

Experiment 6

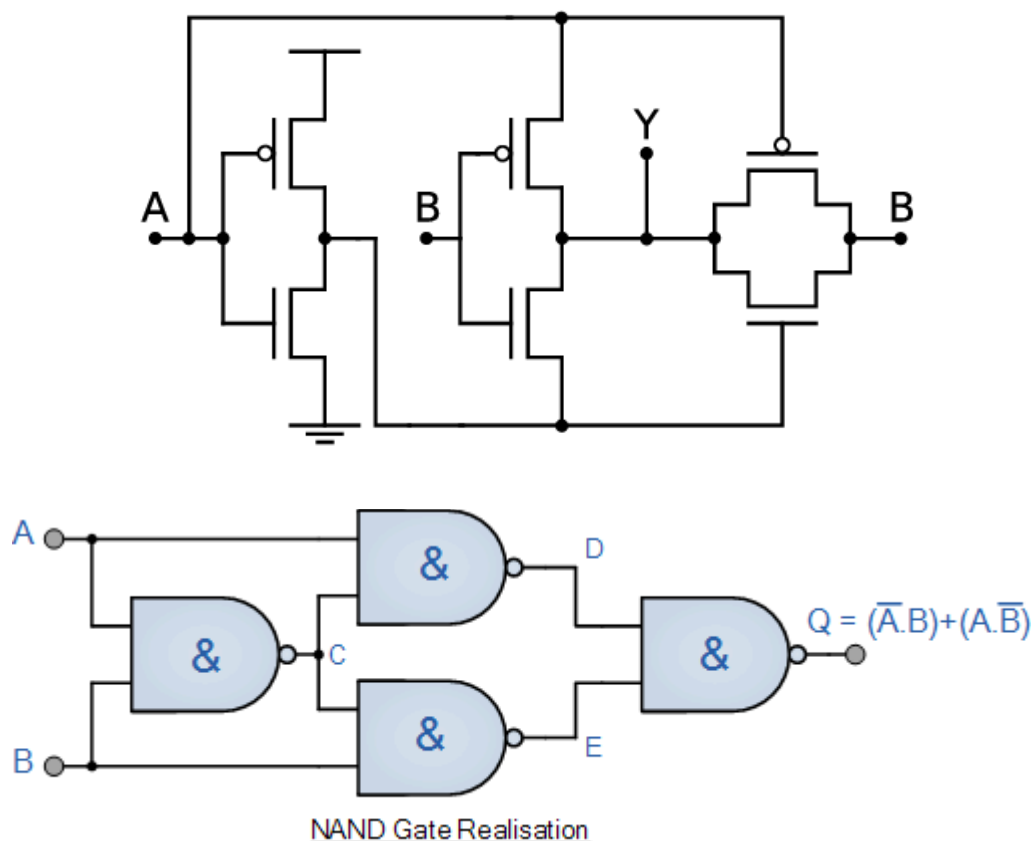
Aim: To verify truth tables of XOR gates using esim software

Theory:

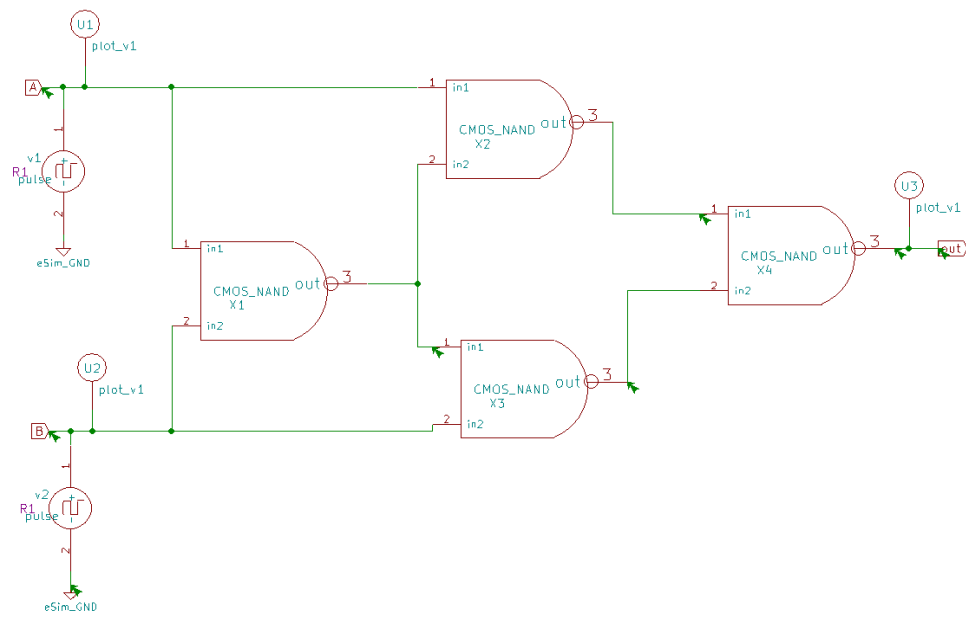
The 'Exclusive-OR' gate is a circuit which will give a high output if either, but not both, of its two inputs are high. An encircled plus sign is used to show the EXOR operation.

the output of an Exclusive-OR gate ONLY goes “HIGH” when both of its two input terminals are at “DIFFERENT” logic levels with respect to each other. If these two inputs, A and B are both at logic level “1” or both at logic level “0” the output is a “0” making the gate an “odd but not the even gate”. In other words, the output is “1” when there are an odd number of 1’s in the inputs.

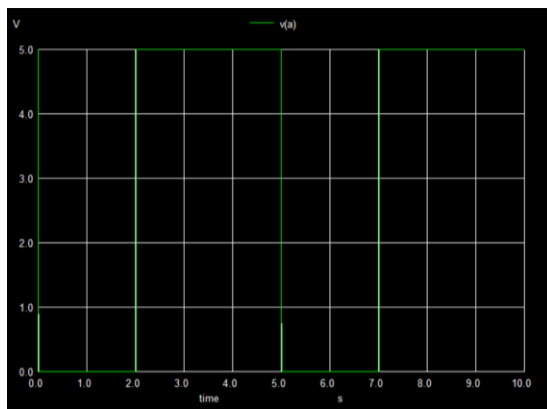
Circuit Diagram:



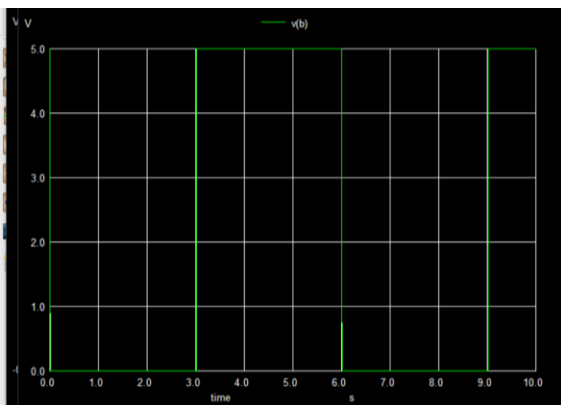
Circuit Diagram:



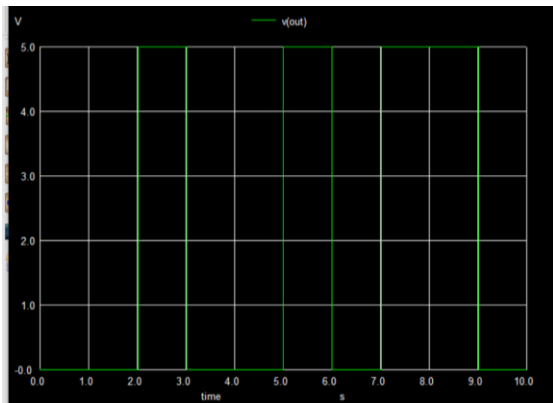
NGSPICE PLOT input A



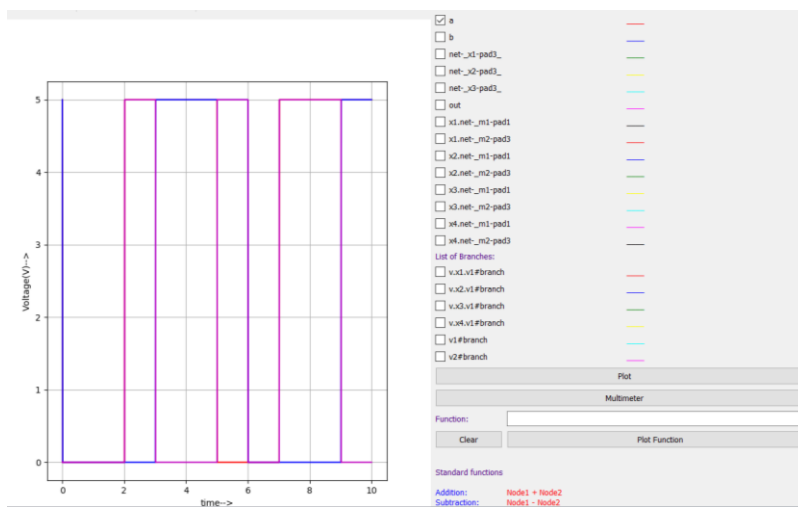
NGSPICE Plot input B



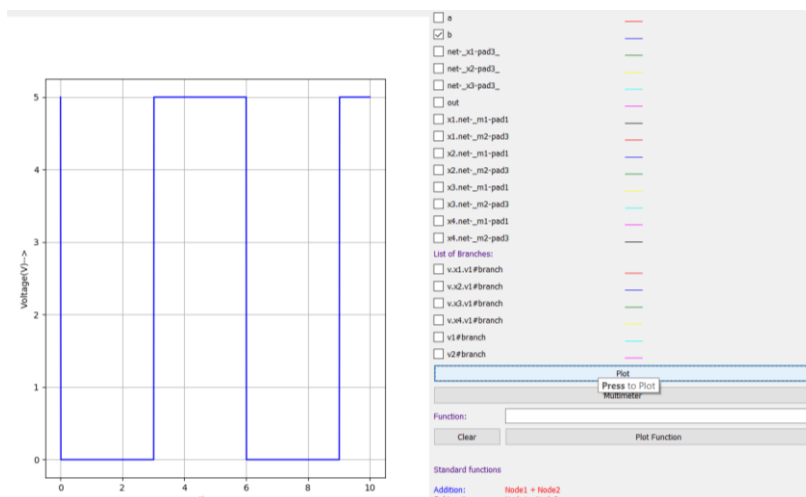
NGSPICE Plot output :



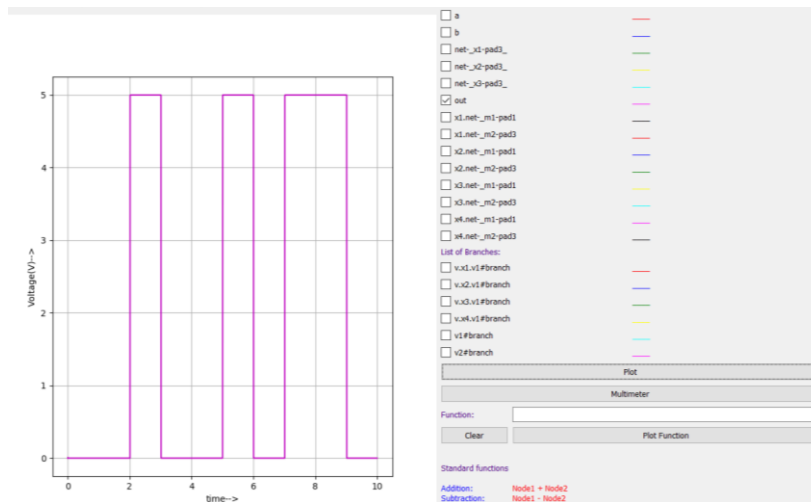
Python plot input A



Python Plot input B:



Python plot output:



Source/Reference(s) :

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

2) https://www.electronics-tutorials.ws/logic/logic_7.html