Ch6

1.

1 1 1 0 1

0 1 1 0 0

1 0 0 1 0

1 1 0 1 1

1 1 0 0 0

5.

If we divide 10011 into 1010101010 0000, we get 1011011100, with a remainder of R=0100. Note that, G=10011 is CRC-4-ITU standard.

6.

a) we get 1000110000, with a remainder of R=0000.

b) we get 0101010101, with a remainder of R=1111.

c) we get 1011010111, with a remainder of R=1001.

10.

a) A’s average throughput is given by pA(1-pB).

Total efficiency is pA(1-pB) + pB(1-pA).

b) A’s throughput is pA(1-pB)=2pB(1-pB)= 2pB- 2(pB)2.

B’s throughput is pB(1-pA)=pB(1-2pB)= pB- 2(pB)2.

Clearly, A’s throughput is not twice as large as B’s.

In order to make pA(1-pB)= 2 pB(1-pA), we need that pA= 2 – (pA / pB).

c) A’s throughput is 2p(1-p)N-1, and any other node has throughput p(1-p)N-2(1-2p).

18.

At t = 0 A transmits. At t = 576, A would finish transmitting. In the worst case, B begins transmitting at time t=324, which is the time right before the first bit of A’s frame arrives at B. At time t=324+325=649 B 's first bit arrives at A . Because 649> 576, A finishes transmitting before it detects that B has transmitted. So A incorrectly thinks that its frame was successfully transmitted without a collision.