Experiment-9

★ **Aim :-** To verify the operation of 1:4 De-multiplexer (D-MUX)

★ **Apparatus :-** Breadboard, connecting wires, power supply, display board, switches, resistors, LED

★ **Theory :-** De Multiplexer is a device with one input and multiple output lines. It is used to send a signal to one of the many devices. The function of a de-multiplexer is to inverse the function of a multiplexer and the shortcut form of de-multiplexer is demux.

De-multiplexers are classified into four types :-

- → 1:2 demultiplexer
- → 1:4 demultiplexer
- → 1:8 demultiplexer
- → 1:16 demultiplexer

★ **1:4 De-multiplexer :-** It has one input I, two selection lines S_1 and S_0 and four outputs Y_3, Y_2, Y_1 and Y_0. the block diagram and truth table of 1:4 demultiplexer is shown.

★ **Procedure :-**

1. Connect the supply (+5v) to the circuit.
2. First press "ADD" button to add basic state of your output in the given table.
3. Press start "A" for input.
4. Press switches "B" and "C" to select desired input line.
5. Press "ADD" button to add your inputs and outputs in the given table.
6. Repeat steps 4 and 5 for next state of inputs and their corresponding outputs.
7. Press the "PRINT" button after completing your simulation get your results.

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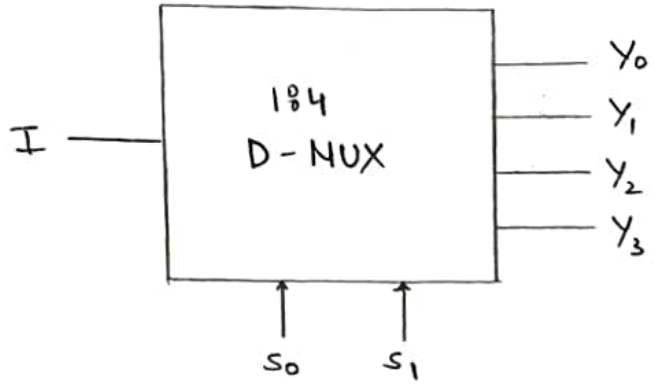
★ **Result :-** the operation of 1:4 De-multiplexer has been verified.

★ **Precautions :-**

1. Take care while supplying voltage to IC.
2. Connections must be tight on the breadboard.
3. Identify the pins on the IC properly.

★ Block Diagram of 1:4 De-multiplexer



★ Truth table of 1:4 De multiplexer

Selection Inputs		Outputs			
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