H.W. #12 CpE 100 Spring 2021

Show your work for credit (!) and put a box around each of your answers if possible!

1. A T flip-flop (toggle FF) is a flip-flop that's output changes states (toggles, that is, goes from a 0 to a 1 or a 1 to a 0) when clocked. Using a D flip-flop sketch the implementation of a T FF that changes output states on the rising edge of CLK. Simulate your design using LTspice to show that it works (of course, as always, comment on the simulation output and annotate to make clear). How would you change the design if you wanted the output of the T FF to change states on the falling edge of the CLK? (5 points)
2. Do Exercise 3.10(a) on page 163. Simulate the operation of your JK flip-flop. (4 points)
3. Work Exercise 3.20 on page 165. (4 points)