LAB Assignment #8 for CMPE 312L

Description: Ring Counter and Johnson Counter.

Total 300 points.

Problem1 (100 points): Ring counter: Design a 8-bit ring counter using D flip-flops. The counter should be able to reset. You should have capability to initialize the first flop of the counter. Does it make a difference if any other flop other than the first is initialized to start the counter? If no, change the connections of your counter to prove it.

Problem2 (100 points): Ring counter: Design a 10-state ring counter with active low outputs using the 7490 decade counter and the 7442 decoder IC's. Explain in general, how counters and decoders can be used to make ring counters with any desired number states. Explain how will you make a 11-state ring counter using any other counter and a decoder.

Problem3 (100 points): Johnson counter: Design a 8-bit Johnson counter using D flip-flops. The counter should have the capability to reset or initialize. Explain the operation of the Johnson counter in detail.

Show your outputs to the instructor or the TA.

You have three turns to finish this lab.

Reports will be due beginning of the third turn. No excuses will be allowed. If you don't submit at the beginning of class it will be considered one day late. Late submission penalty is 20% of the total grade per day late.

THE LABS ARE INDIVIDUAL EFFORTS. INSTANCES OF CHEATING WILL RESULT IN YOU FAILING THE COURSE.