

1. Calculate the baud rate for the given bit rate and type of modulation: (10%)
 - a. 2000 bps, FSK
 - b. 4000 bps, ASK
 - c. 6000 bps, QPSK
 - d. 36000 bps, 64-QAM
2. Five signal sources are multiplexed using synchronous TDM. Each source produces 100 characters per second. Assume that there is byte interleaving and that each frame requires one bit for synchronization. What is the frame rate? What is the bit rate on the path? (10%)
3.
 - a. Please explain why the data rate of a voice channel in digital transmission is 64 Kbps. (10%)
 - b. What is the data rate of a T1 line? How many voice channels in a T1 line? (5%)
 - c. What is the data rate of an E1 line? How many voice channels in an E1 line? (5%)
4. What does the number on an ACK frame mean for (15%)
 - a. Stop-and-wait ARQ
 - b. Go-back-n ARQ
 - c. Selective-reject ARQ.
5. What is the maximum number of subnets in class B networks using the following masks? (10%)
 - a. 255.255.192.0
 - b. 255.255.0.0
 - c. 255.255.224.0
 - d. 255.255.255.0
6. Explain the functions of the following devices: (10%)
 - a. repeater
 - b. bridge
 - c. router
 - d. gateway
7. What is the connection port? Please describe the responsibilities for the connection port in TCP/IP. (10%)
8. If you couldn't connect the Web site you want to surf through the Internet, please describe the methods to diagnose the problems and describe what happens. (15%)