CS470 Spring 2003 Final Exam Name_____

Each problem is worth 5 points.

1. Draw and label the TCP "hourglass".
2. Sketch the way that the binary sequence, 00100111 would be transmitted using NRZ and Manchester coding.
3. 100 frames are transmitted over a link. The first and 50th frames are lost. How many total frames will be sent (including re-transmissions) if the link uses a GBN protocol with N=16?
4. What is the length in bytes of:
    a. The TCP header
    b. An IPv4 header
    c. An IPv6 header
5. Explain why there is a need for both TCP and UDP.
6. Sketch the Ethernet frame format. Show the size of all fields.
7. Briefly explain how Link-State Routing works.
8. Briefly explain what jitter is and how it can be compensated for.
9. What is a Denial of Service attack?
10. Explain how to implement a digital signature.
11. Under what conditions is GIF lossless?
12. Briefly explain how FHSS improves the security of a wireless link.
13. Why do wireless systems often fragment frames?
14. What does "rate fallback" refer to?
15. What is the process for setting up a Bluetooth connection?
16. How are uplink and downlink rates adjusted in 802.16?
17. Would an ad-hoc 802.11 network be expected to operate in PCF mode or DCF mode?
18. What is a FlowSpec?
19. Briefly describe two ways of performing authentication in a network.
20. Why does 802.11 not use CSMA/CD?