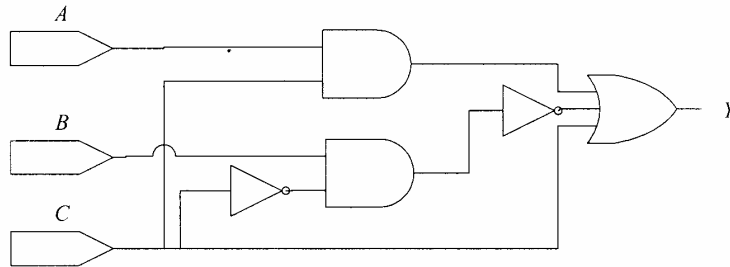


## ECE 376 Homework 4 – Solutions only, do not hand in

- Prob 1)        (a) Convert  $101101.0101_2$  to decimal.  
                   (b) Convert  $48.375_{10}$  to binary.

- Prob 2) Convert  $10011.011_2$  to  
                   (a) Decimal  
                   (b) BCD

- Prob 3) Write an expression for  $Y$  and a truth table for the following circuit:



- Prob 4) The following are input waveforms to a  $D$  flip-flop. Draw the waveform for  $Q$ . The waveforms increase in time from left to right (first data in is at left). Keep in mind:

- (i) When  $PR = CLR = 1$ ,  $Q$  follows  $D$  (the data input).
- (ii) When  $PR = 0$  and  $CLR = 1$ ,  $Q = 1$ .
- (iii) When  $PR = 1$  and  $CLR = 0$ ,  $Q = 0$ .
- (iv) When  $PR = CLR = 0$ ,  $Q = 1$  in a prohibited state.
- (v)  $Q$  responds to the changing inputs, only upon the clock's ( $CLK$ 's) next leading edge!!!

