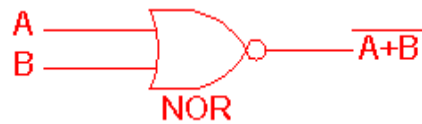


Experiment 5

Aim: To verify truth tables of NOR gates using esim software

Theory:

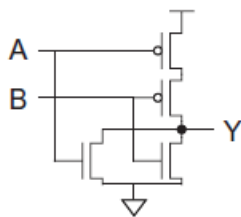
NOR Gate:



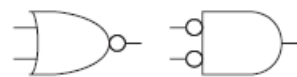
2 Input NOR gate		
A	B	$\overline{A+B}$
0	0	1
0	1	0
1	0	0
1	1	0

This is a NOT-OR gate which is equal to an OR gate followed by a NOT gate. The outputs of all NOR gates are low if **any** of the inputs are high.

The symbol is an OR gate with a small circle on the output. The small circle represents inversion.



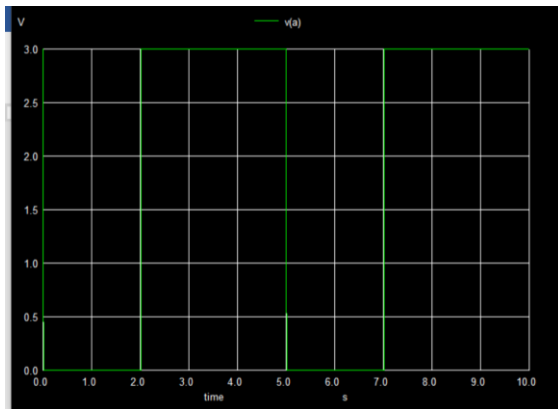
(a)



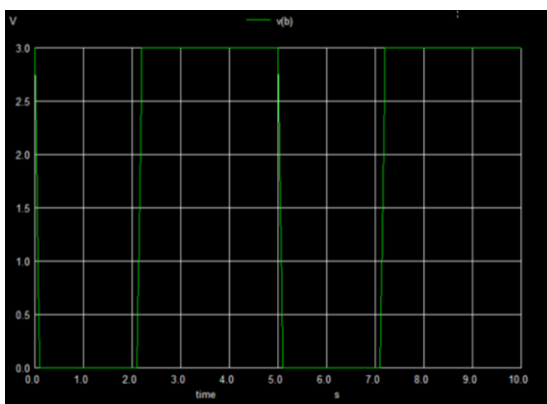
(b)

FIGURE 1.16 2-input NOR gate schematic (a) and symbol (b) $Y = \overline{A+B}$

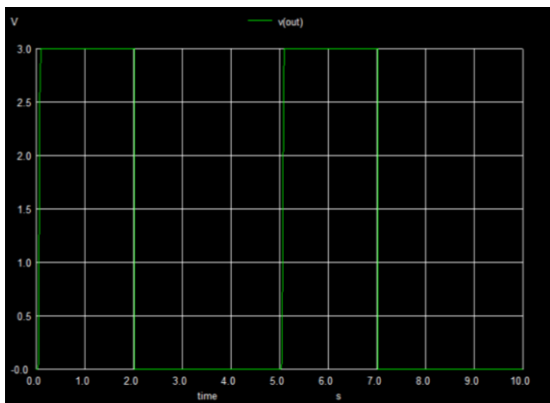
NGSPICE Plot of input A:



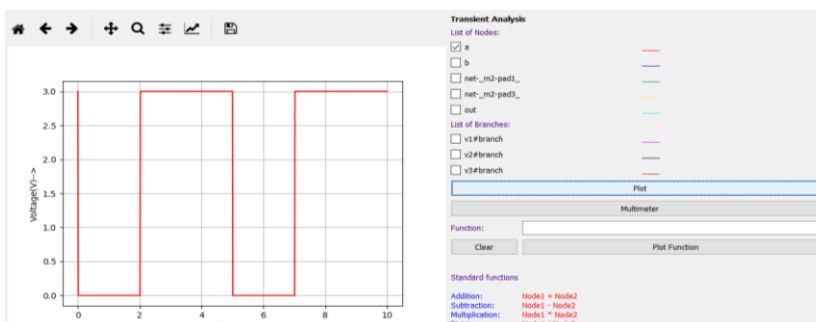
NGSPICE Plot of input B:



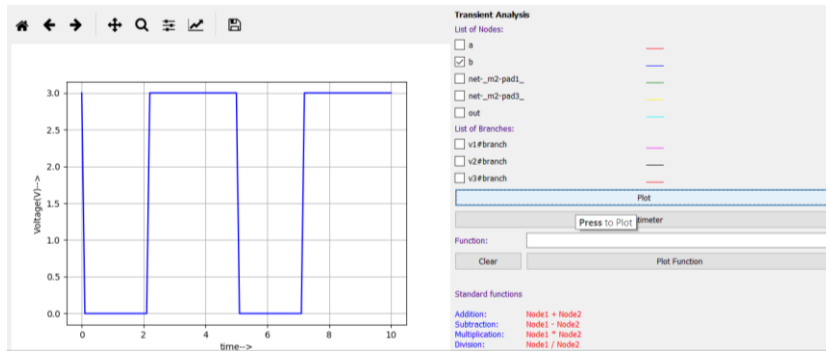
NGSPICE Plot of output:



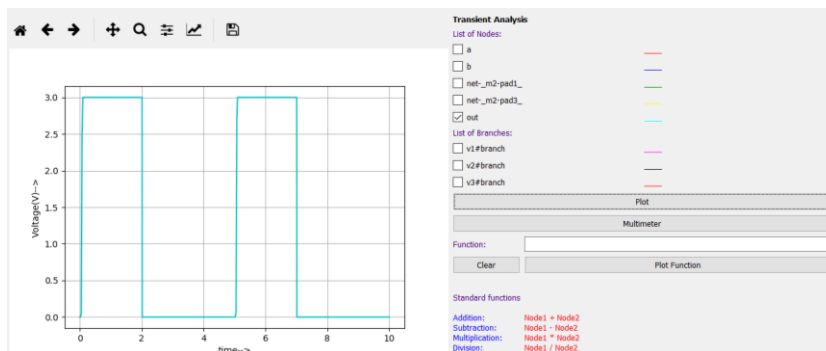
Python Plot of input A:



Python Plot of input B:



Python Plot of output:



Source/Reference(s) :

1)CMOS VLSI Design A circuit and systems perspective by Neil H.E.Weste,David M.Harris. fourth edition.