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**D6AD**

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**DLCOA / Experiment 5**

Aim : To implement logic operation using MUX 16.

Software used : Virtual lab simulator.

Apparatus :

| Sr. No | Component | Specification | Quantity |
|--------|-----------|---------------|----------|
| 1 | Multiplexer | IC 74151 | 1 |
| 4 | Trainer kit | — | 1 |
| 5 | Connecting wires | — | — |

Theory :

     A multiplexer (MUX) is a digital switch which connects data from one of $n$ sources to the output. A number of select inputs determine which ~~the~~ data source is connected to the output., The block diagram of MUX with $n$ data sources of 6 data bits wide and $s$ bits wide select lines.

     MUX acts like a digitally controlled multiposition switch where the binary code applied to the select inputs controls the input source that will be switched on to the output as shown in the figure. At any given point of time only one input gets selected ~~any~~ and is connected to output, based on the select input signal.

**Procedure:** ① Start the simulator.

② In the palette, from the ~~oth~~ other components menu select 4:1 MUX (en) and place it on the grid.

③ Select bit & switches from input/output menu and ~~put~~ place them above the multiplexer.

④ Select bit display from input/output menu and place it below the multiplexer.
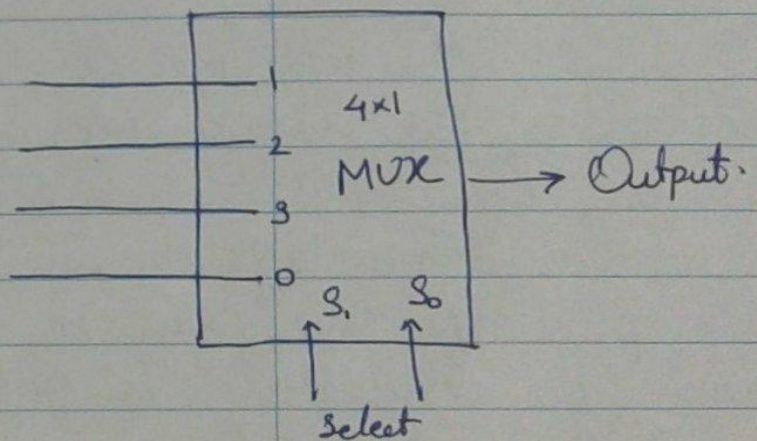
⑤ Make connections using the connection tools.

⑥ Click, simulate after giving the desired input in the bit switches.

**Conclusion:**

The selection of a particular input lines and n selection lines whose bit combinations determine which input is selected.

| $S_1$ | $S_0$ | Y |
|-------|-------|-----|
| 0 | 0 | $I_0$ |
| 0 | 1 | $I_1$ |
| 1 | 0 | $I_2$ |
| 1 | 1 | $I_3$ |



OUTPUT: