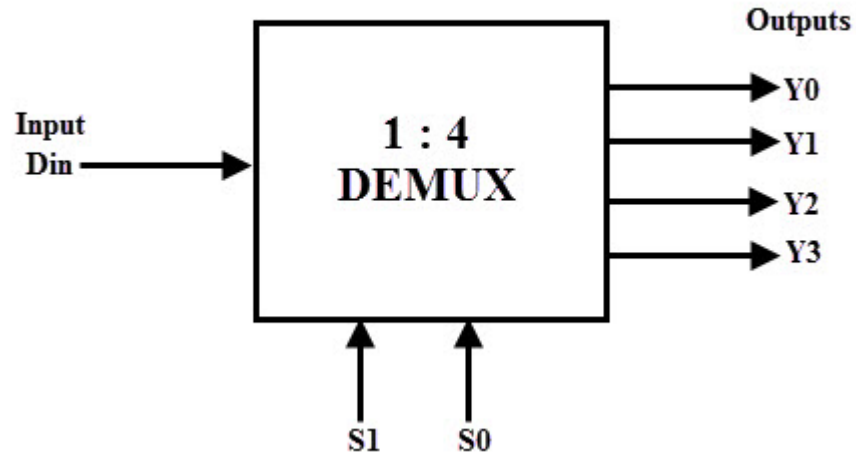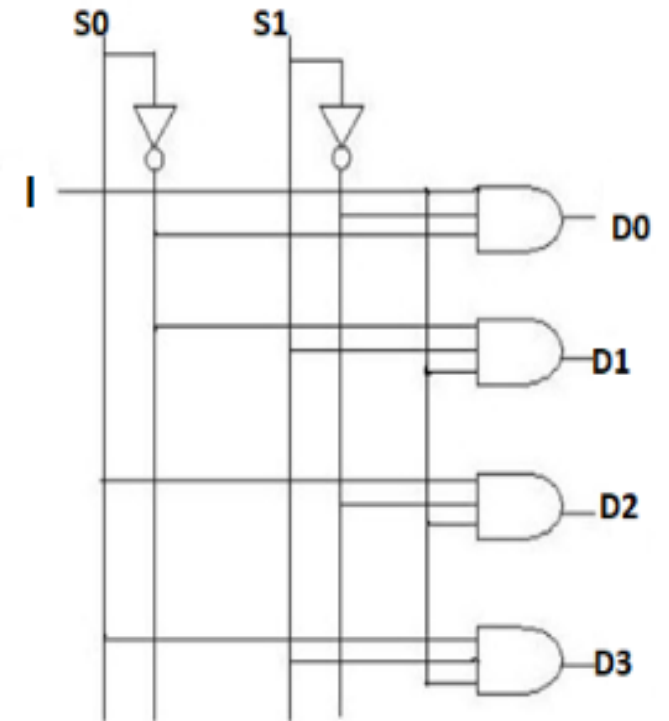# CSA DEMULTIPLEXER

-Nidhi Sangwan

1 to 4 demultiplexer

- The 1 to 4 demultiplexer consists of one input, four outputs, and two selection lines

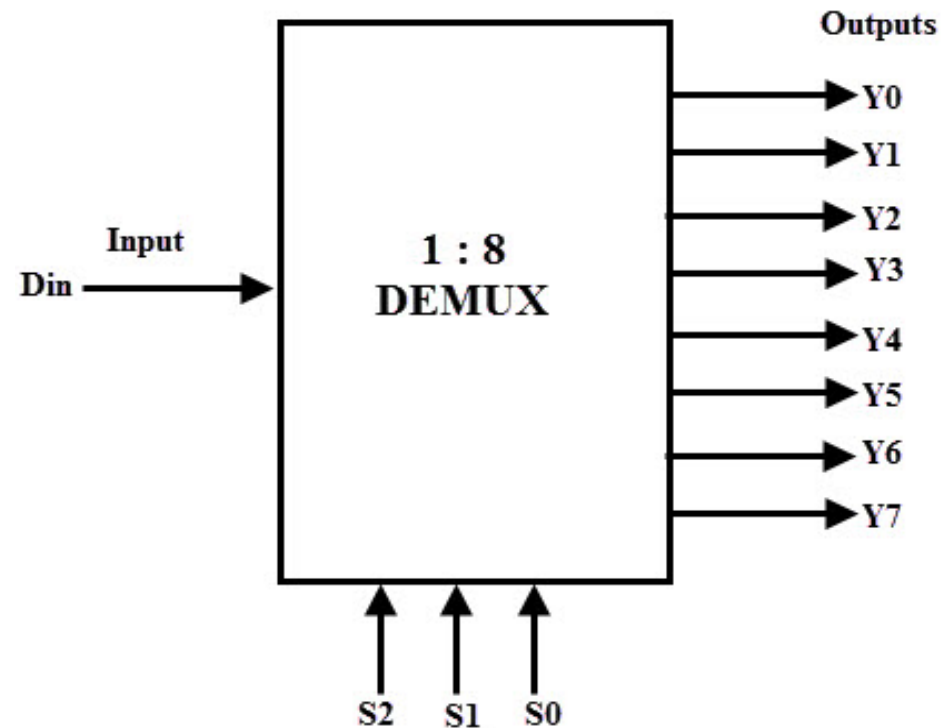- Block, Circuit diagram and Truth Table for 1:4 demux

Outputs

Input Din → 1 : 4 DEMUX → Y0, Y1, Y2, Y3

S1 S0

Input	Select Lines	Output Lines
I	S_1 S_0	D_0 D_1 D_2 D_3
I	0 0	1 0 0 0
I	0 1	0 1 0 0
I	1 0	0 0 1 0
I	1 1	0 0 0 1

S0   S1

I

D0
D1
D2
D3

1:8 Demultiplexer

- A 1 to 8 demultiplexer consists of one input line, 8 output lines and 3 select lines.

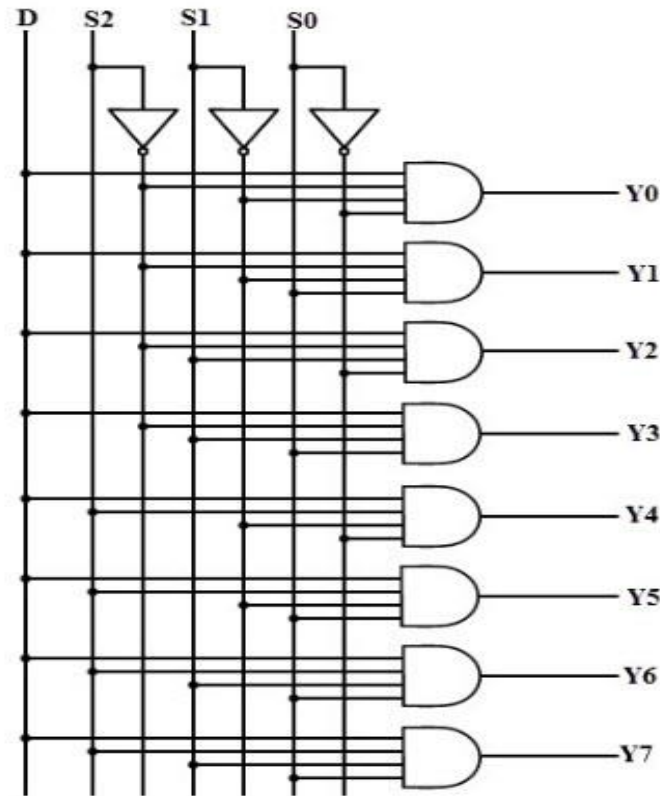- It is also called as 3 to 8 demux because of the 3 selection lines.
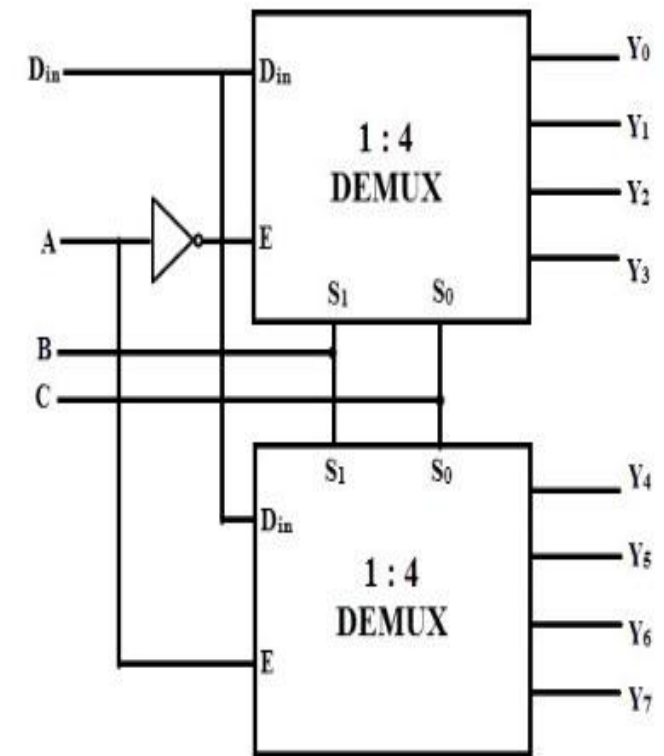
1 to 8 demultiplexer Truth Table

Data Input	Select Inputs			Outputs							
D	S_2	S_1	S_0	Y_7	Y_6	Y_5	Y_4	Y_3	Y_2	Y_1	Y_0
D	0	0	0	0	0	0	0	0	0	0	D
D	0	0	1	0	0	0	0	0	0	D	0
D	0	1	0	0	0	0	0	0	D	0	0
D	0	1	1	0	0	0	0	D	0	0	0
D	1	0	0	0	0	0	D	0	0	0	0
D	1	0	1	0	0	D	0	0	0	0	0
D	1	1	0	0	D	0	0	0	0	0	0
D	1	1	1	D	0	0	0	0	0	0	0

A 1 to 8 demultiplexer can be implemented using two 1 to 4 demultiplexers.
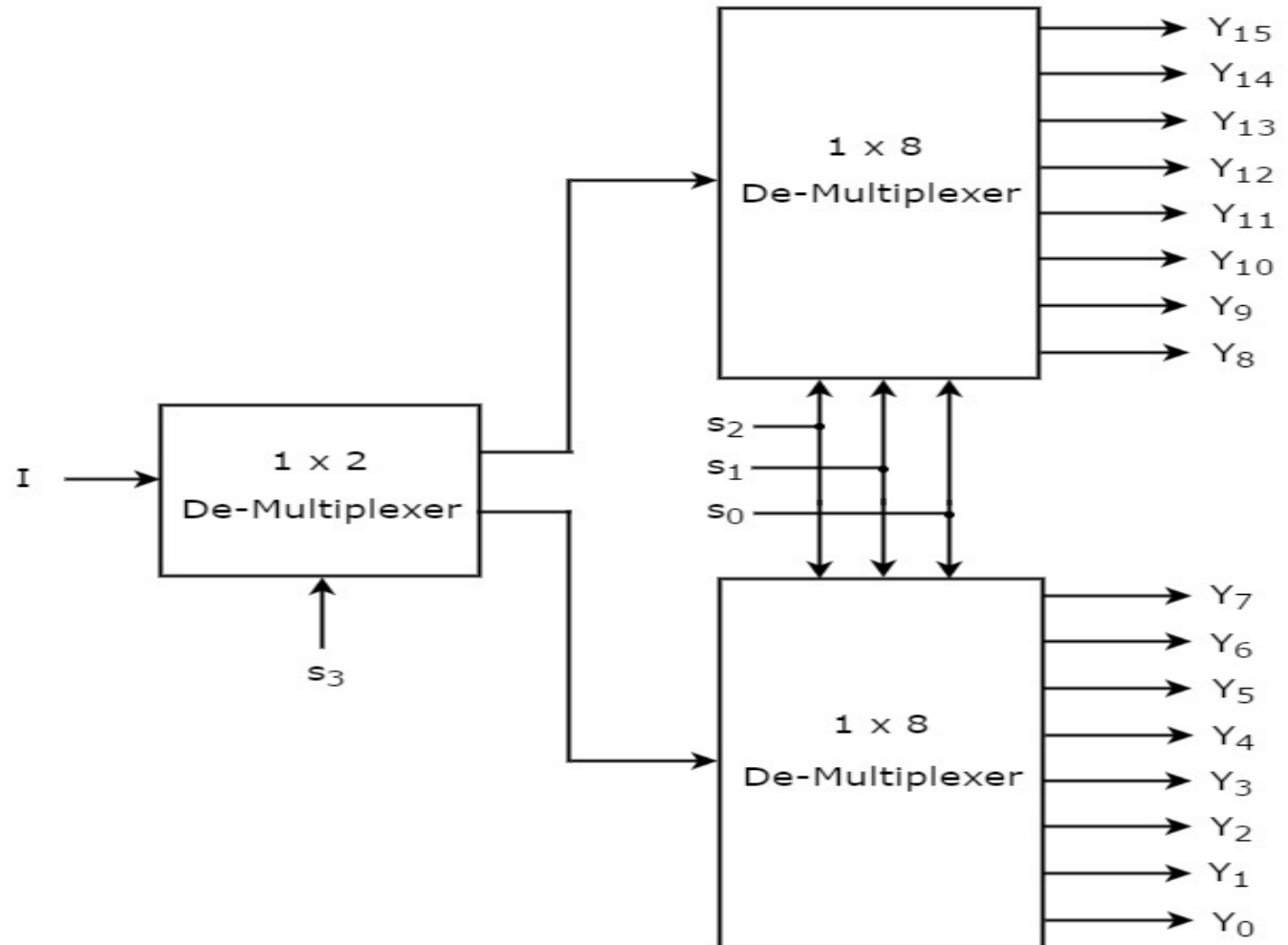
1:8 demux

1:8 using 1:4 demux

We can also create complex demultiplexers using different size demultiplexers

- 1 to 16 demultiplexer using two 1:8 demux and one 1:2 demux

Thankyou