

系所別: 通訊工程學系 乙組 科目: 通訊網路

1. (15%) Consider a CSMA/CD network running at 1 Gbps over a 1-km cable with no repeaters. The signal speed in the cable is 200,000 km/sec. What is the minimum frame size? (note: 1 Gbps= 1000000000 bits/sec)
2. (20%) A TCP machine is sending windows of 65535 bytes over a 1-Gbps channel that has a 10-msec one-way delay. What is the maximum throughput achievable? What is the line efficiency?
3. (10%) When one dials in from home through a SLIP account for internet access, and runs Netscape. Describe the protocol layers he/she is running and indicate which one is connection oriented and which one is connectionless.
4. (15%) What is the MAC address? What is the IP address? Why we need two kinds of address?
5. If message, 01110011001, is sent and a special bit pattern, 01110, is applied as the leading flag of the message. The generator polynomial, $G(x) = x^4 + x^2 + x + 1$, is used for CRC examination.
 - (1) (5%) Is the CRC check used for error detection or error correction?
 - (2) (10%) Find the checksum
 - (3) (10%) If the frame shall be transmitted as

Leading flag	Message body	CRC checksum
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Construct the bit pattern the frame to be transmitted. (Hint: bit stuffing)
6. (15%) Explain
 - (1) DNS;
 - (2) Ad hoc Network;
 - (3) GPRS

參考用