Problem 5

a. Yes, the modified sender works: the original sender retransmits the current packet after a timeout, and the modified sender retransmits the current packet after a timeout and upon receiving a corrupt ACK, or an ACK with a wrong "acknum" field. In all cases, the receiver can handle duplicate packets.

b. Assuming premature timeout on each of the 3 packets, we get:

   - The 1st packet is transmitted 2 times,
   - The 2nd packet is transmitted 3 times, and
   - The 3rd packet is transmitted 4 times.

   The increase by 1 in the above sequence is obtained since

   - a first transmission of the current packet occurs when the first ACK to the previous packet arrives,
   - each extra copy of the previous packet is ACKed, and each ACK causes another copy of the current packet to be transmitted, and
   - an additional copy of the current packet is also transmitted after a timeout.