INDIAN INSTITUTE OF TECHNOLOGY PATNA

CS226- Lab 11 (sequential Design)

**Q1:** Design a 4-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 2 ; C0, C1 = 1,1: count by t3. Implement using muxes and registers ( need not be the optimum logic)

30 points

**Q2:** Design Moore and Mealy FSMs that detects 1101. Implement using T-FF and J-K flip flops.(Show the design in the document).
Names your files as L11Q2_J-K-moore.circ, L11Q2_T-moore.circ, L11Q2_J-K-mealy.circ, L11Q2_T-mealy.circ,). **Design the above in paper before doing the simulation. Submit your paper work including k-map simplification (scan copy) .**

40 points

**Q3:** Four registers storing a history of temperatures ( 8 bit registers) . Want to output the average of those temperatures. Design and simulate the above functionality .

30 points

**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/#page=puplink&code=8kB7ZFWyGtW35C5RsGKf6rAoVc57J0Yhk

**submit on or before :30th April 10 AM.**