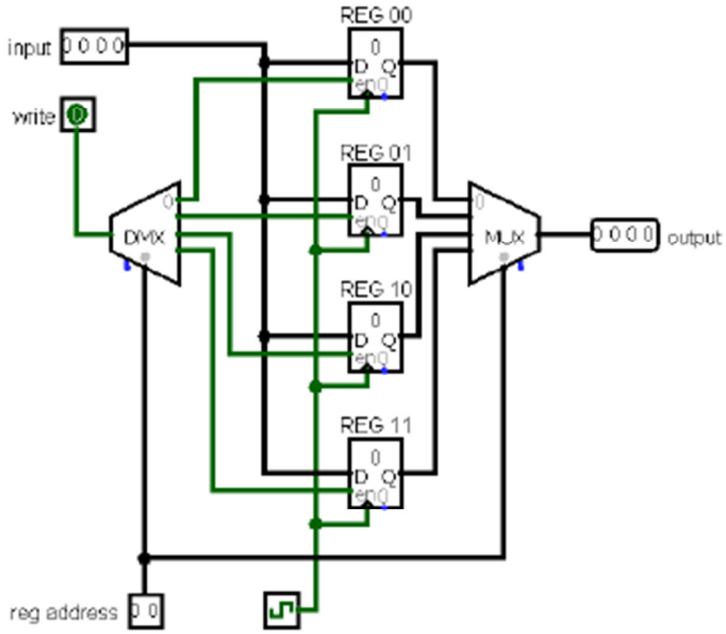
CSCI 255 – Intro to Embedded Systems
Homework #11
Fall 2013

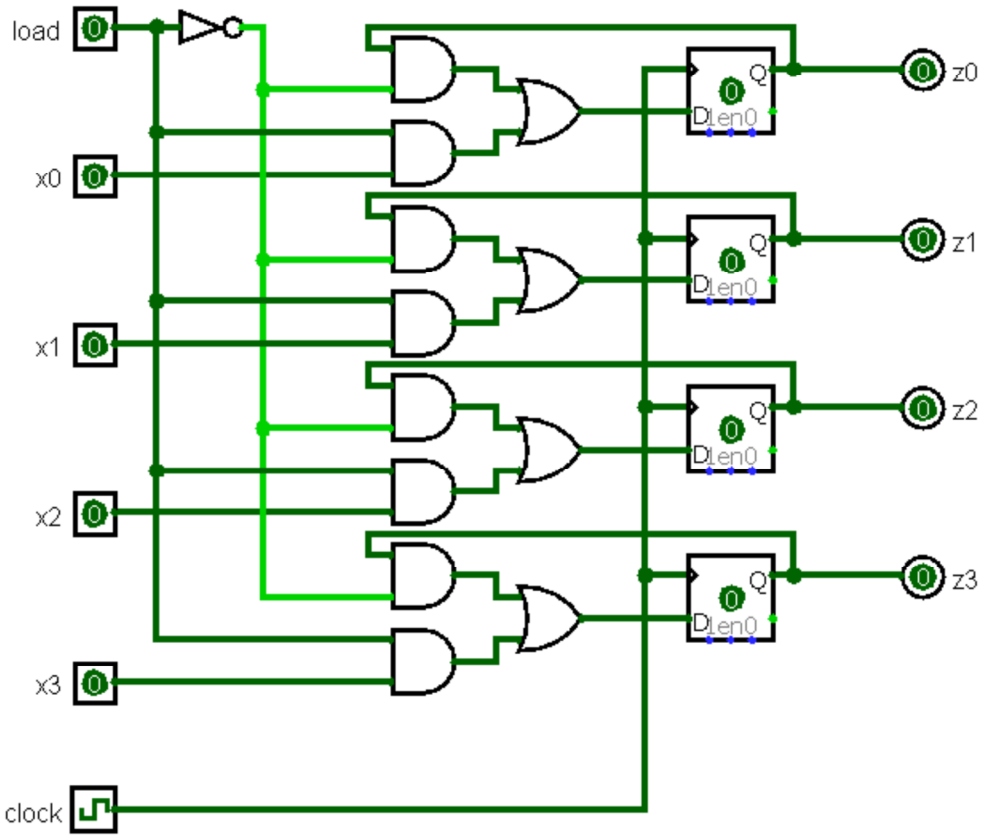
Due: **11/13/2013** at the beginning of class -- **Work must be done individually**

1. Fill-out the blanks of the table below corresponding to the register bank circuit below:



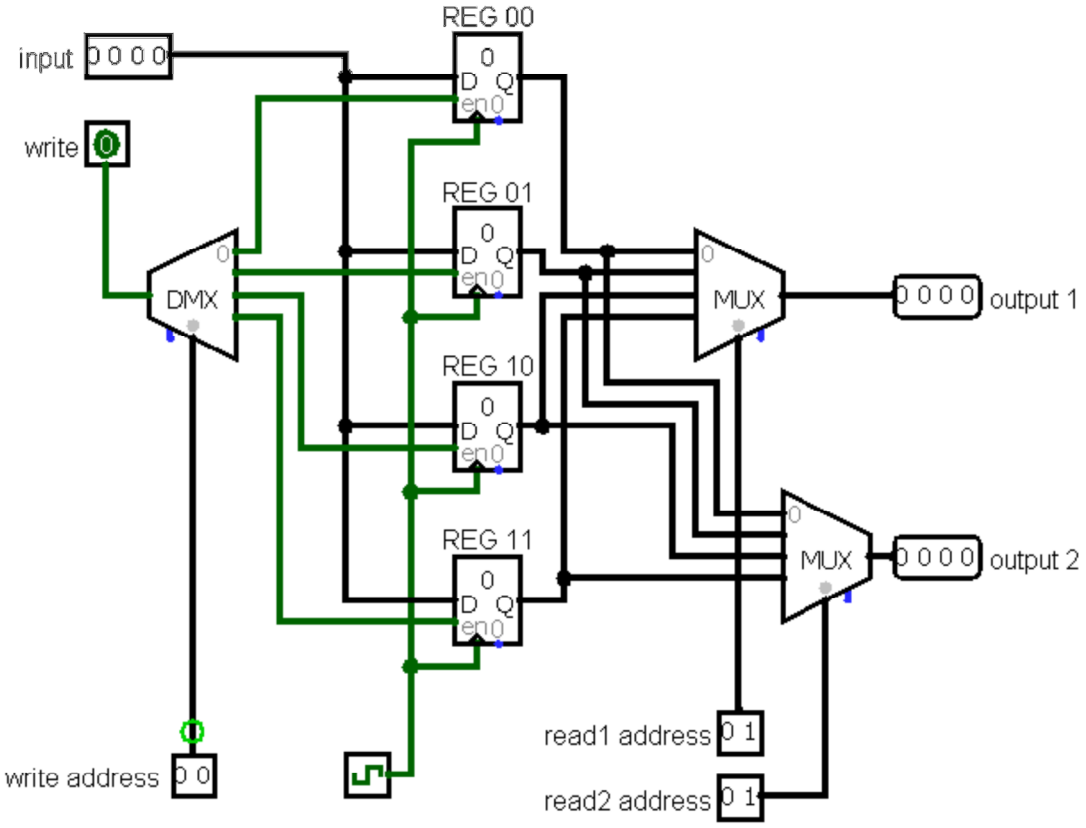
	Prior	Cycle 1	Cycle 2	Cycle 3
Reg 00	**1110**			
Reg 01	**0100**			
Reg 10	**0101**			
Reg 11	**0011**			
input	**0000**	**1011**	**0101**	**1001**
output	**0000**			
Write	**0**	**1**	**1**	**1**
Reg Addr	**00**	**01**	**11**	**10**

2. Fill-out the blanks of the table below corresponding to the register parallel load circuit below:



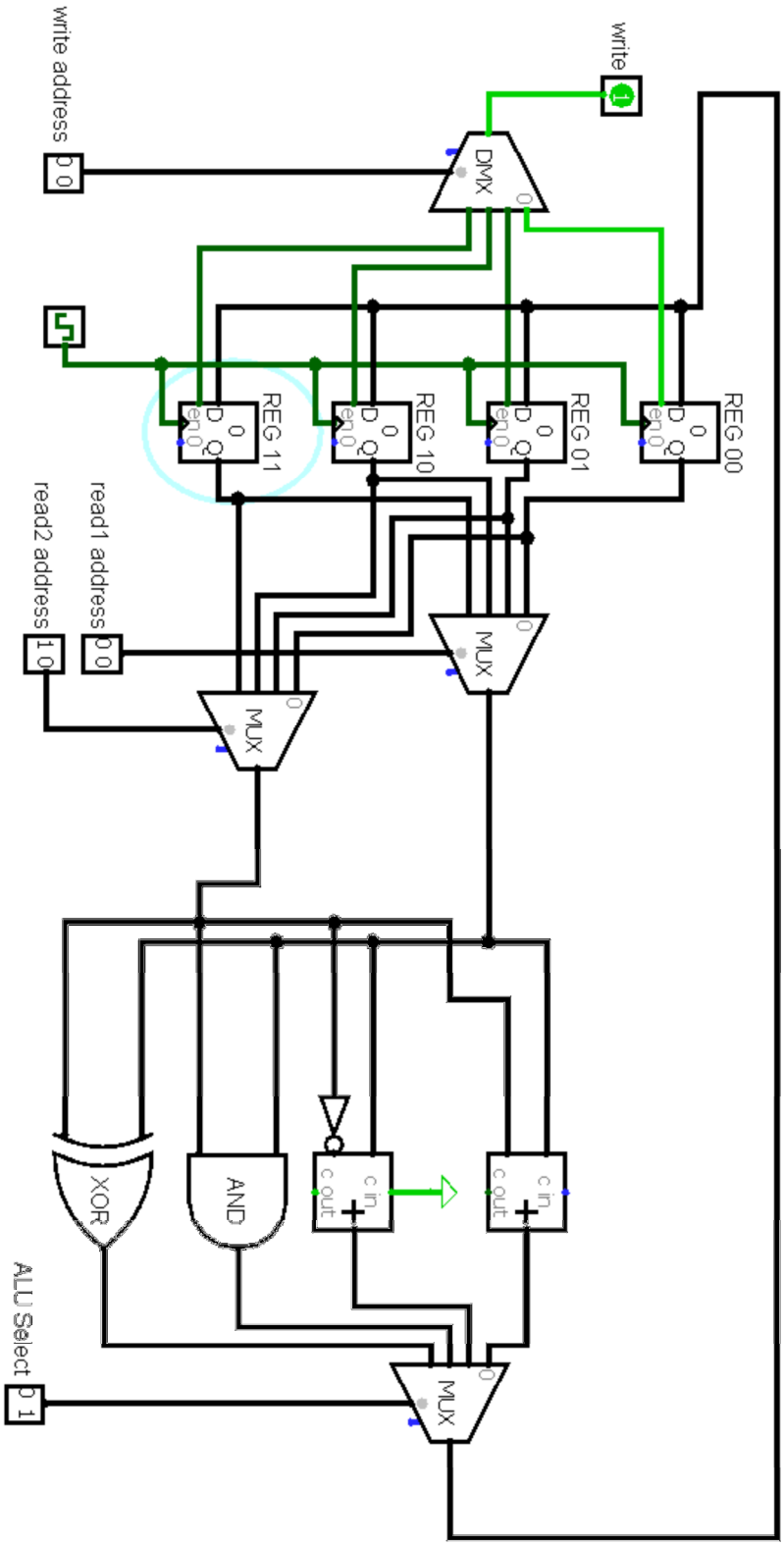
	Prior	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
D-FF (Z0)	**1**					
D-FF (Z1)	**1**					
D-FF (Z2)	**0**					
D-FF (Z3)	**0**					
load	**0**	**1**	**1**	**1**	**0**	**1**
$X_3X_2X_1X_0$	**1110**	**0110**	**1110**	**0001**	**1111**	**1010**

3. Fill-out the blanks of the table below (next page) corresponding to the register bank circuit below:



	Prior	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
Reg 00	**1110**					
Reg 01	**0100**					
Reg 10	**0101**					
Reg 11	**0011**					
input	**0010**	**1111**	**0001**	**1011**	**0111**	**1000**
Output1	**0000**					
Output2	**0000**					
Read 1 Address	**00**	**10**	**00**	**11**	**00**	**01**
Read 2 Address	**10**	**11**	**01**	**00**	**00**	**10**
Write	**0**	**1**	**1**	**0**	**0**	**1**
Write Address	**00**	**00**	**11**	**11**	**01**	**01**

4. Fill-out the blanks of the table below (next page) corresponding to the ALU circuit below:



	Prior	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
Reg 00	**1110**					
Reg 01	**0100**					
Reg 10	**0101**					
Reg 11	**0011**					
Output1 **Top Mux of Reg Bank**	**0100**					
Output2 **Bottom Mux of Reg Bank**	**0010**					
Read 1 Address	**00**	**00**	**10**	**11**	**11**	**00**
Read 2 Address	**10**	**01**	**01**	**10**	**01**	**10**
ALU MUX OUTPUT	**0000**					
ALU Mux Select	**00**	**10**	**00**	**11**	**00**	**01**
Write	**0**	**1**	**0**	**0**	**0**	**1**
Write Address	**00**	**10**	**10**	**01**	**11**	**00**