

Demultiplexer :

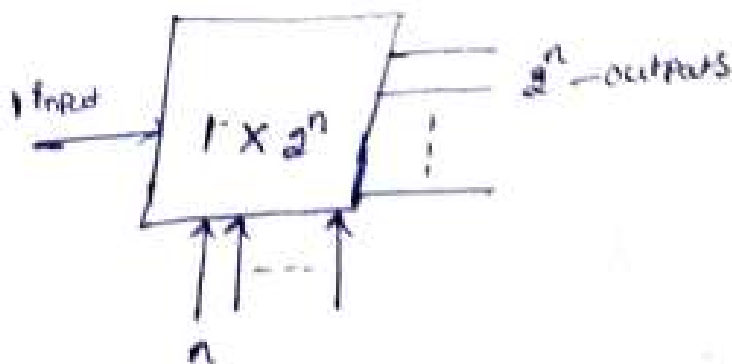
A Demux has a single input signal to one of many output lines, depending on the value of select lines.

→ It performs the reverse operation of a MUX.

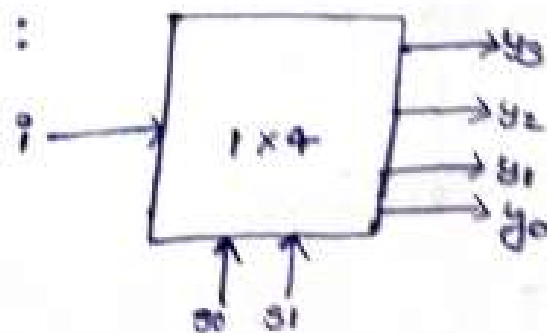
→ The select lines determines which output will be connected to the input.

Applications -

1. data distribution
2. memory address decoding
3. Communication System
4. Arithmetic operations



Demux (1 x 4) :



Truth table:

inputs		output			
s_1	s_0	y_3	y_2	y_1	y_0
0	0	0	0	0	1
0	1	0	0	1	0
1	0	0	1	0	0
1	1	1	0	0	0

$$y_0 = \bar{s}_1 \bar{s}_0 i$$

$$y_1 = \bar{s}_1 s_0 i$$

$$y_2 = s_1 \bar{s}_0 i$$

$$y_3 = s_1 s_0 i$$

