Problem 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

Problem 3

01001100 01101001

+ 01101110 01101011

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10111010 11010100

+ 00100000 01001100

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11011011 00100000

+ 01100001 01111001

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00111100 10011010 (overflow, then wrap around)

+ 01100101 01110010

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10100010 00001100

The one's complement of the sum is 01011101 11110011

Problem 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

Problem 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.

Problem 17

Wait for 51,200 bit times. For 10 Mbps, this wait is

51.2\*1000 bits/10000000bps = 5.12 msec

For 100 Mbps, the wait is 512 μ sec