Part B

**Chapter 5**

**7. Consider the network of Fig. 5-12(a). Distance vector routing is used, and the following vectors have just come in to router C:**

* **from B: (5, 0, 8, 12, 6, 2)**
* **from D: (16, 12, 6, 0, 9, 10)**
* **from E: (7, 6, 3, 9, 0, 4)**

**The cost of the links from C to B, D, and E, are 6, 3, and 5, respectively. What is C’s new routing table? Give both the outgoing line to use and the cost.**

**36. A router has just received the following new IP addresses: 57.6.96.0/21, 57.6.104.0/21, 57.6.112.0/21, and 57.6.120.0/21. If all of them use the same outgoing line, can they be aggregated? If so, to what? If not, why not?**

One route should consolidate all four subnets, while another route, featuring a lower metric, should encompass the 57.6.112.0/21 network. Despite the inclusion of the 57.6.112.0/21 network in the aggregate route, the specific route, possessing a lower metric, takes precedence over the aggregate route.

In a broader context, the default route directs traffic to 0.0.0.0/0, covering all addresses. However, more specific routes with lower metrics exist, influencing the routing decisions. Similarly, a route for a supernet like 57.6.96.0/19, which includes the subnet 57.6.112.0/21, can coexist with an even more specific route for the subnet 57.6.112.0/21, effectively superseding the less specific supernet route.

**Chapter 6**

**16. Why does UDP exist? Would it not have been enough to just let user processes send raw IP packets?**

It is better to use UDP, rather than just sending IP packets everywhere, because by using UDP, the data will be correctly to the desired destination. This is because UDP uses source and destination ports while raw IP packet does not include ports.

**48. What is the bandwidth-delay product for a 50-Mbps channel on a geostationary satellite? If the packets are all 1500 bytes (including overhead), how big should the window be in packets?**

The total delay for a round trip is approximately 500 milliseconds. Therefore, considering a channel with a capacity of 50 Mbps, the bandwidth product delay amounts to 3.125 megabytes. Assuming packet size is 1500 bytes, it would require 2084 packets (rounded up) to saturate the connection, so the window size should be set to at least 2250 packets.