

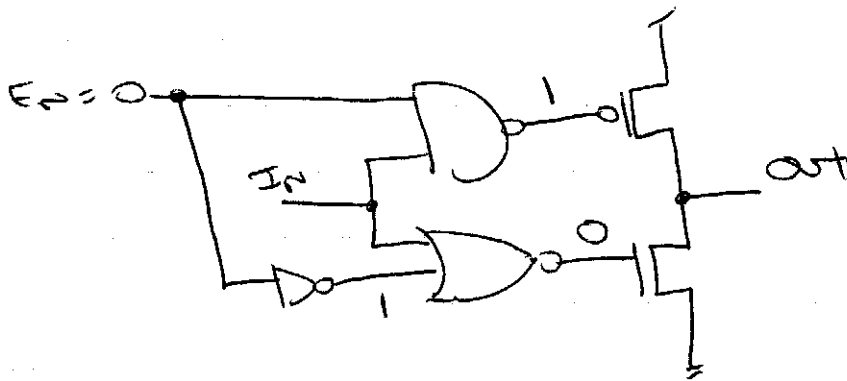
# HW 6 Solutions

Problem 1:

$E_N$	$I_N$	out
0	x	high z
1	0	0
1	1	1

desired behavior

$E_N = 0, I_N = 0$ :



$E_N$	$I_N$	NAND
0	0	1
0	1	1
1	0	0
1	1	0

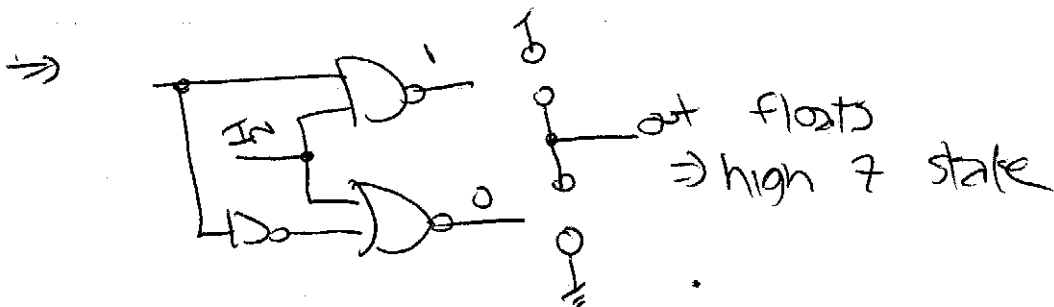
$E_N$	$I_N$	NOR
0	0	1
0	1	0
1	0	0
1	1	0

$E_N = 0 \Rightarrow$  output of NAND = 1 regardless of  $I_N$

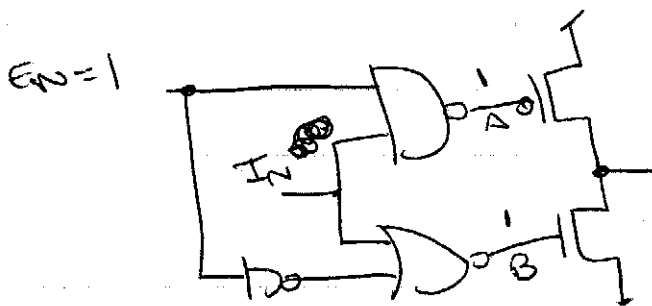
$E_N = 0, \text{ output of INV} = 1 \Rightarrow$  output of NOR = 0 regardless of  $I_N$

"1" turns PFET off

"0" turns NFET off



$E_N = 1$ :

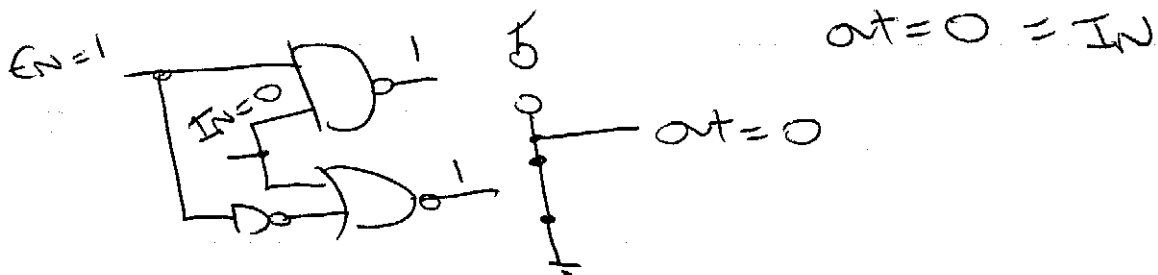


$E_N$	$I_N$	NAND
0	0	1
0	1	1
1	0	0
1	1	0

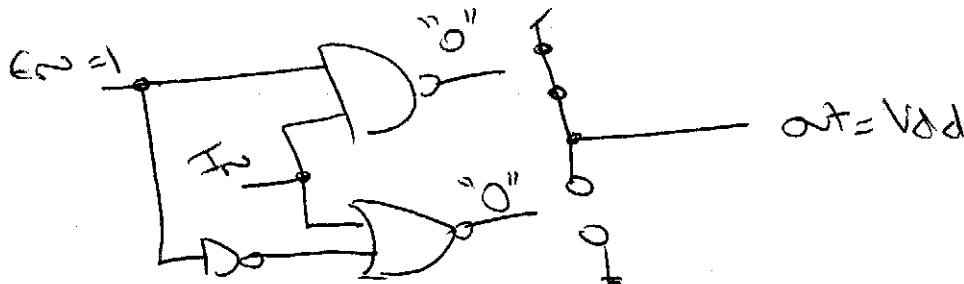
  

$E_N$	$I_N$	NOR
0	0	1
0	1	0
1	0	0
1	1	0

if  $E_N = 1$  &  $I_N = 0$ ,  
 node A = 1 & node B = 1  
 PFET is off & NFET is on, so



IF  $E_N = 1$  &  $I_N = 1$   
 node A = 0 & node B = 0  
 PFET is on & NFET is off  
 so  $out = 1 = I_N$



Problem 2:

