Problem #1

The source port number is y and the destination port number is x for the segments traveling from Host B to Host A.

Problem #2

It might prefer UDP rather than TCP because it is a lightweight protocol, it does not use a lot of overhead, and it might be fine for the application developer to lose some of the packets (in the case of online video call or online gaming). In the case of video call or online gaming, it is preferred to have a fast transmission of packets than have all the packets (information) arrive successfully and uncorrupted. Basically, they do not need reliable data transfer.

Problem #3

The reason voice and video traffic is often sent over TCP rather than UDP in today’s Internet is because most of firewalls on the Internet are configured to block UDP incoming packets. Even though, the TCP delay is not the desired for these applications, TCP is used because the firewalls allow TCP packets through the firewalls.

Problem #5

No, a NAK-only protocol would not be preferable to a protocol that uses ACKs because if there is a significant amount of delay between the transmissions of the packets, then it will take a long time for the receiver to recognize that a packet is missing. As a result, it will take a long time for the lost packet to be retransmitted and received.

In the second case, yes, a NAK-only protocol would be preferable to a protocol that uses ACKs because you experience very few losses and a lot of data is being sent. Thus, you would rarely send a NAK, reducing data sent from the receiver to the sender if ACKs were used. Furthermore, if the sender has a lot of data to send, then it is faster to detect if a packet got lost in the transmission because the recognition of the packets will happen faster. As a result, we would not have the same issues as in the first case.