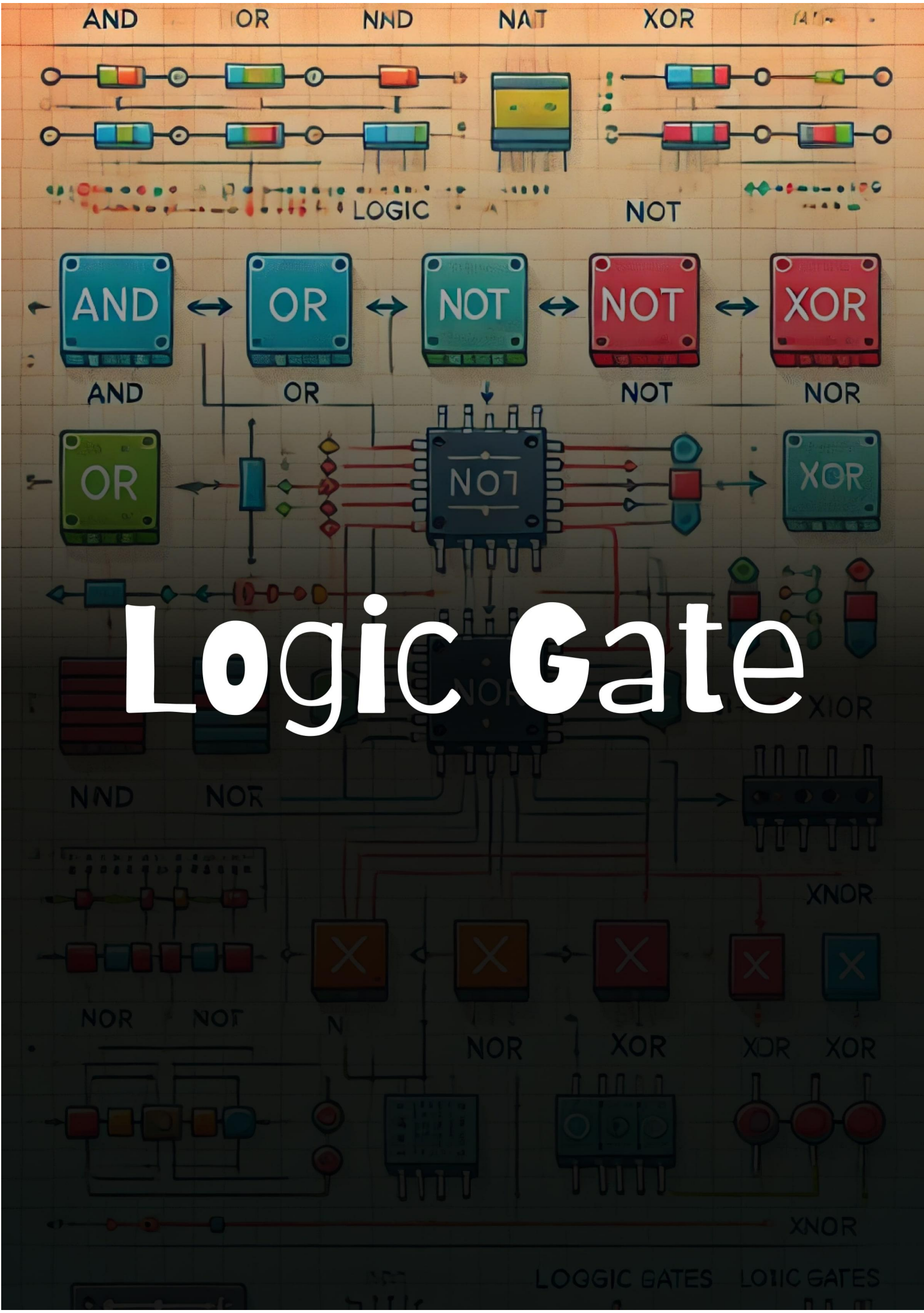


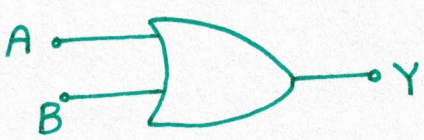
logic Gate

A digital circuit which either stops a signal or allows to pass through it is called a gate.
Logic gate has 1 or more input but only one output.
There are three basic logic gates:

1.) OR Gate
2.) AND Gate
3.) NOT Gate

OR GATE

0: low
1: high



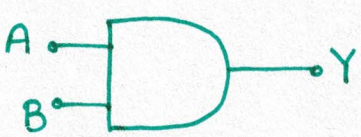
A	B	Y=A+B
0	0	0
1	0	1
0	1	1
1	1	1

Boolean Algebra

0+0 = 0
1+0 = 1
0+1 = 1
1+1 = 1

(Higher one will sent forward

AND GATE



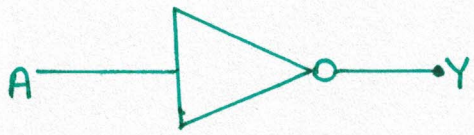
Both must be present to get output

A	B	Y=A.B
0	0	0
1	0	0
0	1	0
1	1	1

Boolean Algebra

0.0 = 0
1.0 = 0
0.1 = 0
1.1 = 0

NOT GATE



A	$Y = \overline{A}$
0	1
1	0

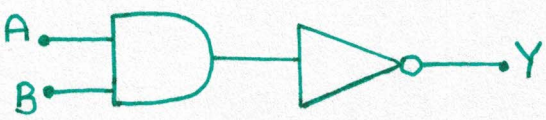
Boolean Algebra

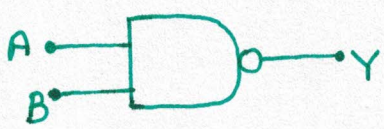
$\overline{0} = 1$

$\overline{1} = 0$

COMBINATION OF GATES

NAND GATE (NOT + AND)





A	B	$Y = \overline{A.B}$
0	0	1
1	0	1
0	1	1
1	1	0

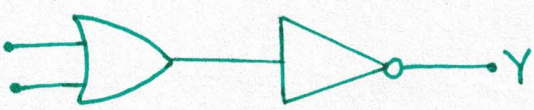
$\overline{0.0} = 1$

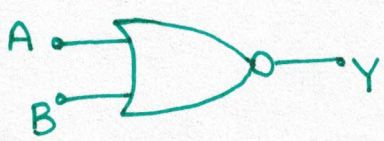
$\overline{1.0} = 1$

$\overline{0.1} = 1$

$\overline{1.1} = 0$

NOR GATE (NOT + OR)





A	B	$Y = \overline{A+B}$
0	0	1
1	0	0
0	1	0
1	1	0

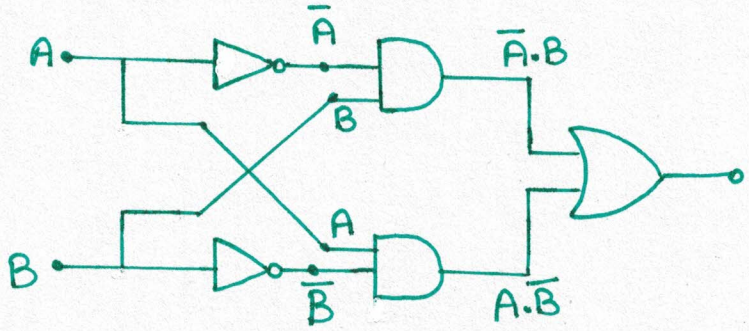
$\overline{0+0} = 1$

$\overline{1+0} = 0$

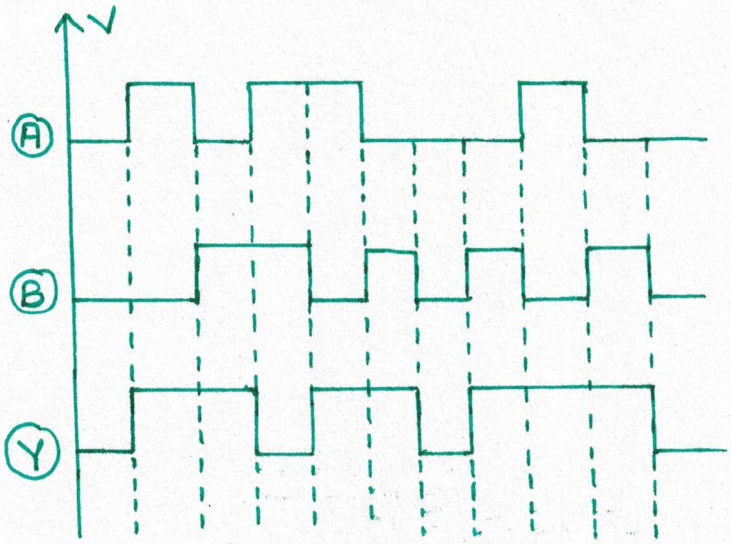
$\overline{0+1} = 0$

$\overline{1+1} = 0$

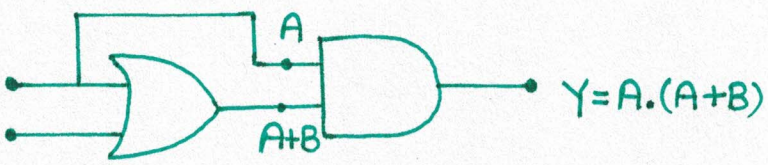
XOR GATE



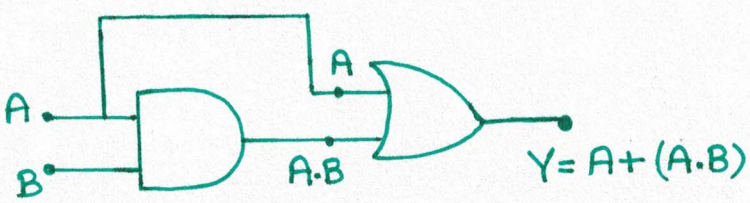
$Y = \overline{A}B + A\overline{B}$



A	B	Y
0	0	0
1	0	1
0	1	1
1	1	0



A	B	Y
0	0	0
1	0	1
0	1	0
1	1	1



A	B	Y
0	0	0
1	0	1
0	1	0
1	1	1