**Q1. Hierarchical IP Address**

1.1 Give a non-network example of hierarchical addressing, and discuss how it reduces the amount of work needed in physical delivery. Do not use any example in the book, the postal service, or the telephone network.

Car dealership could be an example of hierarchical addressing. For example Toyota has its main headquarters probably in Japan. It then has multiple other headquarters around the world in different countries, for example its USA headquarters. And then there are thousands of dealerships throughout the 50 states. This hierarchy allows Toyota to deliver cars to certain customers in different regions without requiring those customers to order directly from Japan

1.2 A firm is assigned the network part 128.171. It selects a 10-bit subnet part.

a) Draw the bits for the four octets of the IP address of the first host on the first subnet. (Hint: as we don’t use all 1 or all 0, the 1st subnet/host is 00…01, while the last subnet/host is 11…10. The number of 1&0 in the expression depends on the length of subnet/host part)

b) Convert this answer into dotted decimal notation.

c) Draw the bits for the second host on the third subnet. (In binary, 2 is 10, while 3 is 11.)

d) Convert this into dotted decimal notation.

e) Draw the bits for the last host on the third subnet.

f) Convert this answer into dotted decimal notation.

**Q2. Wireshark for Packet Information**

2. Visit calstate.edu, login the system with your id/password. Use Wireshark to capture this process.

Find the packets with following protocols,

1) TCP:

2) UDP:

3) HTTP;

and answer the following questions:

1. What's the source/destination IP address?
2. What type of protocol is it?
3. what are the source and destination port numbers?