Solutions to Assignment 3 Questions

1) True or False?

a) 2: False, TCP provides reliable data transfer over reliable networks.

b) 2: False, reliable data transfer can also be implemented in the application.

c) 1: True

d) 1: True

e) 2: False, protocols for congestion control can be implemented in the application layer.

2) More True or False?

a) 2: False, Host A can check the IP-address to determine who sent the segment.

b) 2: False, TCP also use the IP addresses.

c) 1: True, this would often be the case when employing Selective Repeat.

d) 1: True.

e) 2: False, you can f. ex. receive an old duplicate ACK that was a bit slow through the network.

3) TCP - segments and sequence numbers.

a) 2: 40 bytes.

b) 1: It cannot be decided without knowing the next sequence number.

4) TCP - Acknowledgments.

a) 1: 151, Host B wanted a segment with sequence number 151, but got 181 instead. The Ack number should always indicate what segment host B expects next. Still 151.

b) 2: 181, Host B has received all the bytes up to 180, so wants sequence number 181. Remember that the packet in a) was discarded.

c) 2: 181, It is a duplicate of the segment received in b). However, duplicates should still be ACK-ed, because missing ACKs can be a reason for duplicates.

d) 3: 211. With selective repeat, the ACKs identify individual segments received instead of what sequence number is expected next.

e) 2: 181. Signifying the segment of bytes just before 181 was received.

5) TCP - Header

a) 2: The IP addresses are part of the IP header.

b) 3.