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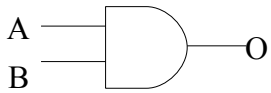
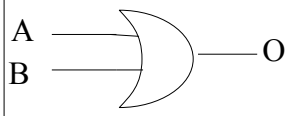
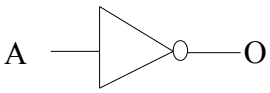
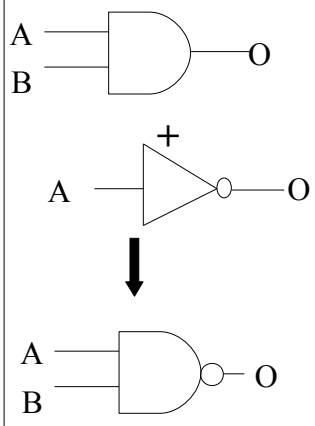
DIGITAL SYSTEM DESIGN

Logic gates

Table-1.

[**A**-Input 1, **B**-Input 2, **O**-Output, **1**-Maximum, **0**-Minimum]

S.No	Name of Logic gate	Logic code	Logic symbol	Logic formula	Truth table
1	"AND" gate	If both inputs(A&B) Maximum output is Maximum.		O = A.B	A B O 1 1 1 1 0 0 0 1 0 0 0 0
2	"OR" gate	If any one input (A or B) Maximum output is Maximum.		O = A + B	A B O 0 0 0 1 0 1 0 1 1 1 1 1
3	"NOT" gate	Output is opposite to input.		$O = \overline{A}$	A O 1 0 0 1
4	"NAND" gate [AND+NOT]	If both inputs(A&B) Maximum output is Minimum.		$O = \overline{A.B}$	A B O 0 0 1 0 1 1 1 0 1 1 1 0

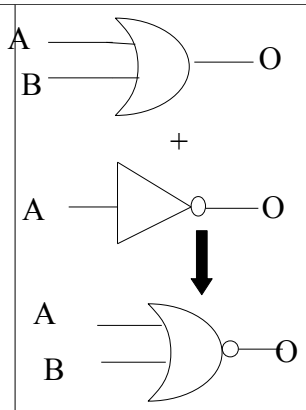
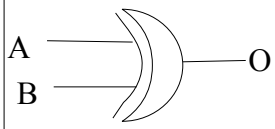
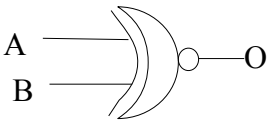
5	"NOR" gate [OR+NOT]	If both inputs(A&B) Minimum output is Maximum.		O = A + B	A B O 0 0 1 0 1 0 1 0 0 1 1 0
6	"EX-OR" gate	If both inputs(A&B) Minimum or Maximum output is Minimum.		$O = A.\overline{B} + B.\overline{A}$	A B O 0 0 0 0 1 1 1 0 1 1 1 0
7	"EX-NOR" gate	If both inputs(A&B) Minimum or Maximum output is Maximum.		$O = A.B + \overline{A}.\overline{B}$	A B O 0 0 1 0 1 0 1 0 0 1 1 1

Table-2.

Summary of Logic gates							
Inputs(A & B)		**Outputs**					
A	B	AND	NAND	OR	NOR	EX-OR	EX-NOR
0	0	0	1	0	1	0	1
0	1	0	1	1	0	1	0
1	0	0	1	1	0	1	0
1	1	1	0	1	0	0	1

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