

1. Suppose we are doing CRC (Cyclic Redundancy Checking) and the message to be sent is 101101101111 and the Generator is 10101. What will be the value of the 4 redundancy bits? *The remainder when you do the polynomial division.* Note that these will be the 4 low order bits of the transmitted frame.
2. Suppose we are doing CRC (Cyclic Redundancy Checking) and the message to be sent is 111000111 and the Generator is 10101. What will be the value of the 4 redundancy bits?
3. What permissions are needed for the PERL .cgi or .lib files you need? Enter the 3 octal digit code that you would use with chmod, please.

- ④ Suppose that we are sending the 8 bit ASCII value 01000111 and are adding the 4 bit Hamming error correction code bits and then transmitting a 12 bit code. You will recall that the check bits are at positions 8, 4, 2 and 1. There are thus 8 data bits and 4 check bits.

What will be the 12 bit transmitted "frame" or codeword?

- 010001110101 010010110101 010010110111 010001110111

- ⑤ Of the following 3 codewords, only one of the original signals was received without any corruption having occurred due to noise or EMI problems. Which one is it?

- 110000010101 110000110101 110010011100

- ⑥ Of the following 3 codewords, two of the original signals were received with corruption having occurred. One of the two had only a multiple bit error, where the position of the error cannot be detected and corrected within the codeword. It will have to be RESENT by the sending computer. Which one of the 3 codewords had an error occur that cannot be corrected at the receiving computer, as it was *obviously* a multiple bit error.

- 110000010101 110000110101 110010011100

- ⑦ Of the following 3 codewords, two of the original signals were received with corruption having occurred. One of the two had only a single bit error, where the position of the error can be detected and corrected within the codeword. Which one of the 3 codewords had an error occur that can be corrected at the receiving computer, as it was *probably* only a single bit error.

- 110000010101 110000110101 110010011100