博班資格考 資訊網路試題

命題方式: <u>close book</u>　　2012/02/　　　　　考試時間: <u>共 4 小時</u>

第一部分：50 分(每題 10 分)

1. To open a TCP connection to the transport layer process on Host B, the TCP process on Host A sends a TCP SYN segment. What will the final frame be that Host A sends if Host A is on a Frame Relay (FR) switched network? FR frames have both headers and trailers. The application layer process is not at all involved in the connection-opening attempt.

2. a) Two switches are 47 meters apart. They need to communicate at 600 Mbps. What Ethernet physical layer standard should you use?
   b) Two switches are 200 meters apart. They need to be able to communicate at 1.7 Gbps. What Ethernet physical layer standard should you use?

3. Telephone modems convert analog signals to digital signals and digital signals to analog signals. Codecs convert analog signals to digital signals and digital signals to analog signals. How are modems different form codecs?

4. A client PC has two simultaneous connections to the same webserver application program on a webserver. (Yes, this is possible, and in fact it is rather common.) What will be different between the TCP segments that the client sends on the two connections?

5. a) What form of authentication would you recommend for relatively unimportant resources? Justify your answer.
   b) What form of authentication would you recommend for your most sensitive resources? Justify your answer.

第二部分：50 分 (每題 10 分)

6. Suppose hosts A and B are separated by 10,000km and connected by a direct link of R=1 Mbps. Suppose the propagation speed over the link is 2.5*108 m/sec. How long does it take to send a 400K bits file? Suppose the file is broken up to 4 packets and each packet is ACKed by the receiver and the transmission time is negligible. Assume sender cannot send a packet until the preceding one is ACKed. How long does it take to send the file?

7. It has been said that flow control and congestion control are equivalent. Is this true

for connection-oriented service? Are the objectives of flow control and congestion control are the same?

8. Please described the differences between the following random access MAC protocols: slotted ALOHA, ALOHA, CSMA, CSMA/CD and CSMA/CA.

9. Consider two mobile nodes in a foreign network having a foreign agent. Is it possible for the two mobile nodes to use the same care-of-address in mobile IP? Explained.

10. Consider the following network (Figure 1). With the indicate link costs, use Dijkstra's shortest path algorithm to compute the shortest path from U to all nodes. Show how the algorithm works by computing a table.
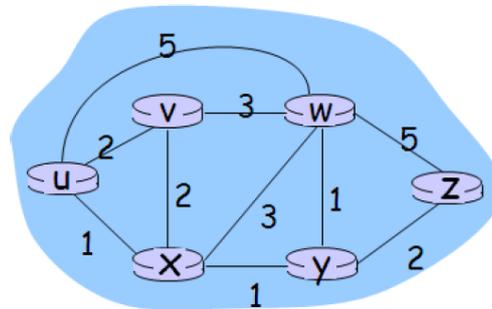

Figure 1