Experiment - 8

★ **Aim :-** to verify the operation of 4:1 multiplexer (MUX)

★ **Apparatus :-** Breadboard, connecting wires, power supply, display board.

★ **theory :-** Multiplexer is a device that has multiple inputs and a single line output. The select lines ~~does~~ determine which input is connected to the output, and also to increase the amount of data that can be sent over a network within certain time. It is also called a data selector.

Multiplexers are classified into four types :-

- → 2:1 multiplexer
- → 4:1 multiplexer
- → 8:1 multiplexer
- → 16:1 multiplexer.

★ **4:1 multiplexer :-** It has four data inputs I_3, I_2, I_1 and I_0, two select lines S_1 and S_0 and one output Y. the block diagram of 4:1 multiplexer is shown. One of these 4 inputs will be connected to the output based on the combination of inputs present at these two selection lines. Truth table of 4:1 multiplexer is shown.

★ **Procedure :-**

1. Connect the supply (+5 V) to the circuit.
2. First press "ADD" button to add basic state of your output in the given table.
3. Press the switches S_0 and S_1 to select desired input line.
4. Press "ADD" button to your inputs and outputs in given table.
5. Press the "PRINT" button after completing your simulation by repeating steps 3 and 4 to get your results.

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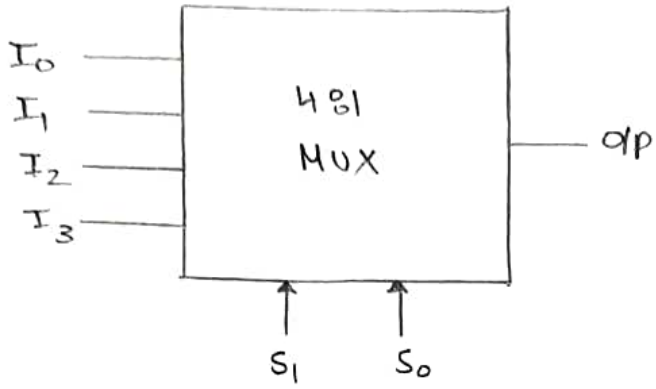
★ **Result :-** the operation of 4:1 multiplexer has been verified.

★ **Precautions :-**

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

* Block Diagram of 4:1 multiplexer



* Truth table of 4:1 multiplexer

Selection Lines		Output
S_1	S_0	Y
0	0	I_0
0	1	I_1
1	0	I_2
1	1	I_3