Course Instructor

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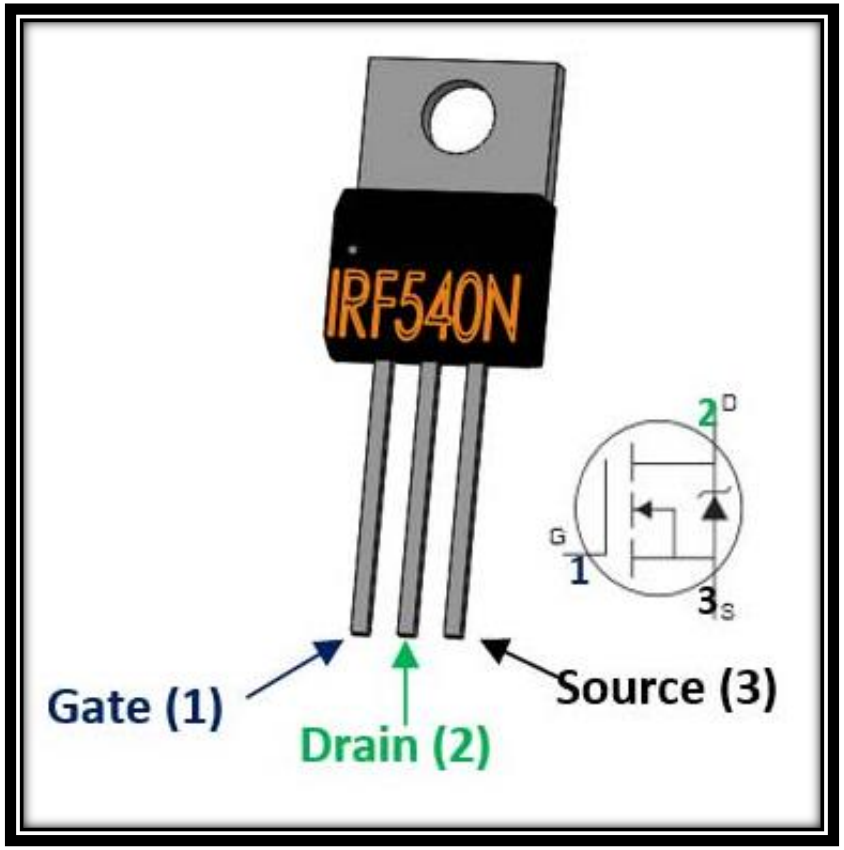
Introduction to MOSFET and Classification

Welcome to CMOS Gate Implimentation

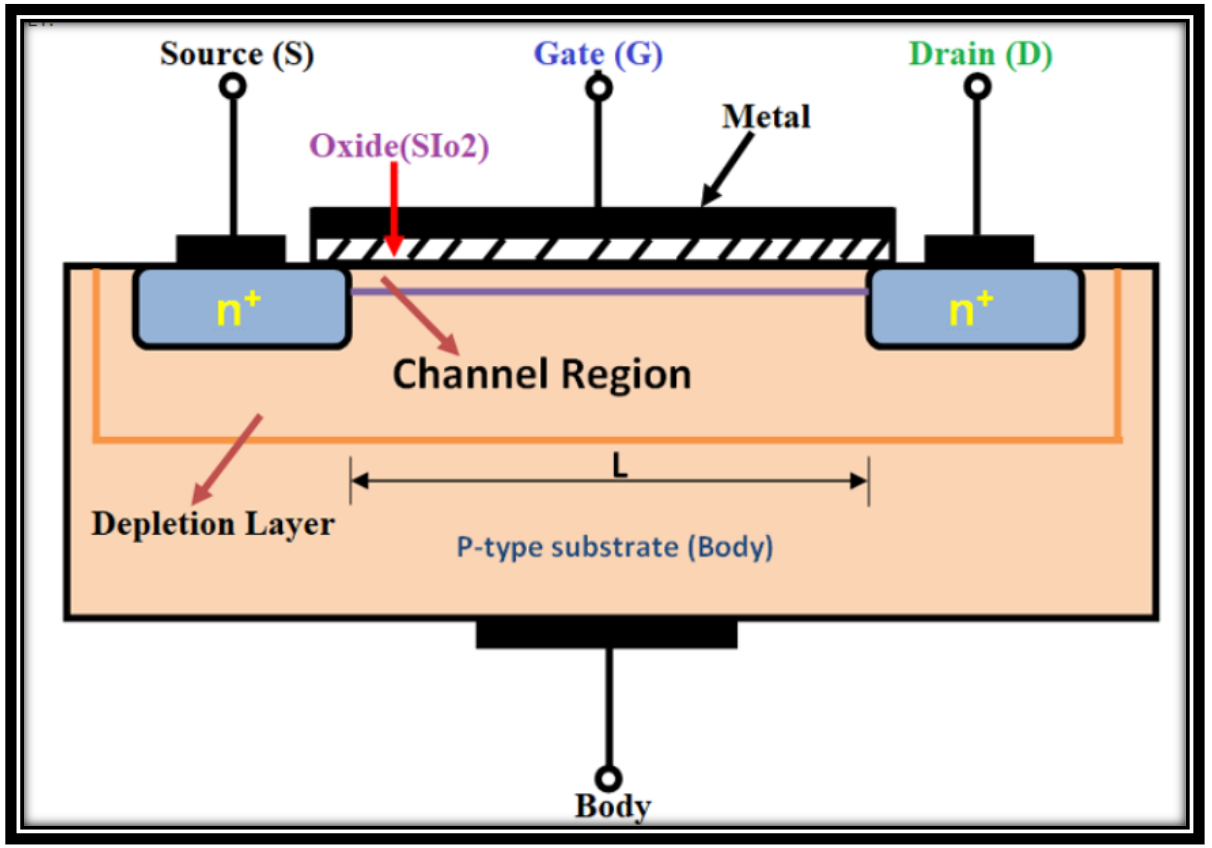
Observation – Pull Up & Pull Down Network

Example-1

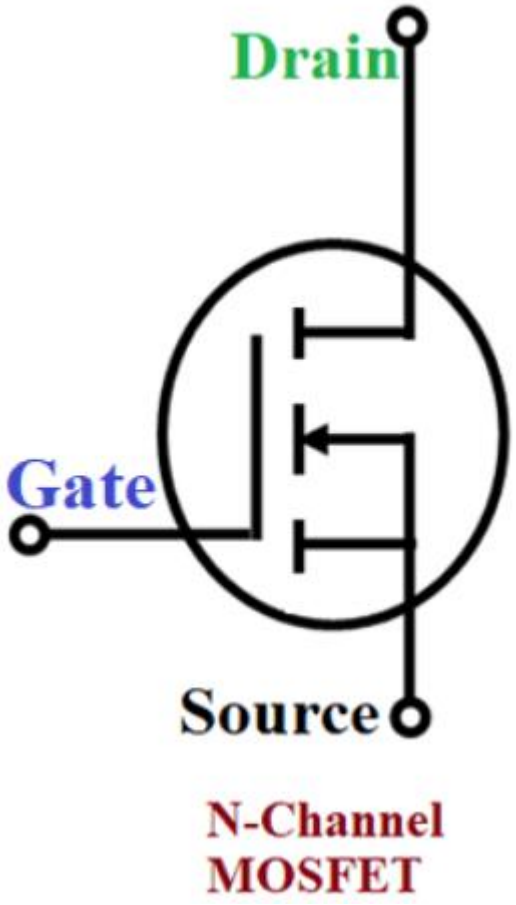
Video Link of this Lecture:
https://youtu.be/zfPNEz_sNEE



Physical Structure

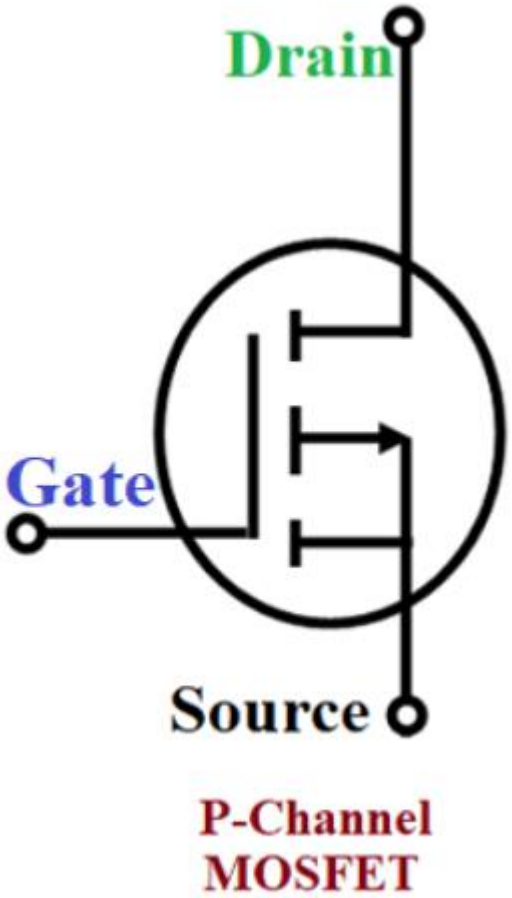


Schematic Structure

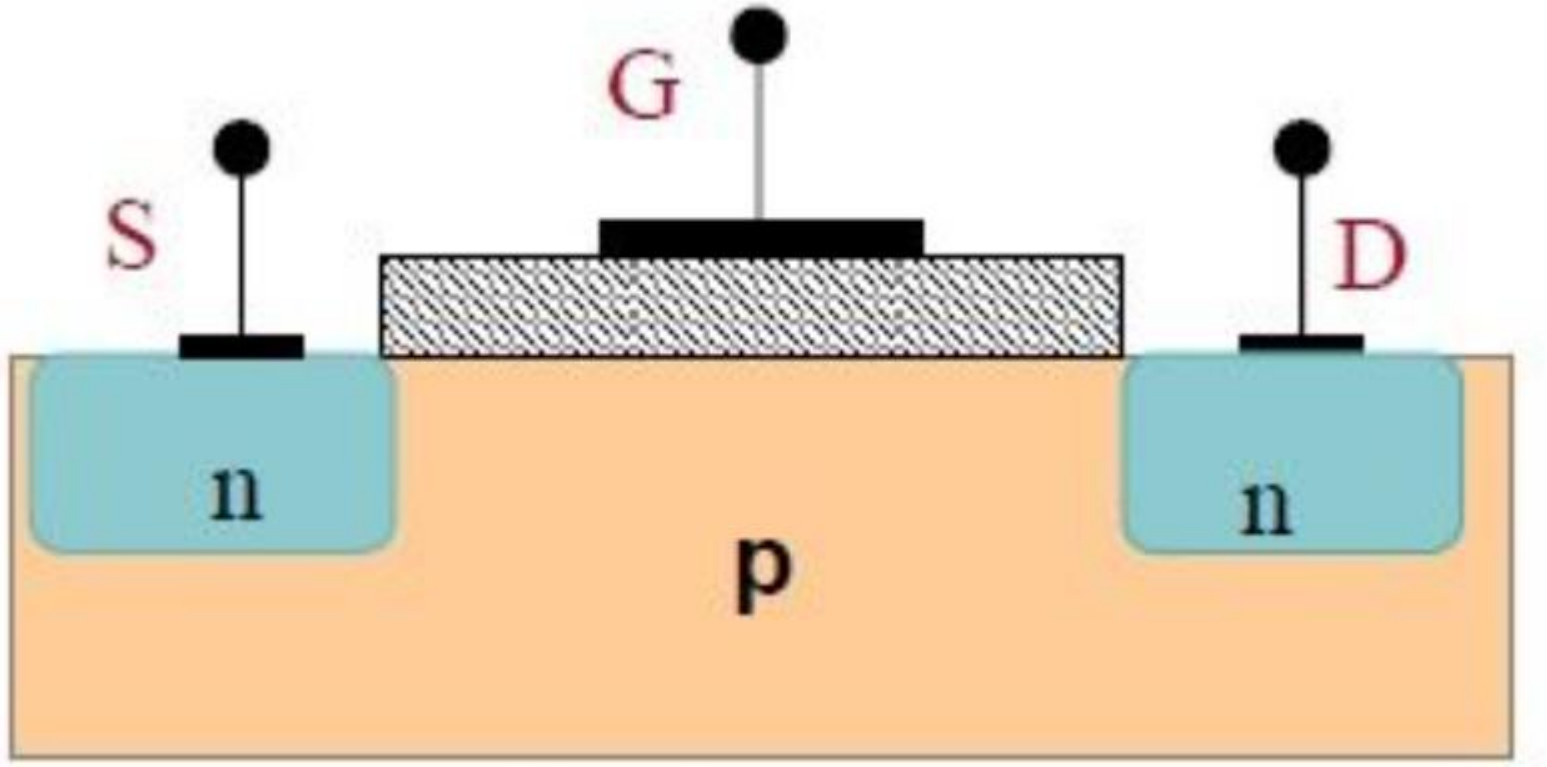


N-Channel MOSFET

Channel Type

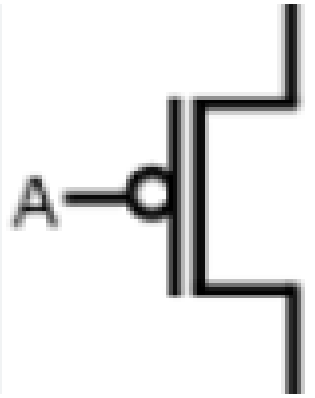


P-Channel MOSFET

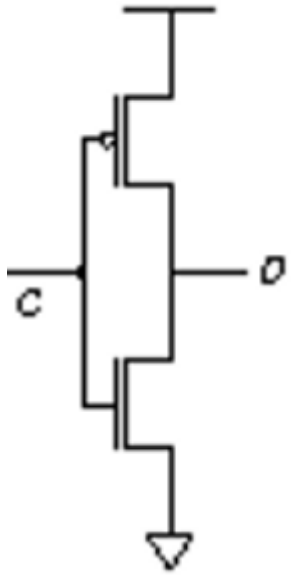

G
S
D
n
n
p

CMOS: complementary metal-oxide semiconductor

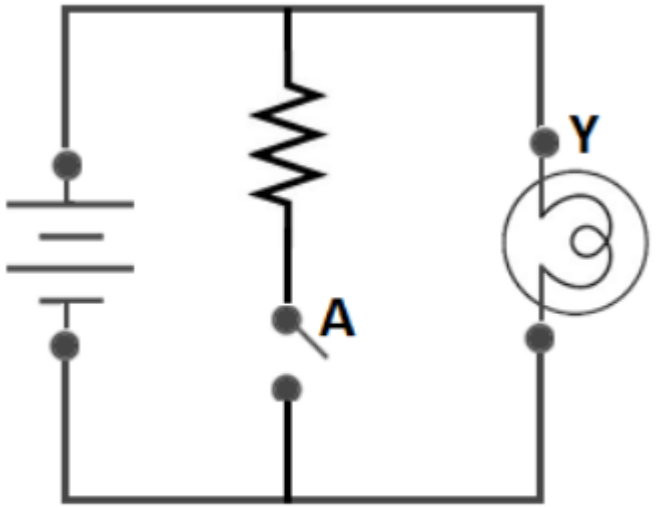
n-MOS



p-MOS



NOT Gate
CMOS Design

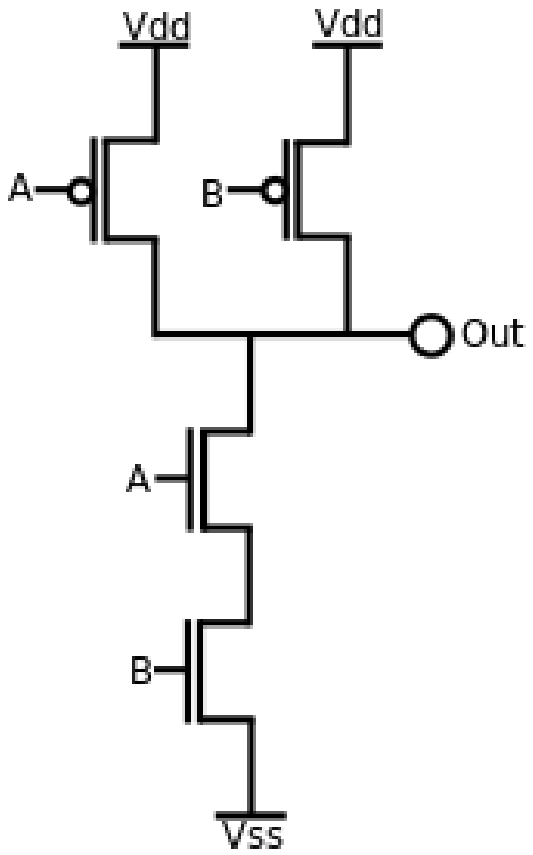


Symbol

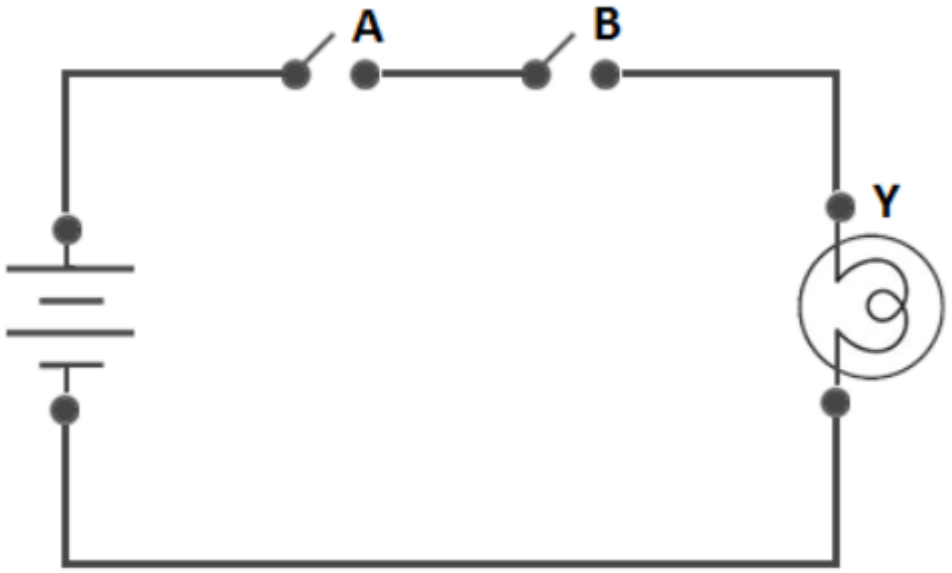
Electrical Circuit

A	Y = Ā
0	1
1	0

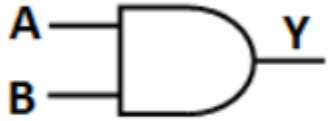
Truth Table



NAND CMOS Design



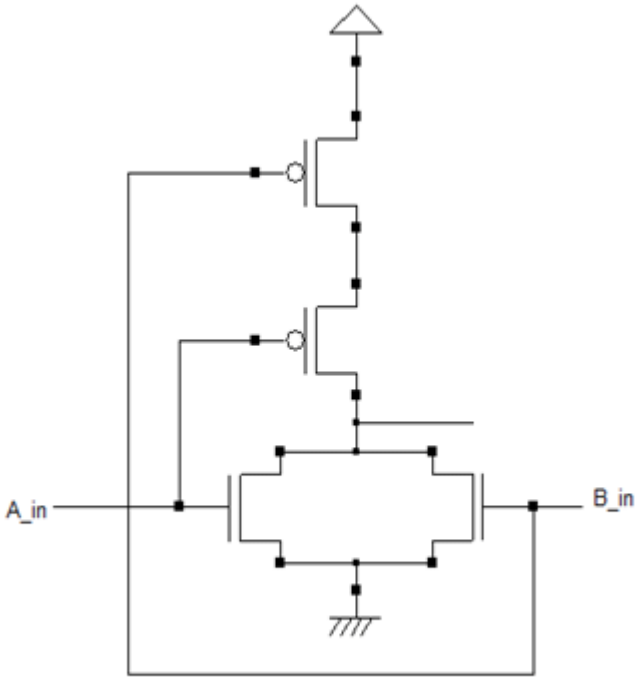
Electrical Circuit



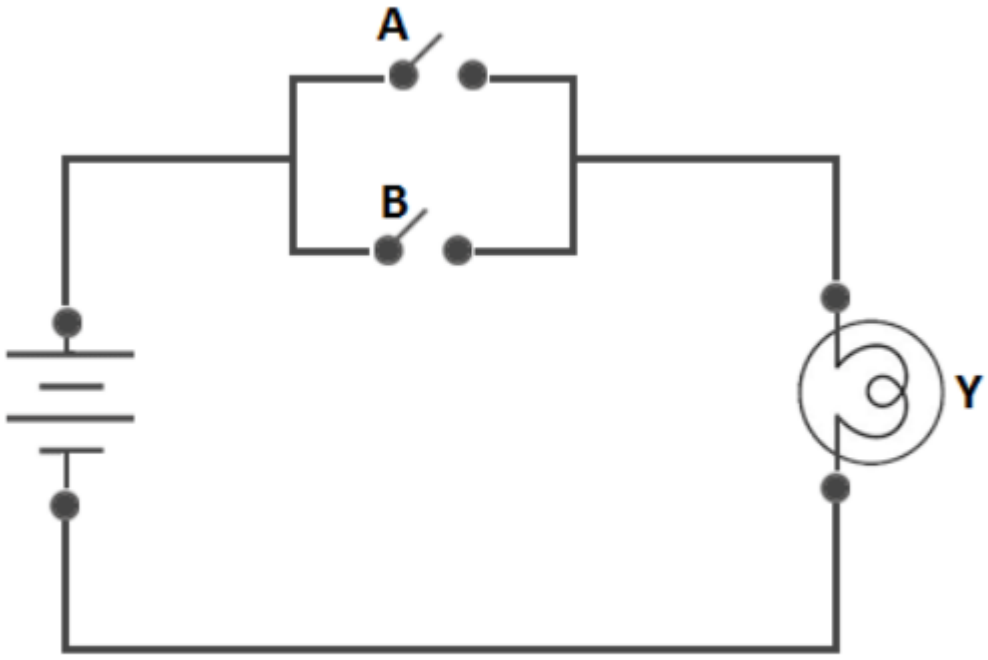
Symbol

A	B	Y = A * B
0	0	0
0	1	0
1	0	0
1	1	1

Truth Table



NOR CMOS Design

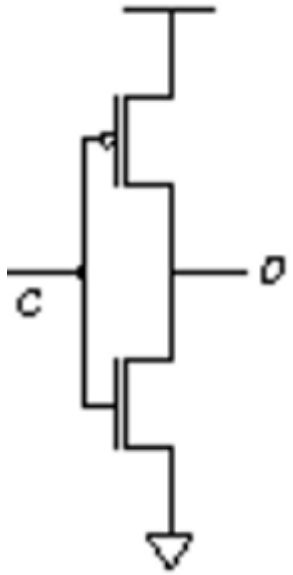


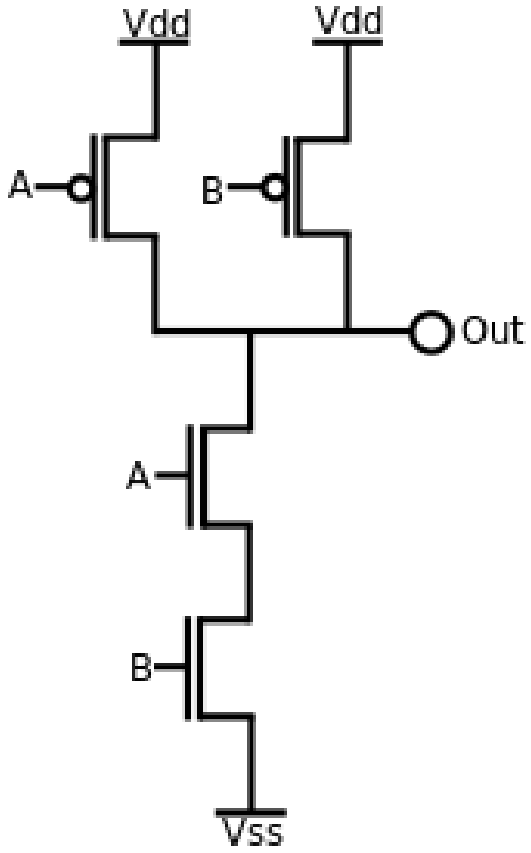
Electrical Circuit

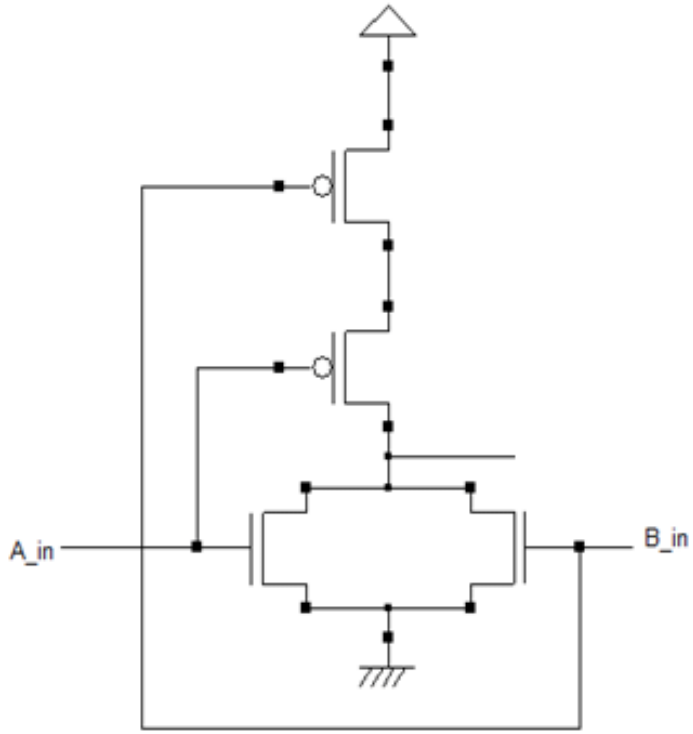
Symbol

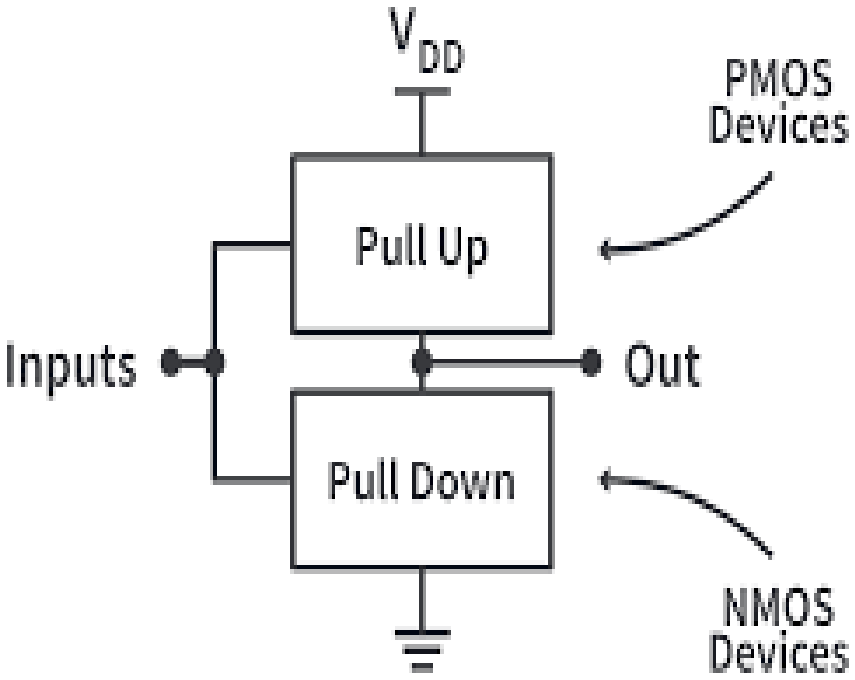
A	B	Y = A + B
0	0	0
0	1	1
1	0	1
1	1	1

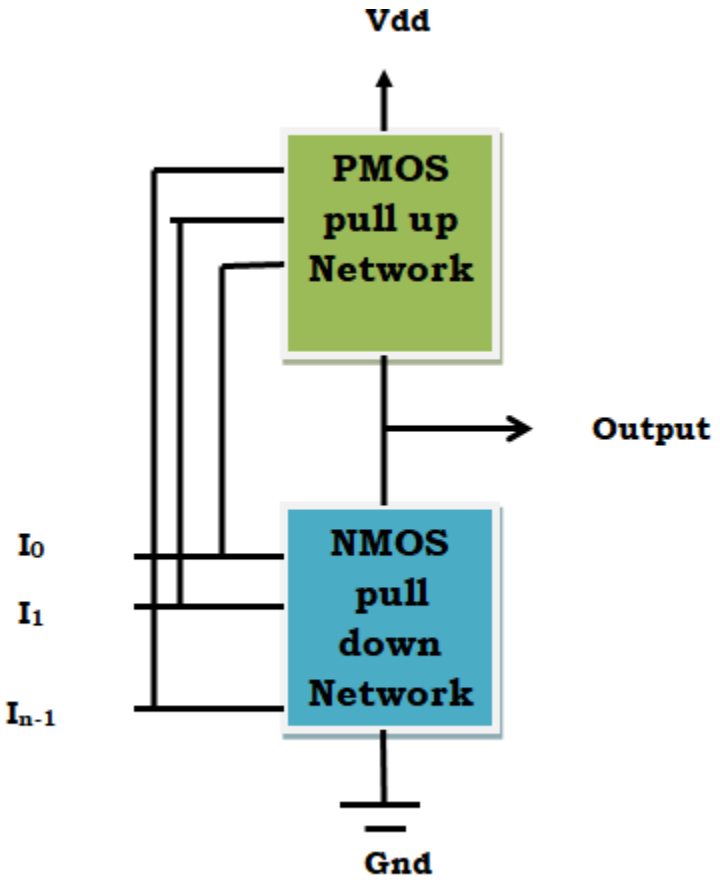
Truth Table


c
o

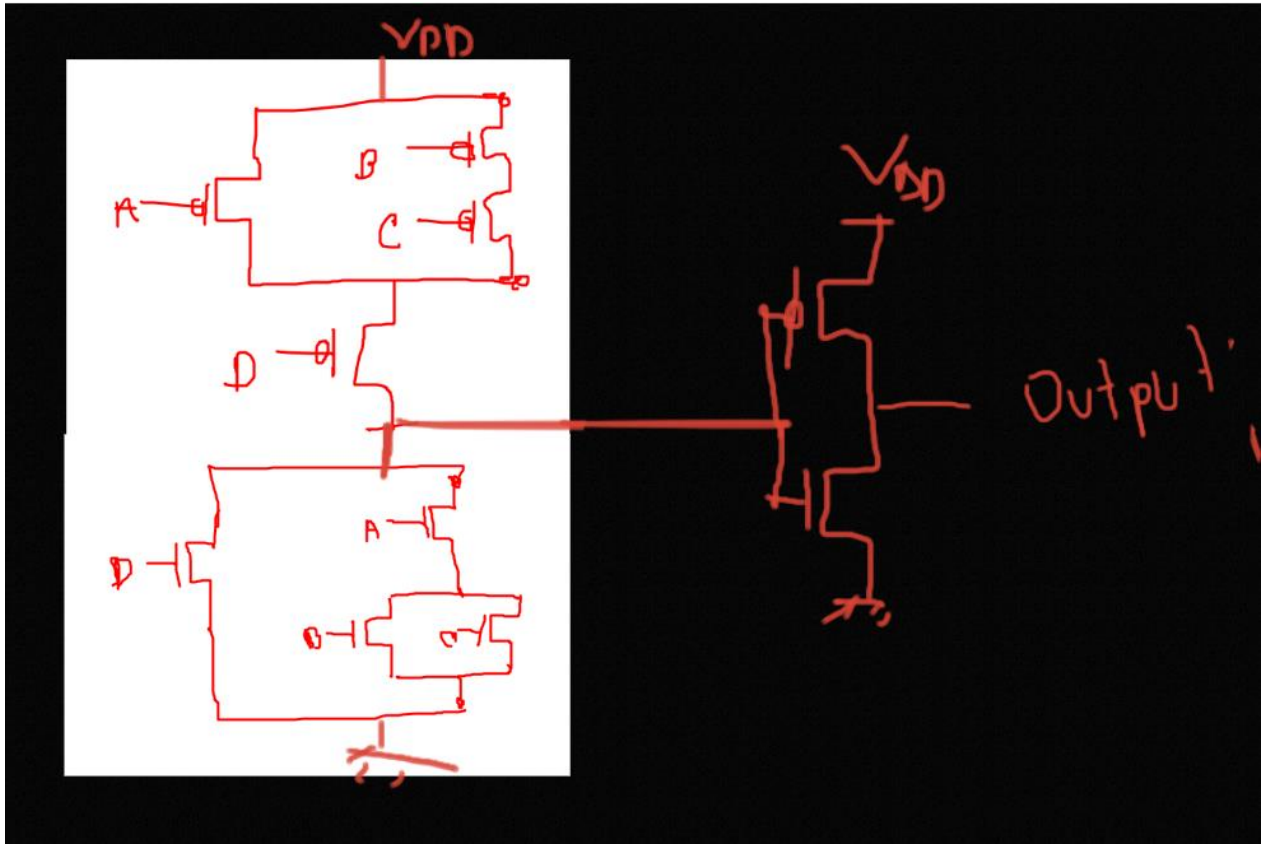

Vdd
Vdd
A
B
Out
A
B
Vss

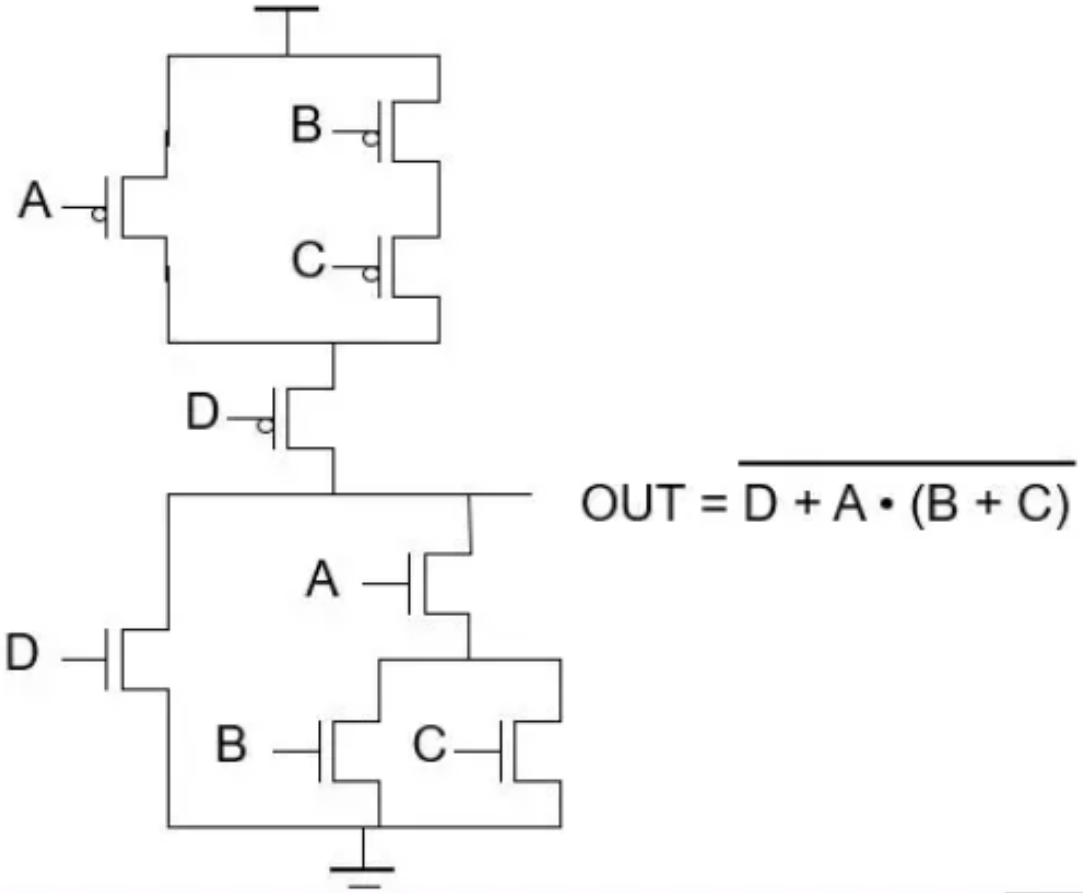

A_in
B_in


V_{DD}
PMOS Devices
Pull Up
Inputs
Out
Pull Down
NMOS Devices


Vdd
PMOS pull up Network
Output
I_0
I_1
I_{n-1}
NMOS pull down Network
Gnd

$OUT = D + A \cdot (B + C)$





$$OUT = \overline{D + A \cdot (B + C)}$$

Thank You