

Shri Vile Parle Kelavani Mandal's

DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING

(Autonomous College Affiliated to the University of Mumbai) NAAC Accredited with "A" Grade (CGPA: 3.18)



Academic Year: 2022-2023

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SAP ID: 60004220127

BRANCH: Computer Engineering

DIGITAL ELECTRONICS Experiment No.: 06

📥 AIM:

To study MUX and DEMUX IC's. Realize 16:1 MUX using 8:1 MUX

APPARATUS REQUIRED:

Mux ICs (74151), D.C. Power supply (5V), Red/Green LEDs (1 Nos), Connecting wires, Breadboard

4 THEORY:

The function of a multiplexer is to select the input of any 'n' input lines and feed that to one output line. The function of a de-multiplexer is to inverse the function of the multiplexer and the shortcut forms of the multiplexer.

O MULTIPLEXER:

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

O 4X1 MULTIPLEXER:

4x1 Multiplexer has four data inputs I3,I2, I1&I0,two selection linesS1&S0 and one output Y. The block diagram of 4x1Multiplexer is shown in the following figure. One of these 4 inputs will be connected to the output based on the combination of inputs present at these two selection lines.

O DEMULTIPLEXER:

De-multiplexer is also a device with one input and multiple output lines. It is used to send a signal to one of the many devices. The main difference between a multiplexer and a demultiplexer is that a multiplexer takes two or more signals and encodes the mona wire, whereas a de-multiplexer does reverse to what the multiplexer does.

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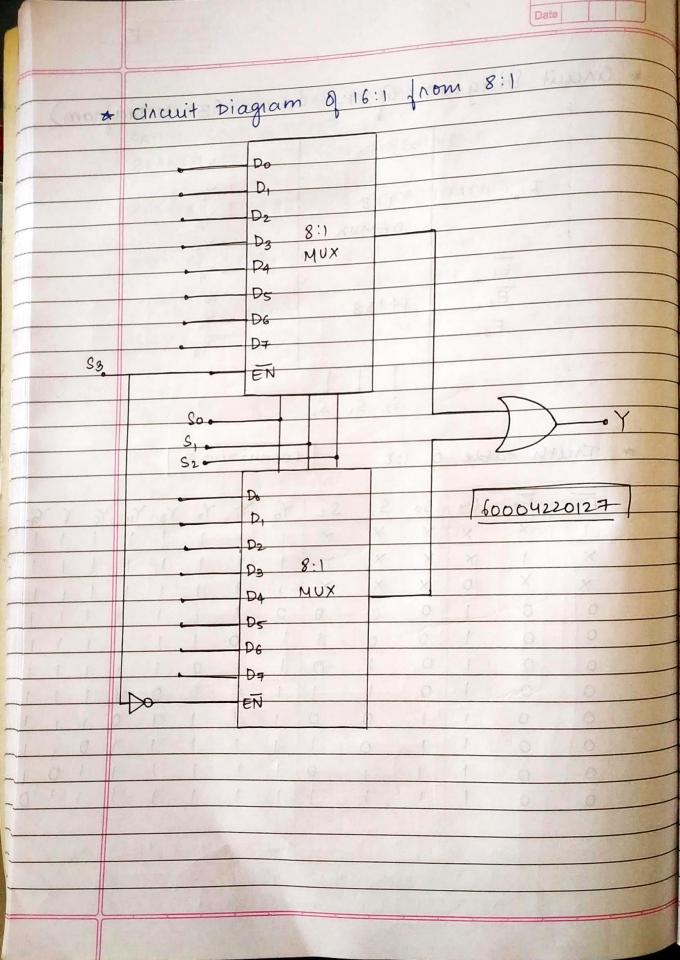
O 1X4 DEMULTIPLEXER:

1x4 De-Multiplexer has one input I, two selection lines, S1 & S0 and four outputs Y3, Y2, Y1 &Y0. The block diagram of 1x4 De-Multiplexer.

PROCEDURE:

- 1. Place the IC on IC Trainer Kit.
- 2. Connect VCC and ground to respective pins of IC Trainer Kit.
- 3. Implement the circuit as shown in the circuit diagram.
- 4. Connect the inputs to the input switches provided in the IC Trainer Kit.
- 5. Connect the outputs to the switches of O/P LEDs
- 6. Apply various combinations of inputs according to the truth table and observe the condition of LEDs.
- 7. Note down the corresponding output readings for various combinations of inputs.
- 8. Power Off Trainer Kit, disconnect all the wire connections and remove IC's from IC-Base.

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