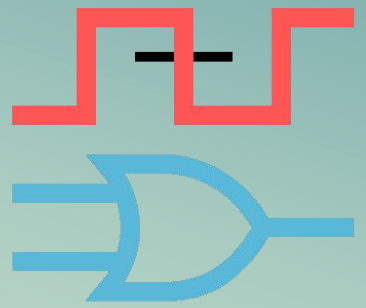
Digital Electronics

Class X

lab 19



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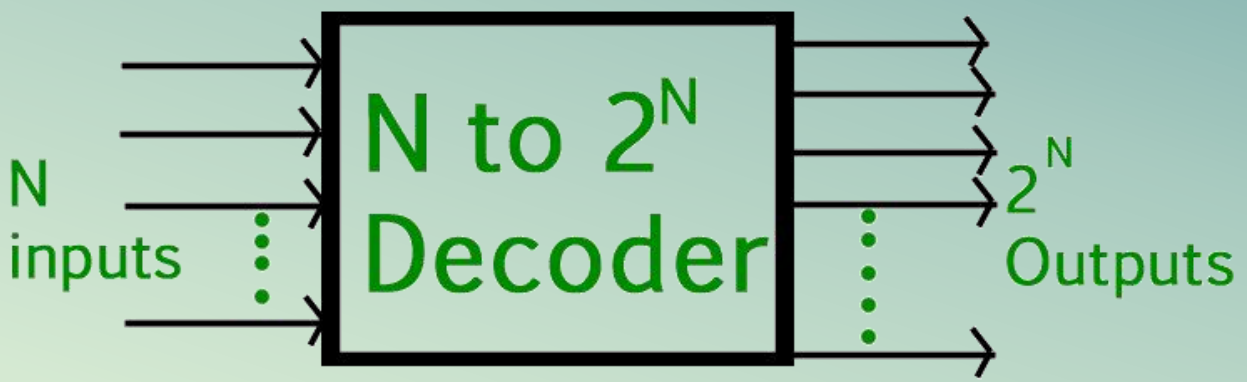
Decoder



Decoder is a combinational circuit that has ‘n’ input lines and maximum of 2^n output lines.

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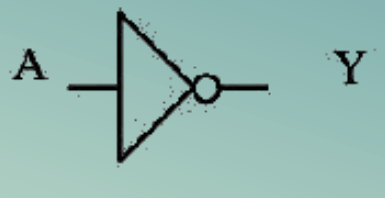
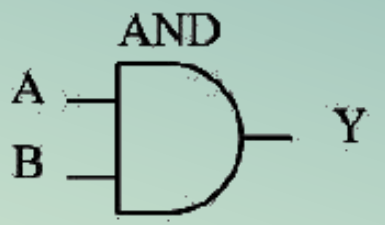
Input and Output for Basic Logic Gates

A	Y
0	1
1	0

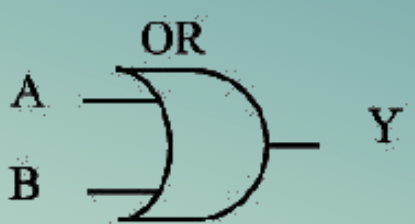


A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

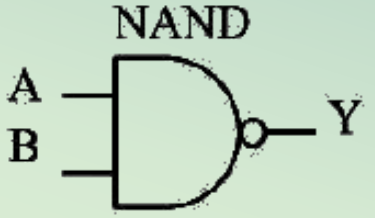
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1



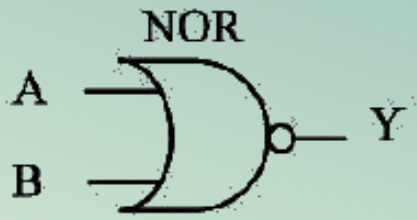
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1



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



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



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Truth Table

A	B	AB
0	0	0
0	1	0
1	0	0
1	1	1

Truth table is a tabular representation of all the combinations of values for inputs and their corresponding outputs.

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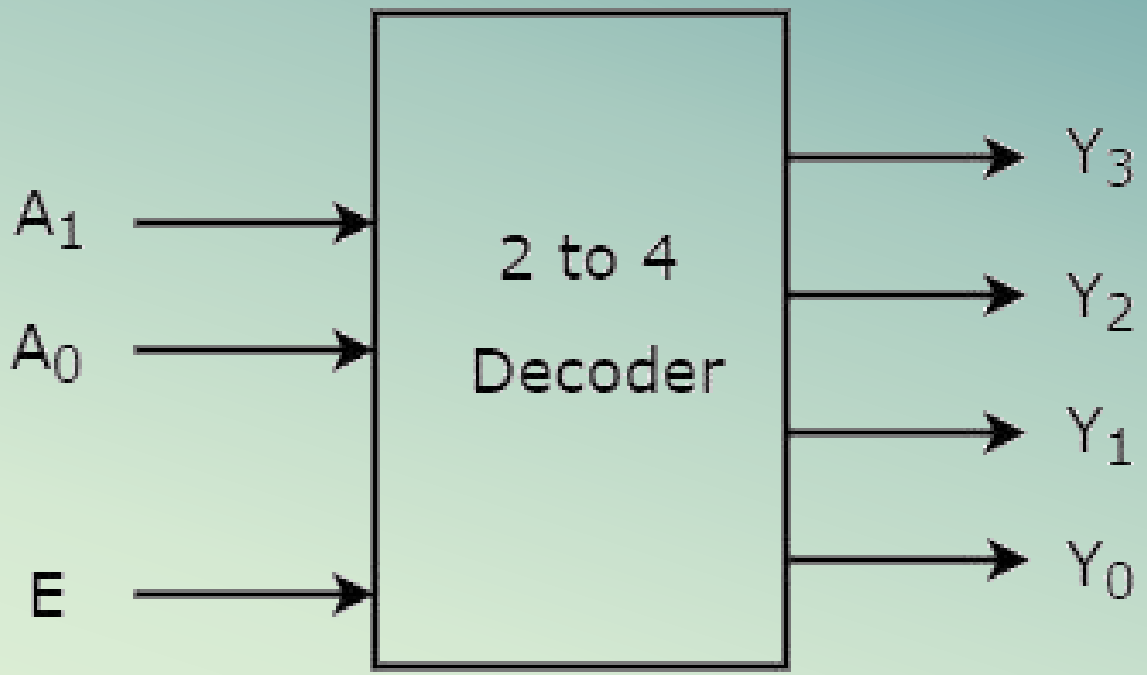
2 to 4 Decoder



Let 2 to 4 Decoder has two inputs A1 & A0 and four outputs Y3, Y2, Y1 & Y0. The block diagram of 2 to 4 decoder is shown in the following figure

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Truth Table for 2 to 4 Decoder

Enable	Inputs		Outputs			
E	A_1	A_0	Y_3	Y_2	Y_1	Y_0
0	x	x	0	0	0	0
1	0	0	0	0	0	1
1	0	1	0	0	1	0
1	1	0	0	1	0	0
1	1	1	1	0	0	0

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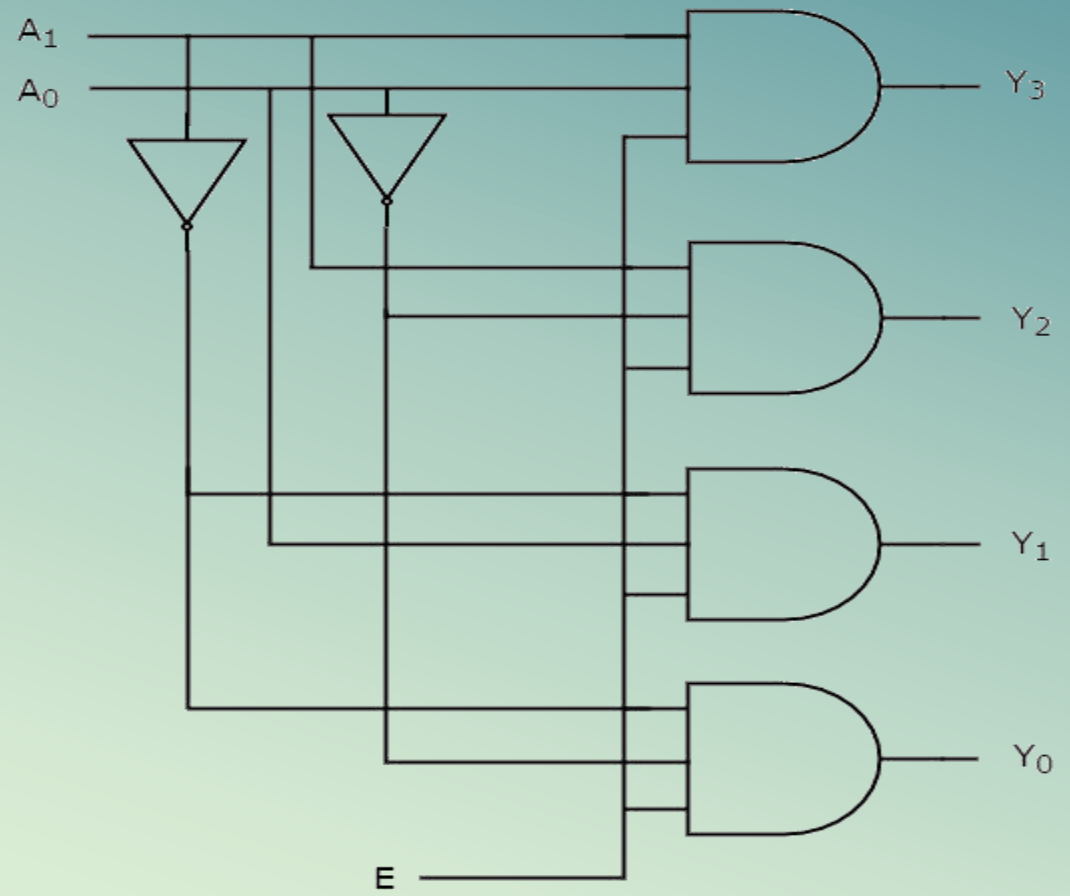
2 to 4 Decoder Diagram



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Thank You

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