ECE 153B Lab 4

Question 2A)

USART DIV = 8333.333 ~ 8333 = 0x208D

TX/RX Baud Rate = 9600 = ~f_CLK /(USART DIV) = 80MHz /(0x208D)

Question 3B)

PRESC = 7

Min Low clk per. = 4.7us

Min Hi clk per. = 4.0us

Min data setup time = 1000ns = 1us

Min data hold time = 1250ns = 1.25us

Used in the following Calculations:

f_PRESC = 80MHz/(1+7) = 10MHz (t_PRESC = 0.1us)

t_SCLDEL = 1.1us < (SCLDEL + 1) * t_PRESC = (11 + 1)*0.1us

SCLDEL = 11

t_SDADEL = 1.3us < (SDADEL + 1) * t_PRESC = (13 + 1)*0.1us

SDADEL = 13

t_SCLL = 4.8us < (SCLL + 1) * t_PRESC = (48 + 1)*0.1us

SCLL = 48

t_SCLH = 4.1us < (SCLH + 1) * t_PRESC = (41 + 1)*0.1us

SCLH = 41

Reading and Writing from the Temperature Sensor:

TABLE 4-1: COMMAND BYTE DESCRIPTION (SMBUS/I^2C READ_BYTE AND WRITE_BYTE)

Command	Code	Function
RTR	00h	Read Temperature (TEMP)
RWCR	01h	Read/Write Configuration (CONFIG)

Read Temperature Command Byte = 0x00