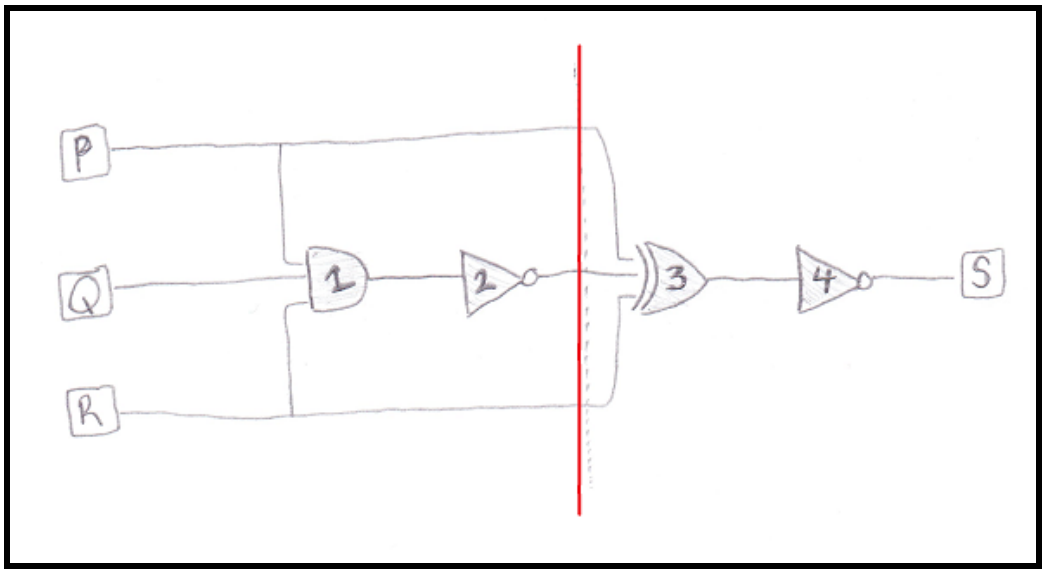
John Gangemi
U68714612
VLSI Design Automation, Summer C 2015
6/6/2015

Homework 2

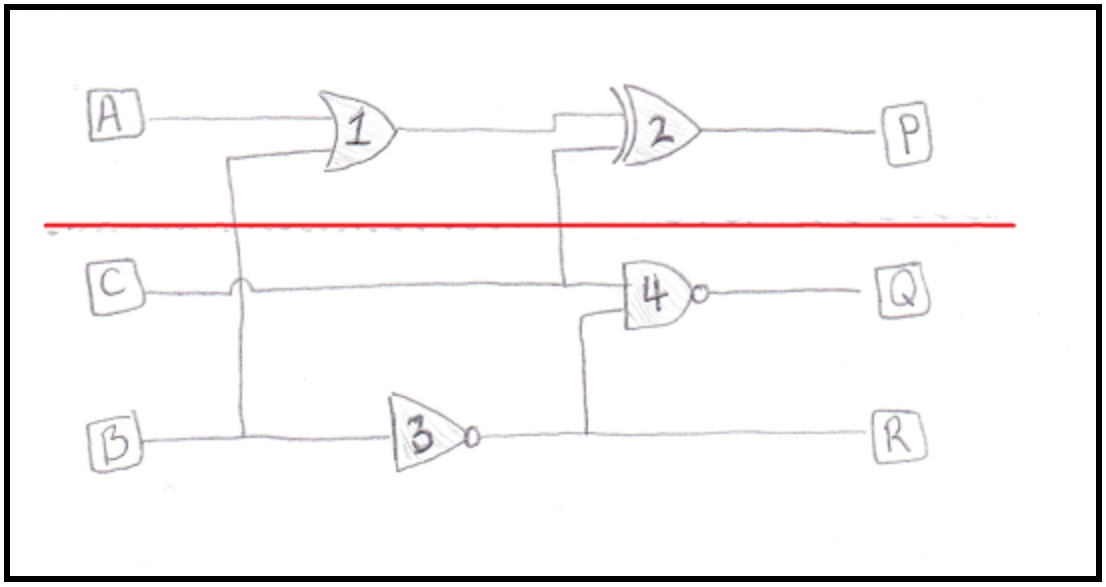
1)



	1	2	3	4
1				
2			x	
3		x		
4				

external wire cost = 1

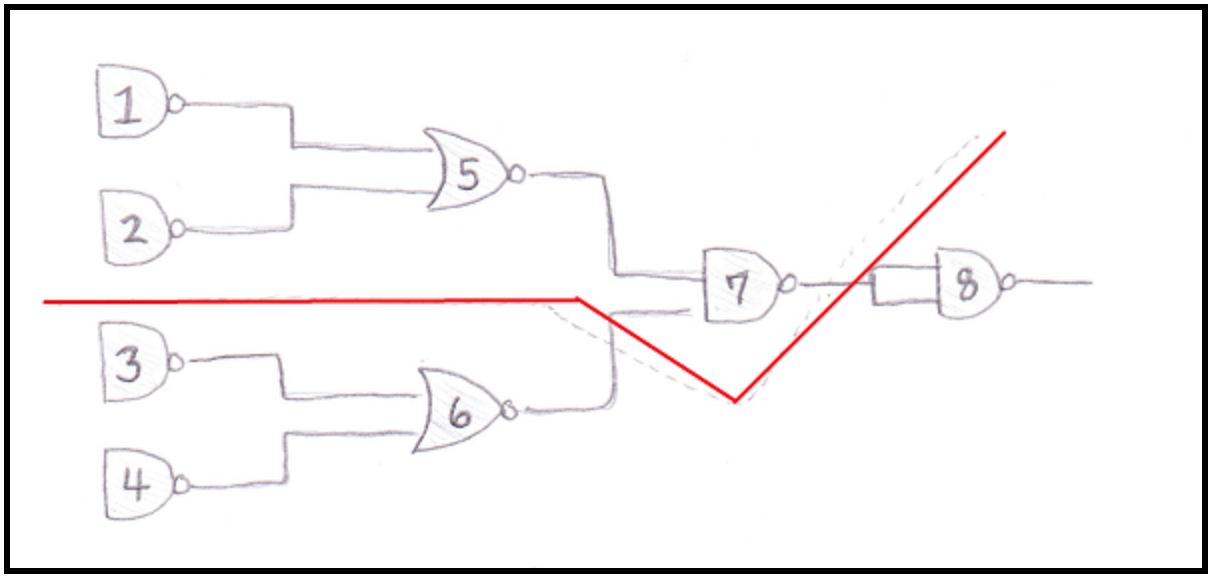
2)



	1	2	3	4
1				
2				
3				
4				

external wire cost = 0

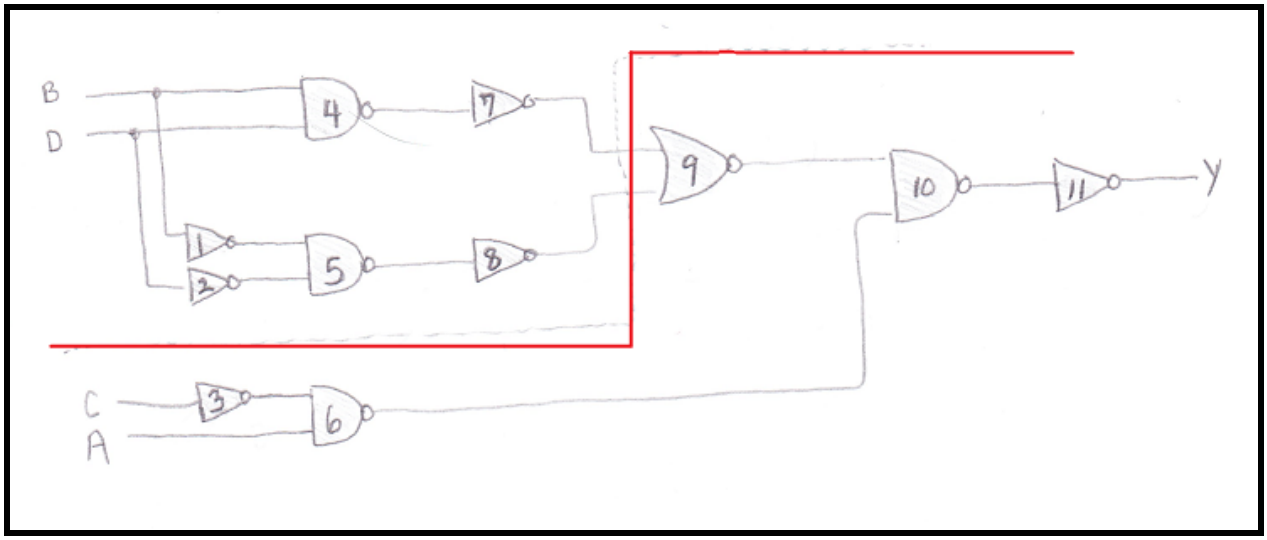
3)



	1	2	5	7	3	4	6	8
1								
2								
5								
7							x	x
3								
4								
6				x				
8				x				

external wire cost = 2

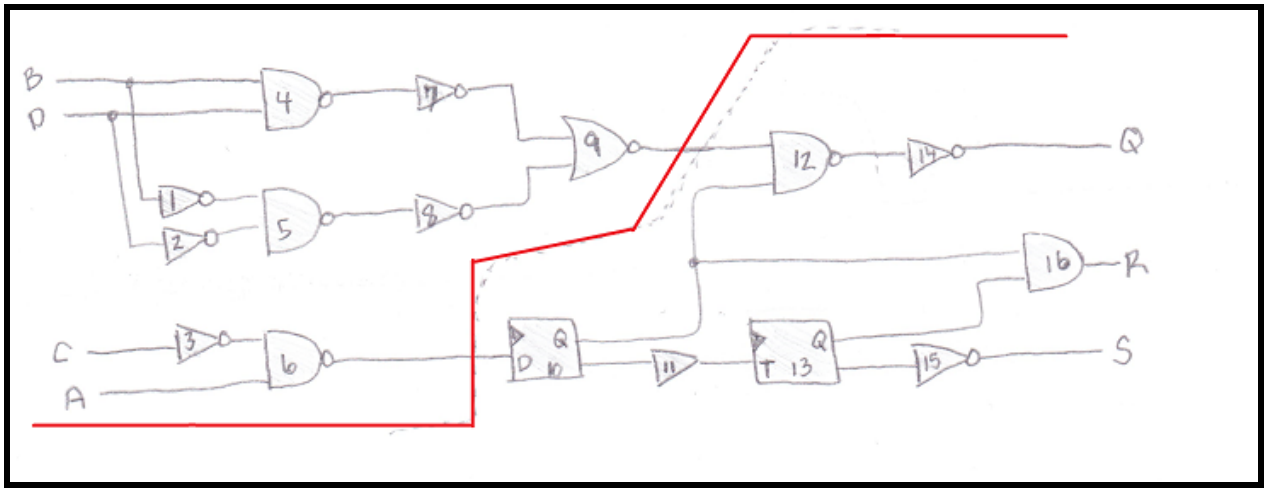
4)



	1	2	4	5	7	8	3	6	9	10	11
1											
2											
4											
5											
7									x		
8									x		
3											
6											
9					x	x					
10											
11											

external wire cost = 2

5)

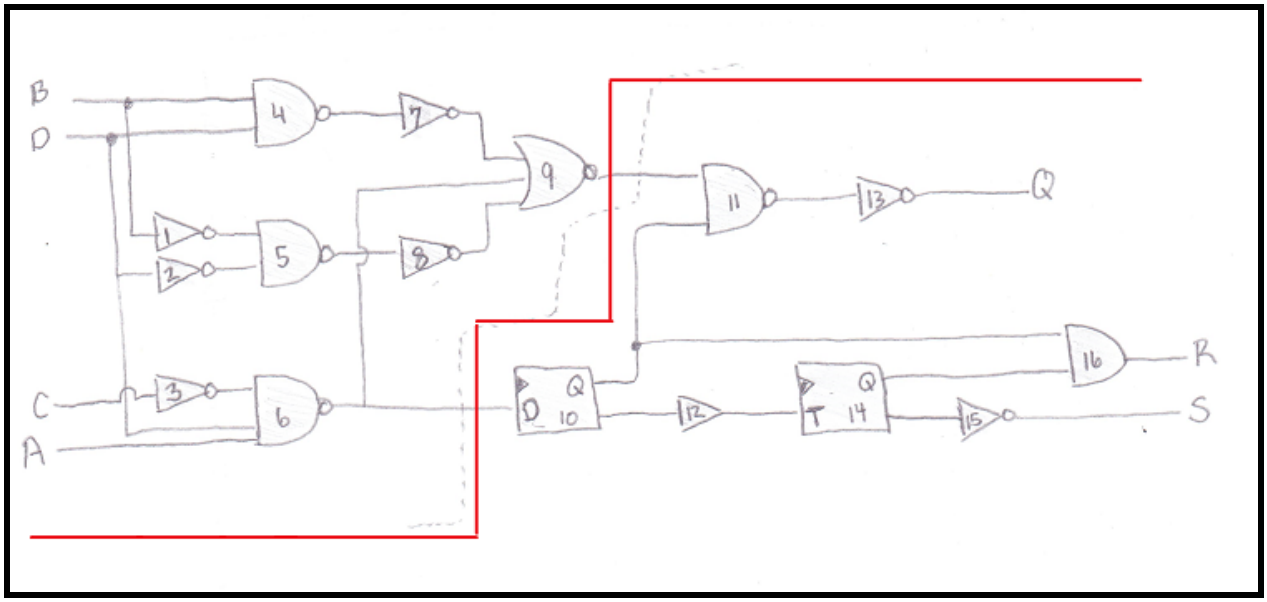


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6										x						
7																
8																
9												x				
10						x										
11																
12									x							
13																
14																
15																
16																

external wire cost = 2

*assuming filp-flops are 2x the weight of a gate

6)

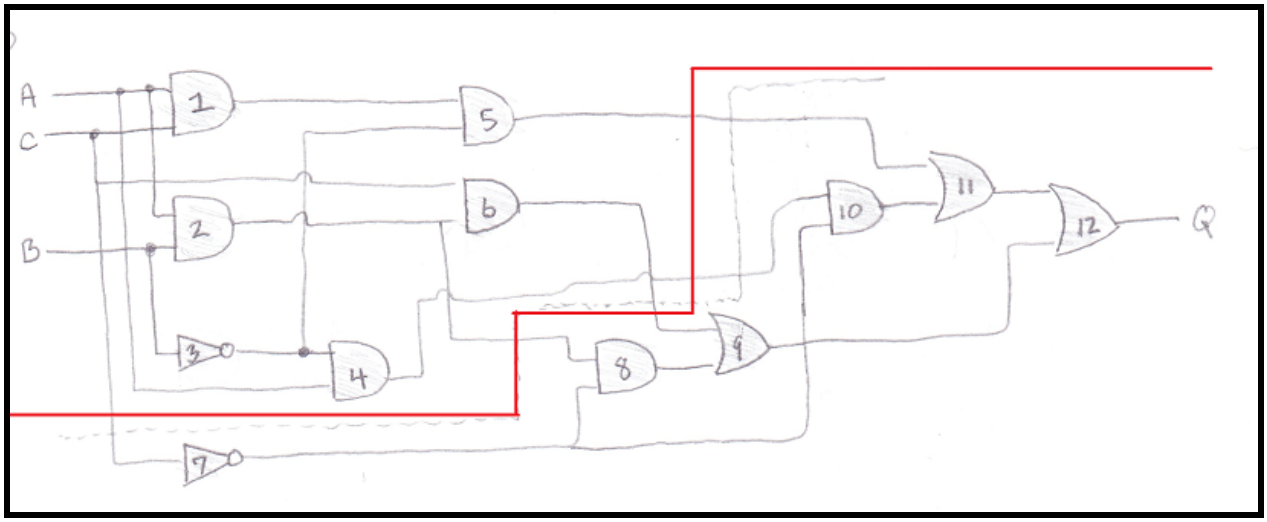


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6										x						
7																
8																
9												x				
10						x										
11																
12									x							
13																
14																
15																
16																

external wire cost = 2

*assuming filp-flops are 2x the weight of a gate

7)



	1	2	3	4	5	6	7	8	9	10	11	12
1												
2								x				
3											x	
4										x		
5												
6									x			
7												
8		x										
9						x						
10				x								
11					x							
12												

external wire cost = 4