(1) A host at address 68.25.10.4, located behind a NAT gateway whose IP address is 204.5.28.6, contacts a web server site 144.25.71.12 via UDP in 8 hops. Show the UDP pseudo-header for the packet as it leaves the originating host, and again as it is seen by the receiving web server. Assume, for this exercise, that UDP checksums are not computed.

(2) Why does UDP exist? Would it not have been enough just to let user processes send raw IP packets?

(3) Datagram fragmentation and reassembly are handled by IP and are invisible to TCP. Does this mean that TCP does not have to worry about data arriving in the wrong order?

(4) What is the chief advantage of CIDR over the original classful addressing scheme? What is the chief advantage of classful addressing over CIDR?

(5) ARP only permits address resolution to occur on a single network. Could ARP send a request to a remote server in an IP datagram? Why or why not?

(6) If an IP datagram contains one 8-bit option and one 8-bit data value, what values will be found in the header fields HLEN and TOTAL LENGTH?

(7) IP specifies that any datagram can be delayed, meaning that datagrams can arrive in a different order than they were sent. If a fragment from one datagram arrives at a destination before all the fragments from a previous datagram arrive, how does the destination know to which datagram the fragments belong?