UNCC, Department of Electrical and Computer Engineering, ECGR4101/5101,
Fall 2007, Homework #8, Due: 11/5/07, at the beginning of class (20 points)

0. How long did this homework take you? (1 point)
1. What are the minimum and maximum baud rates at which UART1 of an 12 MHz M16C30262 can communicate? Remember to take advantage of the internal clock source selection options. Assume f_{1SIO}=24 MHz. Show your work. (2 points)
2. For the RS232 standard, what range of voltages can represent a logic 1? A logic 0? (1 point)
3. Consider a byte of data transmitted at 19200 baud with 8 data bits, 1 parity bit, 1 start bit and one stop bit, system clock of 12 Mhz. How long does the entire message (byte with overhead) take to transmit? Show your work. (2 points)
4. Repeat Question 3, but with a system clock of 24Mhz. Show your work. (2 points)
5. Write a C function called Init_UART(void) to initialize the UART1 port for polled serial communications. Use the following parameters:
   - two stop bits
   - even parity
   - seven data bits, LSB first
   - 9600 baud
   - system clock of 12 MHz
   - CTS/RTS disabled
   - CMOS (aka push-pull/totem pole) output

   Enable the transmitter and receiver. Assume the standard setup as shown in the notes. Make sure to set ALL of the necessary control registers. Use the control register names defined in sfr262.h. (8 points)
6. For the previous question, what is the actual baud rate generated? What is the error, as a percentage of the desired baud rate? (4 points)