**Lab 2**

1. Copy the multicycle processor datapath (Figure A), so that in total there are 5 datapath figures.
2. For each figure, draw the datapath AND write the values of the control signals for the following instructions:
   1. Figure 1. xori instruction during Instruction fetch (IF) cycle.
   2. Figure 2. add instruction during Instruction decode (ID) cycle.
   3. Figure 3. beq instruction during Execution (EX) cycle.
   4. Figure 4. sw instruction during Memory access (MEM) cycle.
   5. Figure 5. lw instruction during memory read completion (WB) cycle.
3. Make sure to label the instruction for each figure. Write the corresponding RTL statement(s) for the instruction during the cycle based on Table 1.
4. Write the control values next to the labels in the figure (the name of the control signal - do NOT write the control values in a separate table). There are altogether 12 control values. For the Operation, just write the ALU operation, e.g. ADD, SUB, etc. - not in the format of bit value.
5. Make sure the file format to submit is a PDF file only (ONE file only).



Figure A: Multicycle Processor Datapath

Table 1: RTL statements

