

## Physics 380

Assignment 3, due Tuesday, Nov 4 2008

Topics: Flip-flops, counters; digital readouts

Reading: Diefenderfer and Holton (D&H) sections 12-2, 12-3, 12-4

Problems to hand in:

1) D&H Ch. 12 problem 6 (p. 297).

2) Work through the truth table for the counter in D&H Fig. 12.19 to show that it is correct. Hint: start with the initial values for the J's, K's, Q's, and  $\bar{Q}$ 's. Then see how the first clock changes the Q's and  $\bar{Q}$ 's. Then figure out the new J's and K's. Then repeat for the second clock cycle. Keep going till you've verified the whole table (yes, it's a fair amount of work, but I hope it'll help you better understand flip-flop and counter behavior).

3) D&H Ch. 12 problem 7 (use JK flip-flops).