CE433 Quiz 2 (40 points)

1. What are the floating point representations of the following decimal numbers? (20 points)

(a) 5.25

(b) -8.5

(a) 5.25

X=SEF

5.25 = 101.01 = 1.0101×2^2

E = 15+2 = 17 = 10001

F = 0101000000

X = SEF = 0 10001 0101 000000

0X4 5 4 0

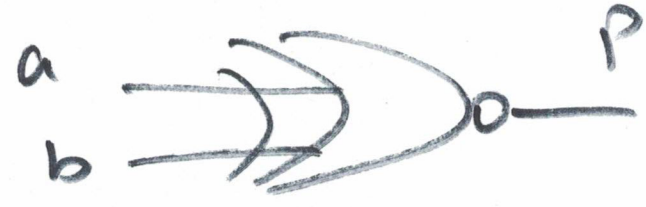
2. Design the gate-level schematic of an Odd Parity Bit Generator (data length is 2 bits). Write the Verilog code for this module. (20 points)

a	b	P
0	0	1
0	1	0
1	0	0
1	1	1

$\rightarrow P = \bar{a}\bar{b} + ab = a \odot b$

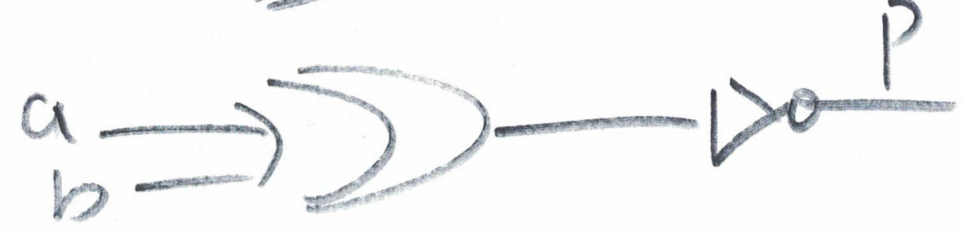
$= \overline{a \oplus b}$

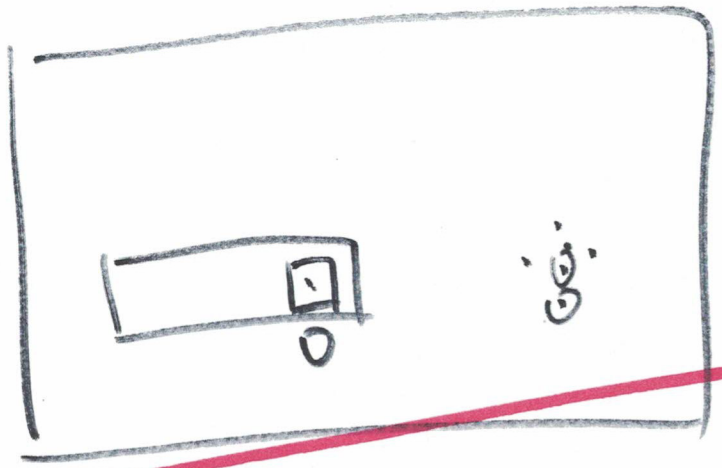
verilog



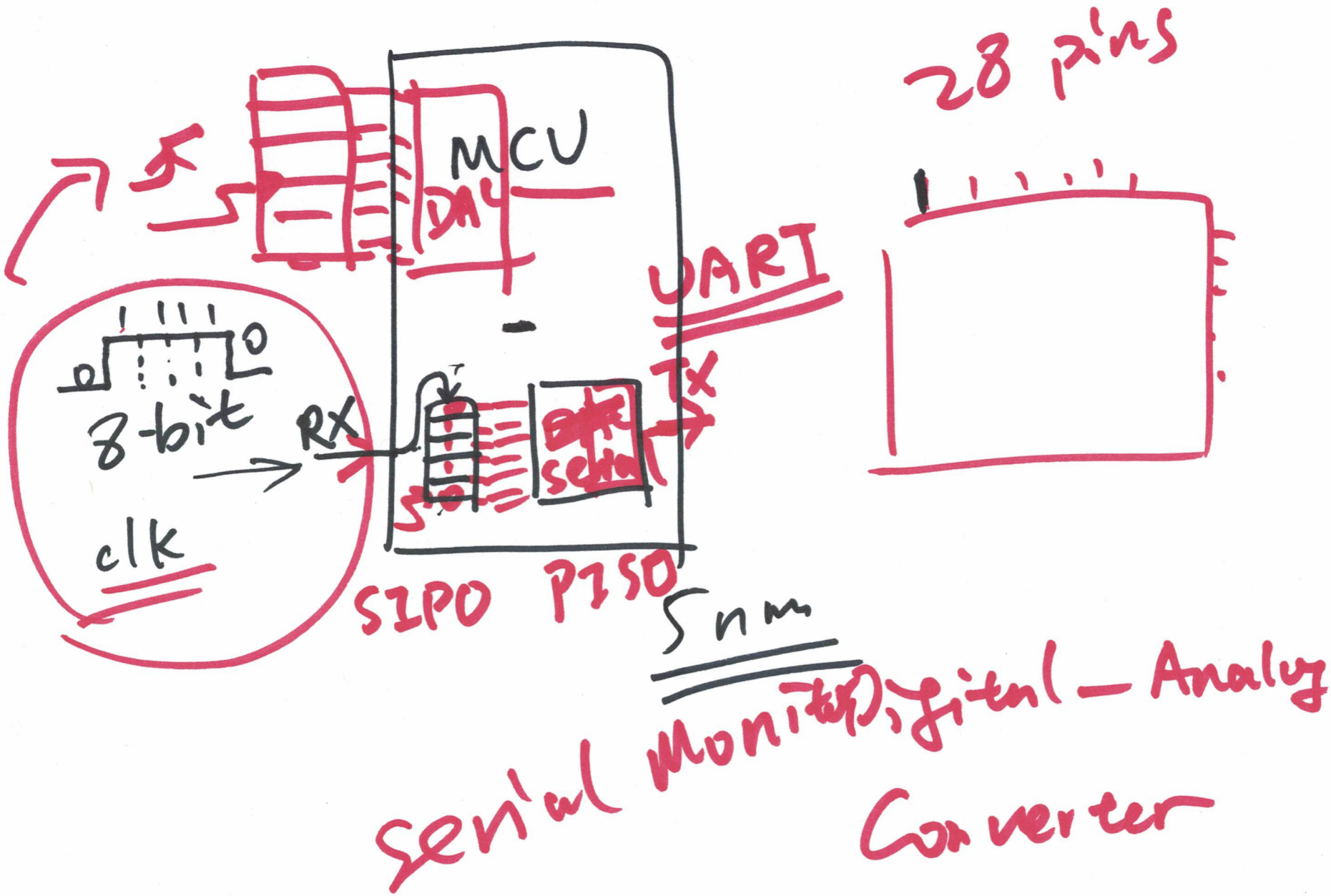
P=~(a^b);

assign





if(state==1)
0~9
4bit
clk
q_to_a
CLK
debounce
btn_clr
btnC
State
rst
Counter
4-bit wire
clk
debounce
btn_clr
btnU


28 pins
MCU
UART
8-bit
RX
TX
clk
SIPO
PISO
5 nm
Serial Monitoring Digital – Analog Converter