INDIAN INSTITUTE OF TECHNOLOGY PATNA

CS226- Lab 10 (sequential Design)

Q1: Design a 2-bit counter that behaves according to the two control inputs C0 and C1 as follows. C0, C1 = 0,0: Stop counting; C0, C1 = 0,1: count up by one; C0, C1 = 1,0: count down by one; C0, C1 = 1,1: count by two.

Implement using D-FF, SR-FF, T-FF and J-K flip flops.(Show the design in the document). Names your files as L10Q1_SR.circ, L10Q1_JK.circ, L10Q1_T.circ, L10Q1_D.circ). **Design the above in paper before doing the simulation. Submit your paper work including k-map simplification (scan copy) .**

40 points

Q2: Design 8 bit adder using a single Full adder (Use shift registers and full adder). A and B are the inputs and Y is the output.

20 points

Q3: Design a 4 bit counter using two 2-bit counters. Use may use extra logic.

Design the above in paper before doing the experiment. Submit your paper work (submit scan copy) and *.circ files in single zip folder with name your roll number. Submit to:

https://my.pcloud.com/publink/show?code=kZqY8xkZmPq9ebC8i94rhDeEmrxVgfSw5RoV

submit on or before :24th April 10 AM.