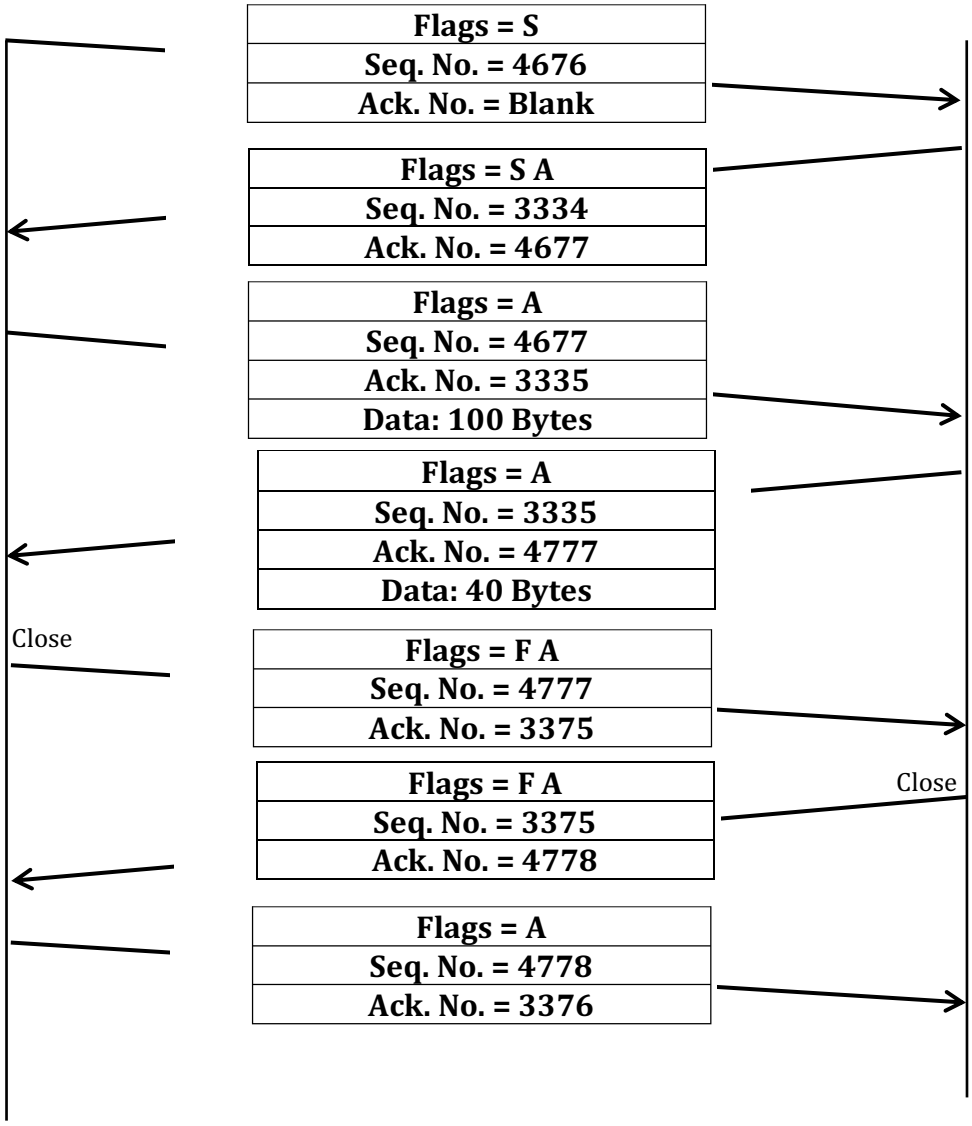
Transport Layer (2) - Answers

A1)



A2) Reordering only by 1 packet would cause an unnecessary retransmission.

A3) There are $2^{32} = 4{,}294{,}967{,}296$ possible sequence numbers.

a) The sequence number does not increment by one with each segment. Rather, it increments by the number of bytes of data sent. So for this part, the size of the MSS is irrelevant -- the maximum size file that can be sent from A to B is simply the number of bytes representable by $2^{32} \approx 4$ Gbytes.

b) Total number of segments generated is (2^32/536) = 8,012,999. 66 bytes get added as headers for each segment giving us 8012999 x 66 = 528,857,934 bytes of overhead. Total bytes that need to be transmitted = 4.824×10^9 bytes. Time required for transmission = $(4.824 \times 10^9 \times 8)/155 \times 10^6$ = 249 sec.