INDIAN INSTITUTE OF TECHNOLOGY PATNA

CS226- Lab 9 (sequential Design)

Q1: Design a 4 bit synchronous counter (using S-R flip flop, J-K Flip flop, T-Flip Flop and D flip flop and test. Names your files as L9Q1_SR.circ, L9Q1_JK.circ, L9Q1_T.circ, L9Q1_D.circ). **Design the above in paper before doing the simulation. Submit your paper work including k-map simplification (scan copy) .**

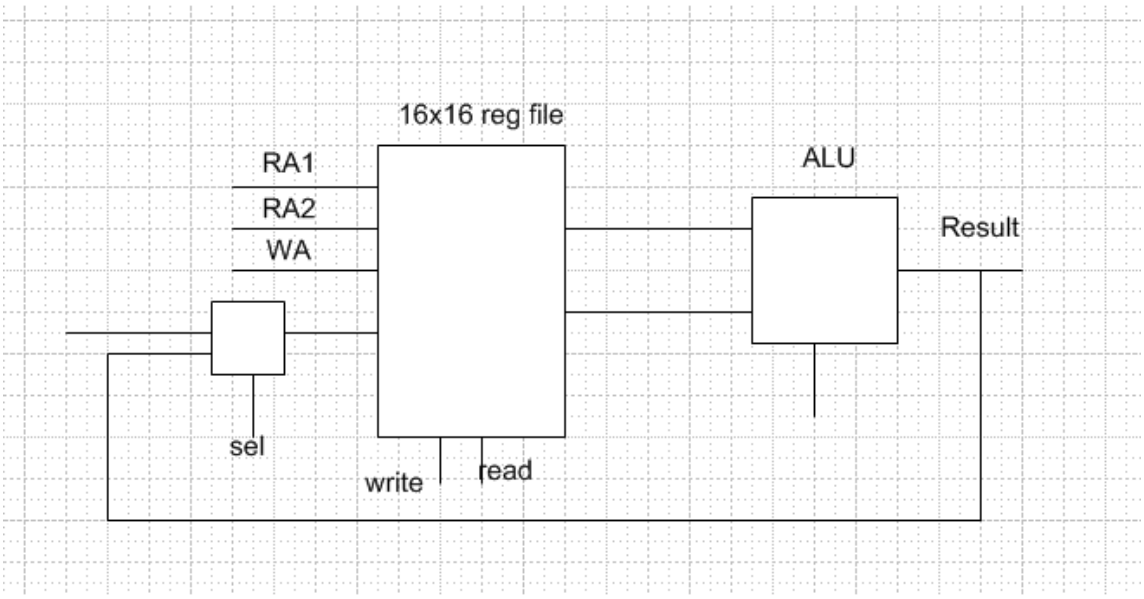
40 points

Q2: Design a register file (16x16) with two read ports and one write port. Perform read and write operation and understand the operation of a register file.

20 pints

Q3: Combine register file and ALU designed in the previous labs to form the structure below. Write1,2,…10 data to registers(1 to 10) and computer the sum and write result in another register.

40 pints



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=Qku7ZrOw4amakmtXKTwmLQVH85bltbKPy