LAB Report 3

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Roll No. 2023114001

Group: 9

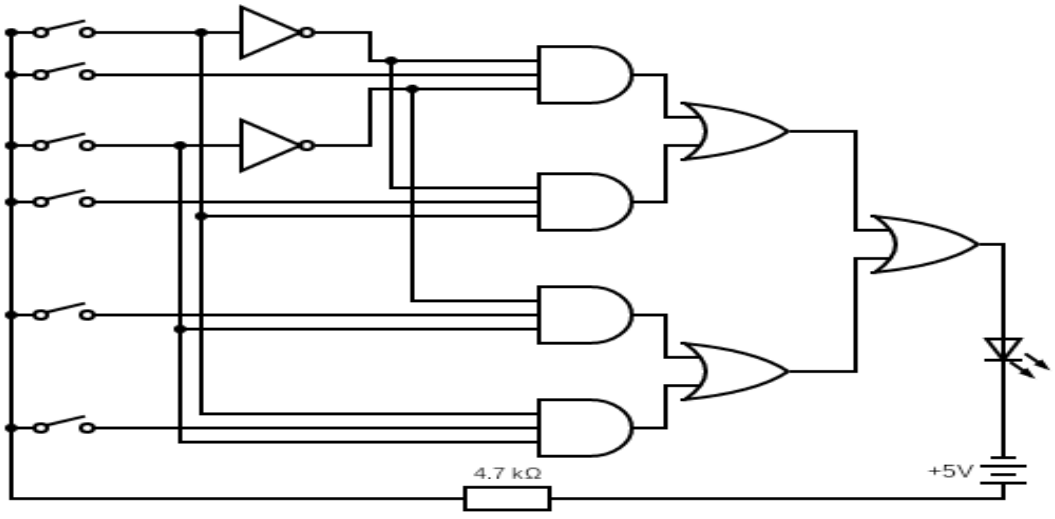
Part A:

Objective: To Design a 4:1 Multiplexer.

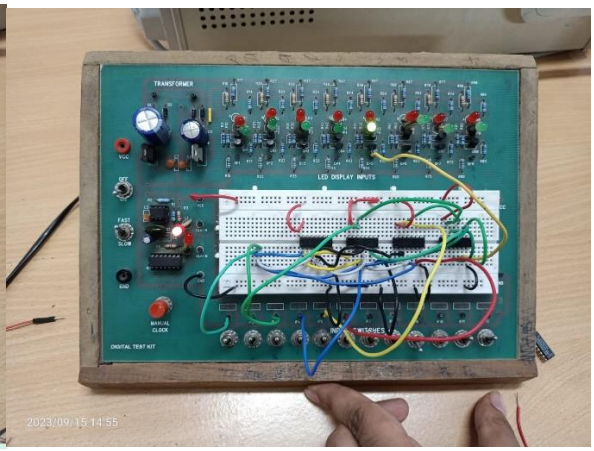
Electronic Component used:

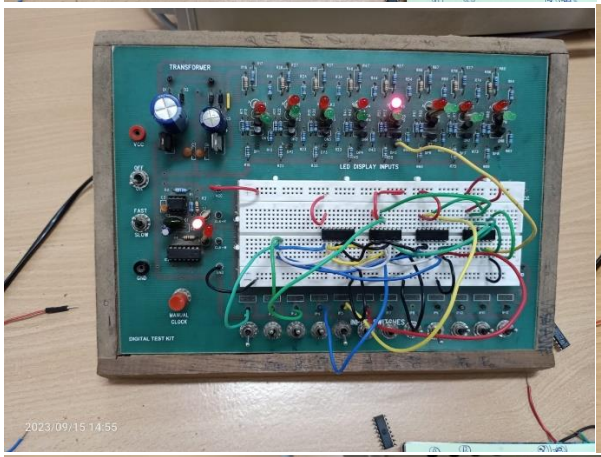
- Not Gate(74HC04)(x2)
- 3 input AND Gate(74HC11)(x3)
- 4 Input OR Gate(74HC32)
- Switches(x6)
- LED

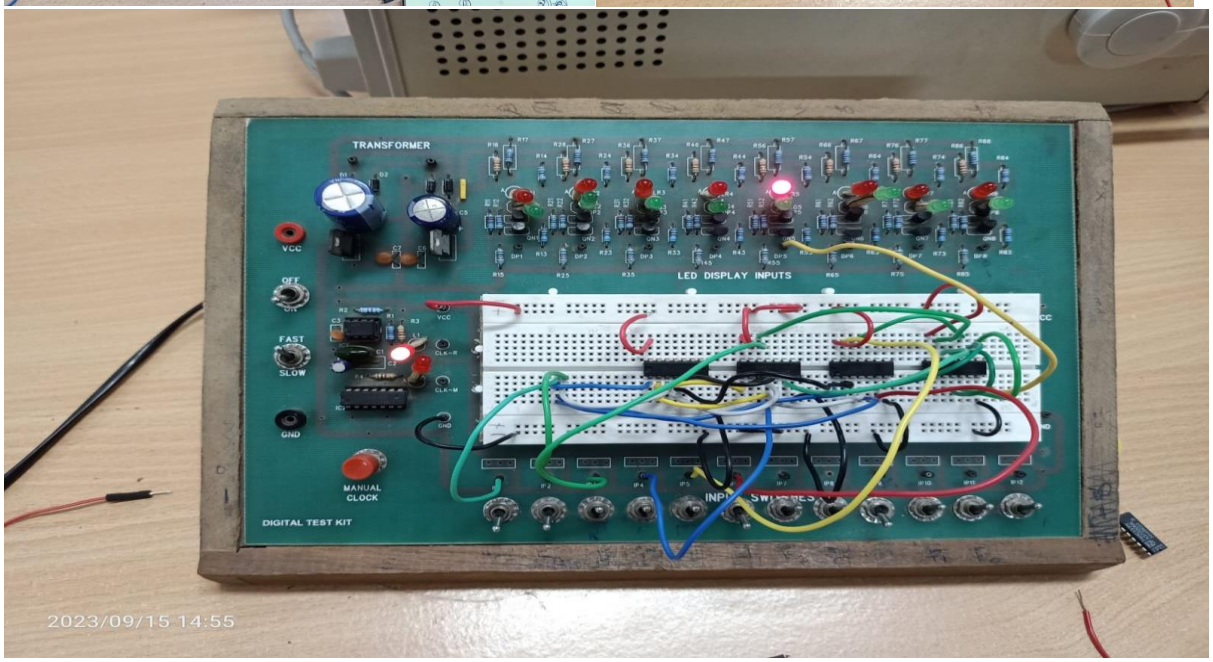
Reference Circuit:



LAB:







Procedure:

1. Setup the MUX Circuit.

2. Observe all Outputs at different states of switch and Inputs.

3. Make Truth Table.

Conclusion:

For Particular Configuration of Switches ,Only One Input shows High Result.

S1	S2	Input
0	0	I0
0	1	I1
1	0	I2
1	1	I3

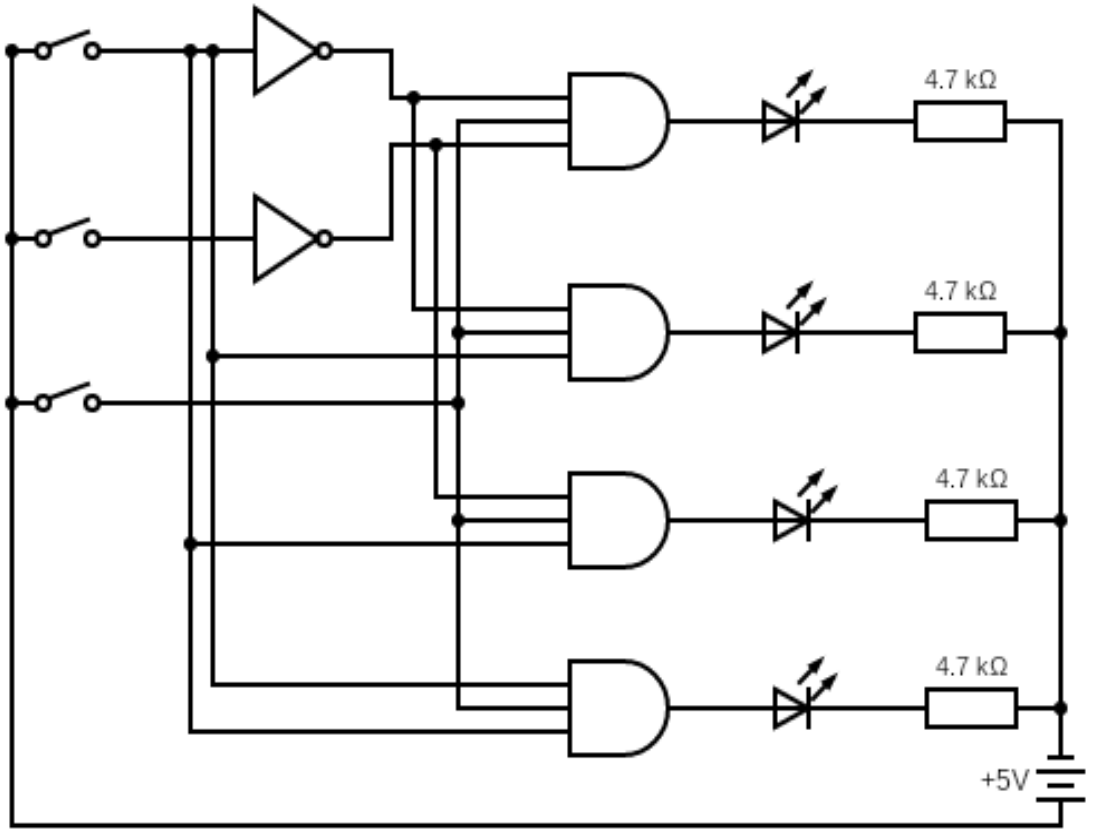
Part B:

Objective: To Design a 1:4 Demultiplexer.

Electronic Component used:

- Not Gate(74HC04)(x2)
- 3 input AND Gate(74HC11)(x4)
- LEDS(x4)
- Switches(x3)
- Wires

Reference Circuit:



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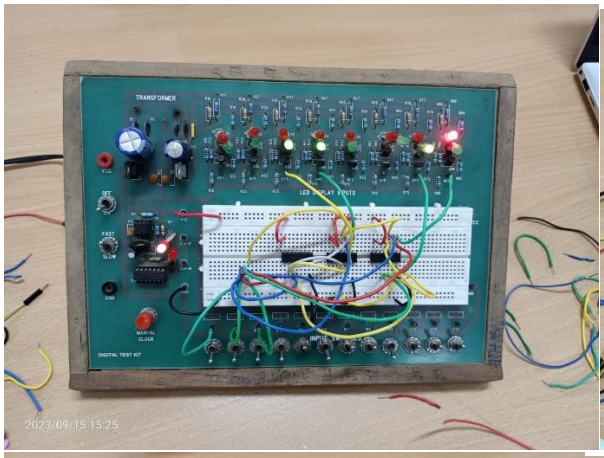
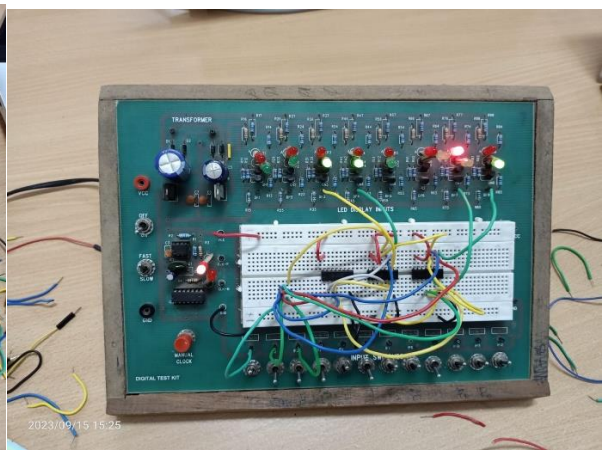
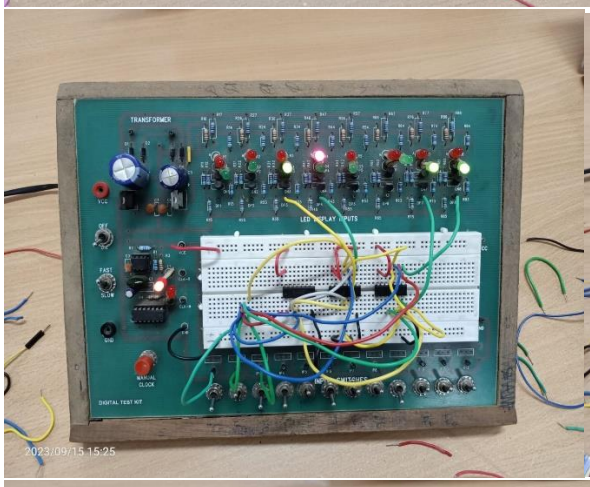
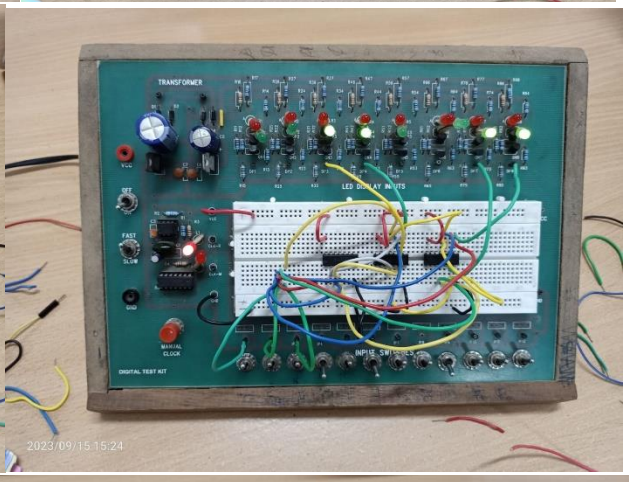
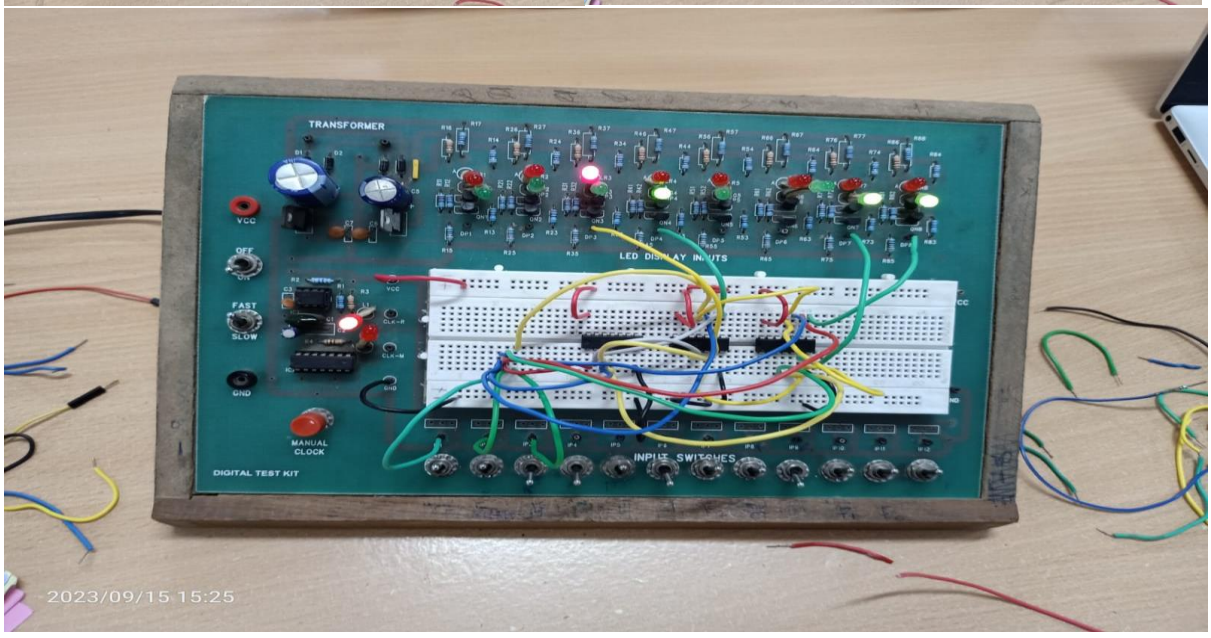










Procedure:

1. Setup the DEMUX Circuit.

2. Observe all Outputs at different state of switch and Inputs.

3. Make Truth Table.

Conclusion:

For Particular, Configuration of Switches only One Input shows High Output.

S1	S2	I3	I2	I1	I0
0	0	0	0	0	1
0	1	0	0	1	0
1	0	0	1	0	0
1	1	1	0	0	0

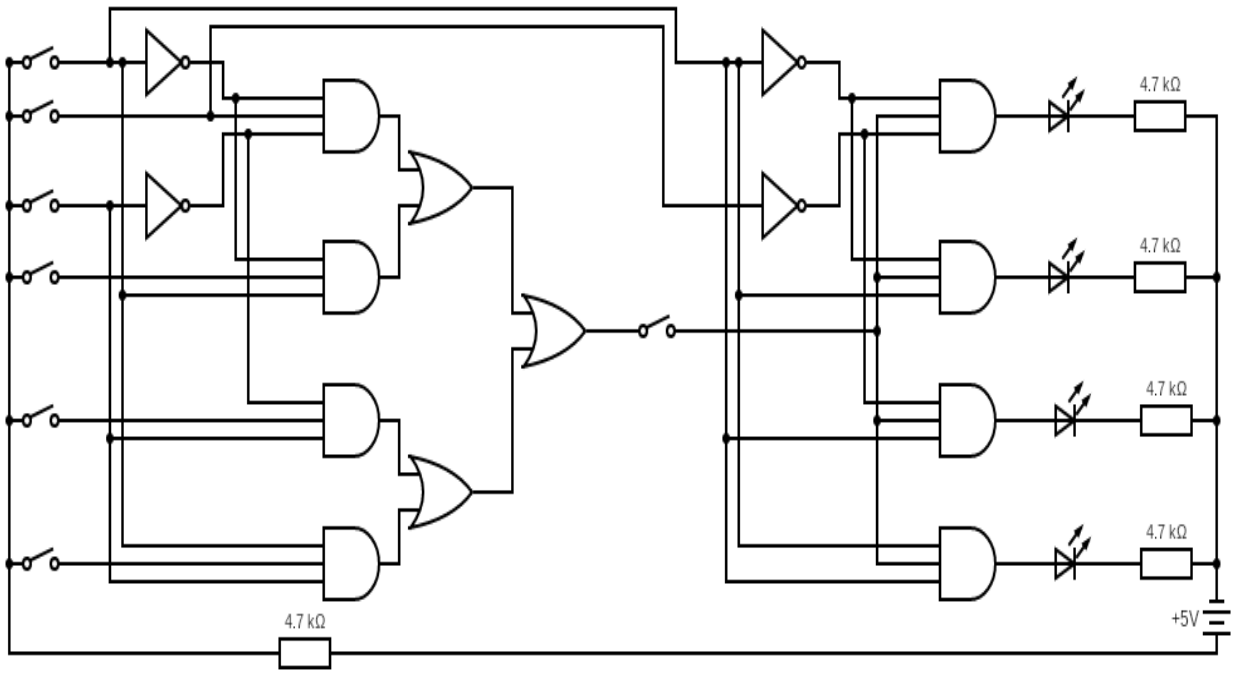
Part C:

Objective: To make Multiplexer-Demultiplexer.

Electronic Component used:

- Not Gate(74HC04)
- 3 input AND Gate(74HC11)
- LEDS
- Switches
- Wires

Reference Circuit:



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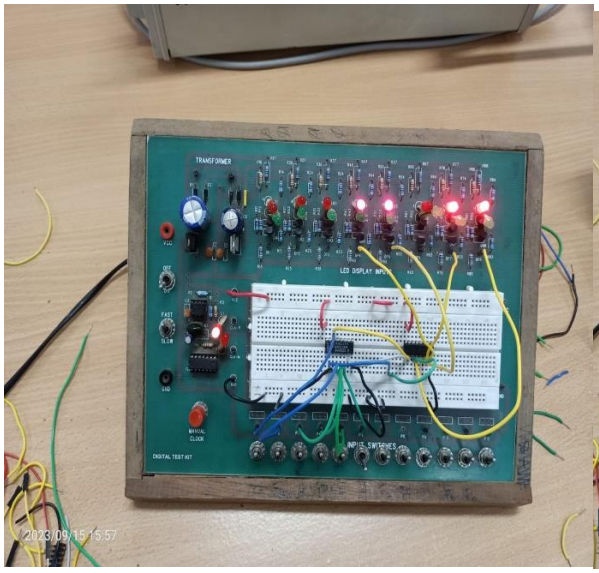
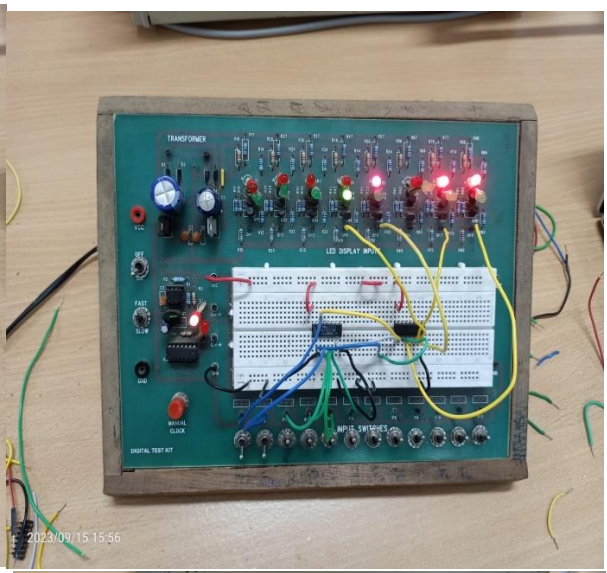
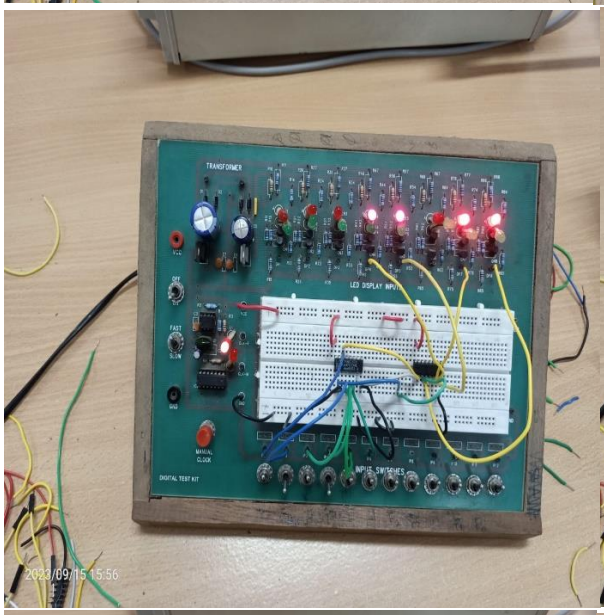
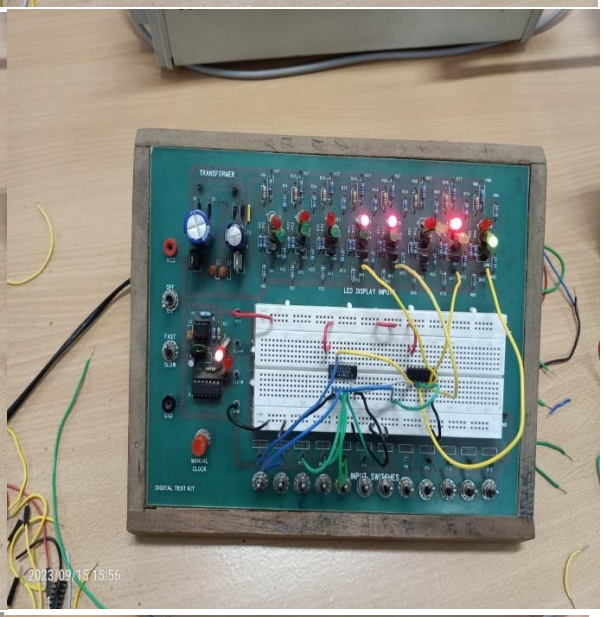
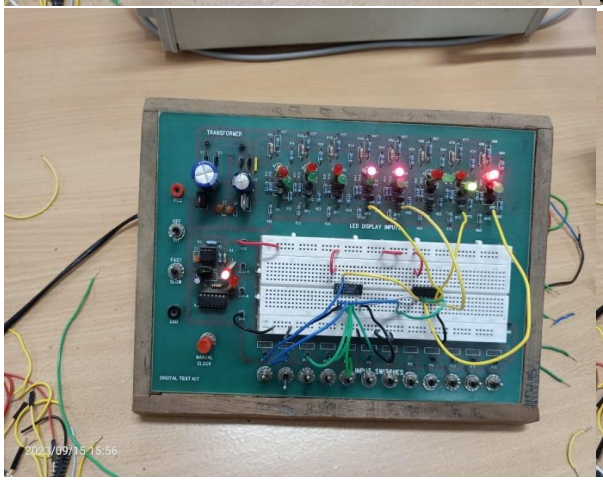
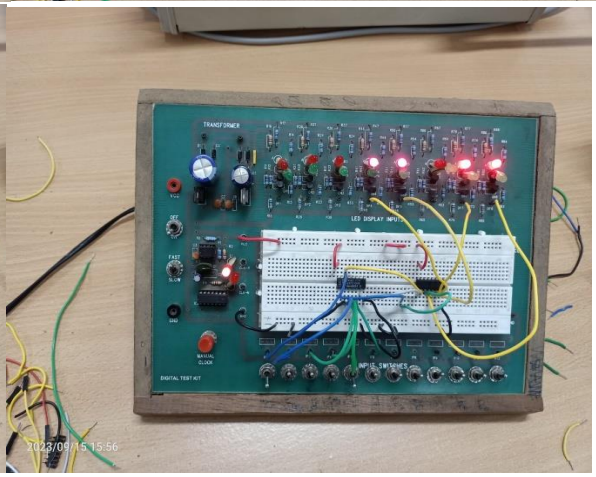

TRANSFORMER
LED DISPLAY INPUT
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:57

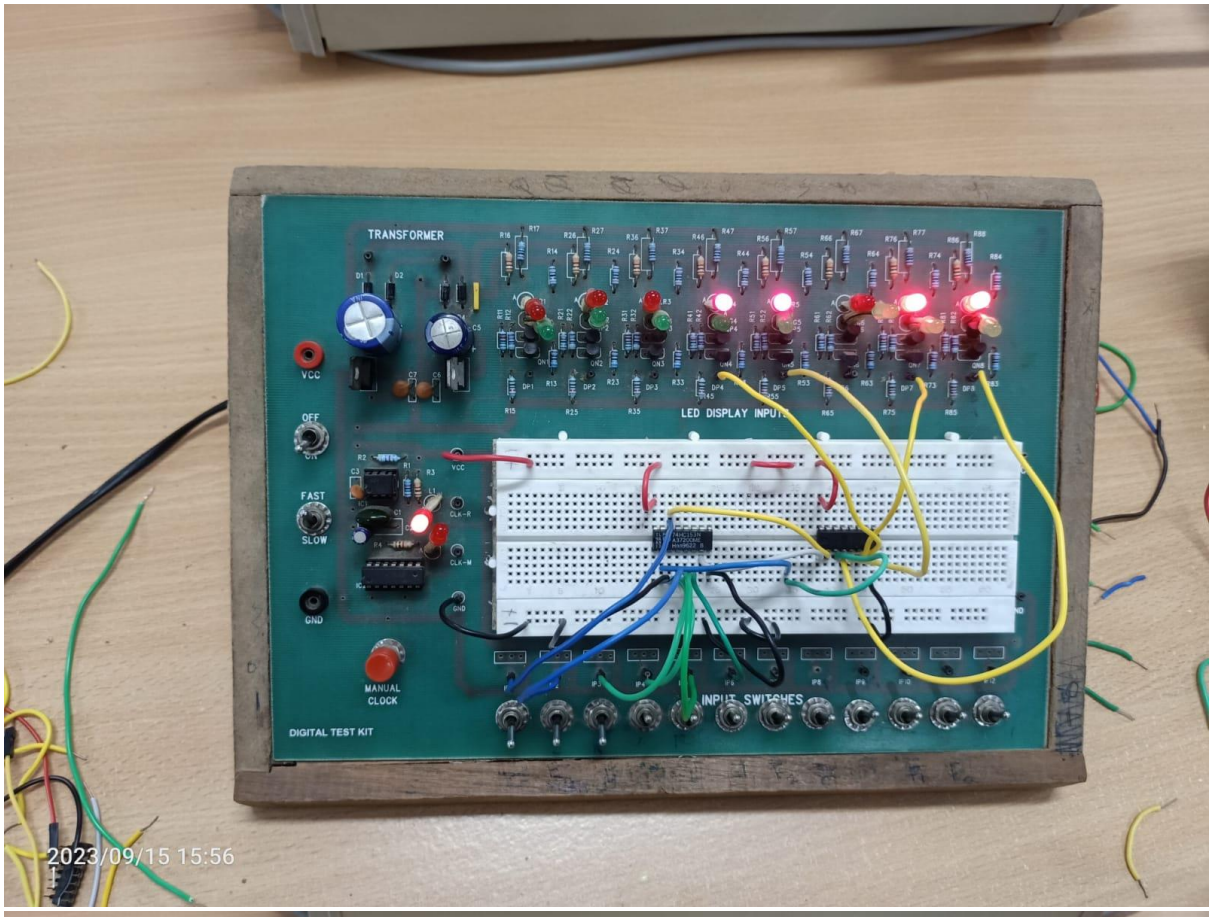

TRANSFORMER
LED DISPLAY INPUT
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:56

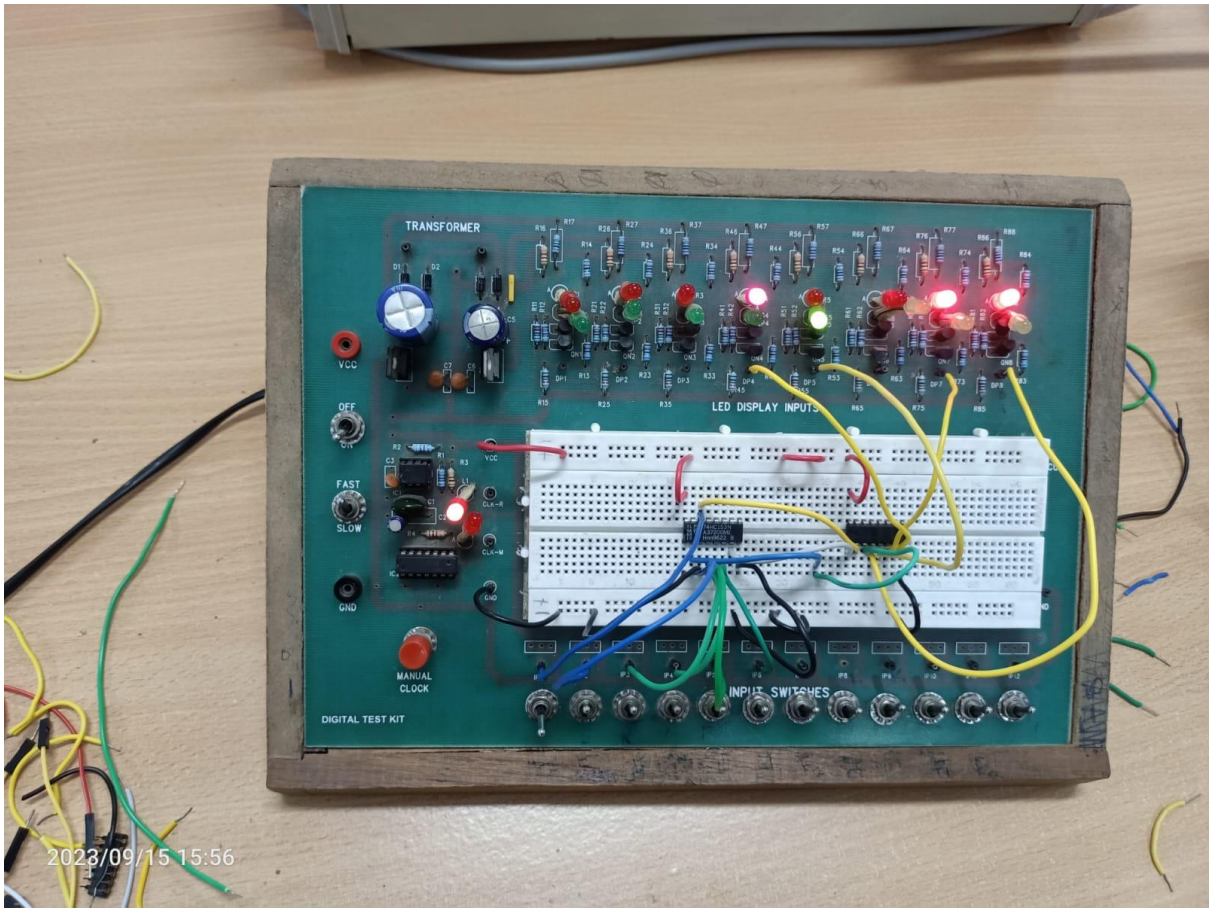

TRANSFORMER
LED DISPLAY INPUT
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:56


TRANSFORMER
LED DISPLAY INPUT
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:56


TRANSFORMER
LED DISPLAY INPUT
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:56


TRANSFORMER
LED DISPLAY INPUT
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:56


TRANSFORMER
VCC
OFF
ON
FAST
SLOW
GND
MANUAL
CLOCK
LED DISPLAY INPUTS
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:56


TRANSFORMER
VCC
OFF
ON
FAST
SLOW
GND
MANUAL
CLOCK
LED DISPLAY INPUTS
INPUT SWITCHES
DIGITAL TEST KIT
2023/09/15 15:56

Procedure:

1. Take MUX and DEMUX Gate.
2. Connect switches and Input to MUX Gate.
3. Take Output of MUX Gate to Input of DEMUX.
4. Connect Output of DEMUX to LEDs.
5. Observe LEDs.

Conclusion:

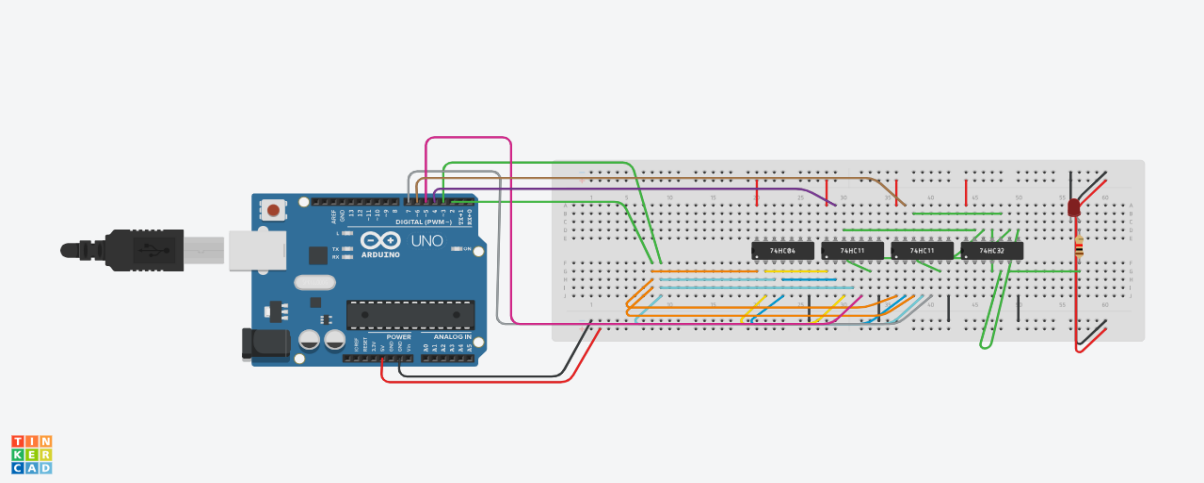
The Bulb only glows when their respective Input Switch is on along with correct Switch Configuration.

S1	S2	I3	I2	I1	I0	Bulb
0	0	0	0	0	1	B1
0	1	0	0	1	0	B2
1	0	0	1	0	0	B3
1	1	1	0	0	0	B4

Tinker CAD Link:

MUX:

https://www.tinkercad.com/things/hDirT0u5hLf-t1-sub/editel?sharecode=5OntJJ_DWrp88Uc-Sip_sI0weoxSq3mv1SUw9eARkZc



DEMUX:

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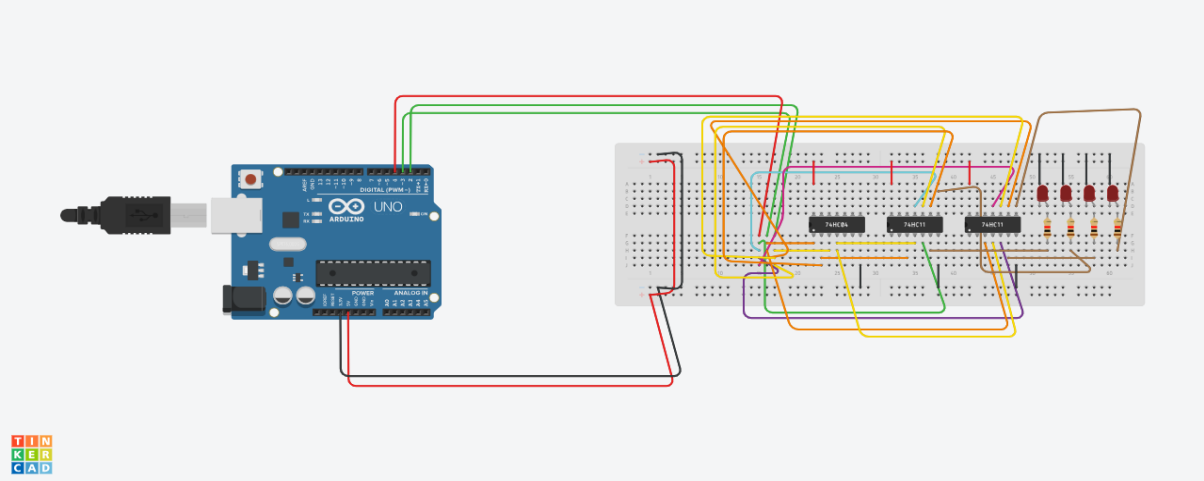
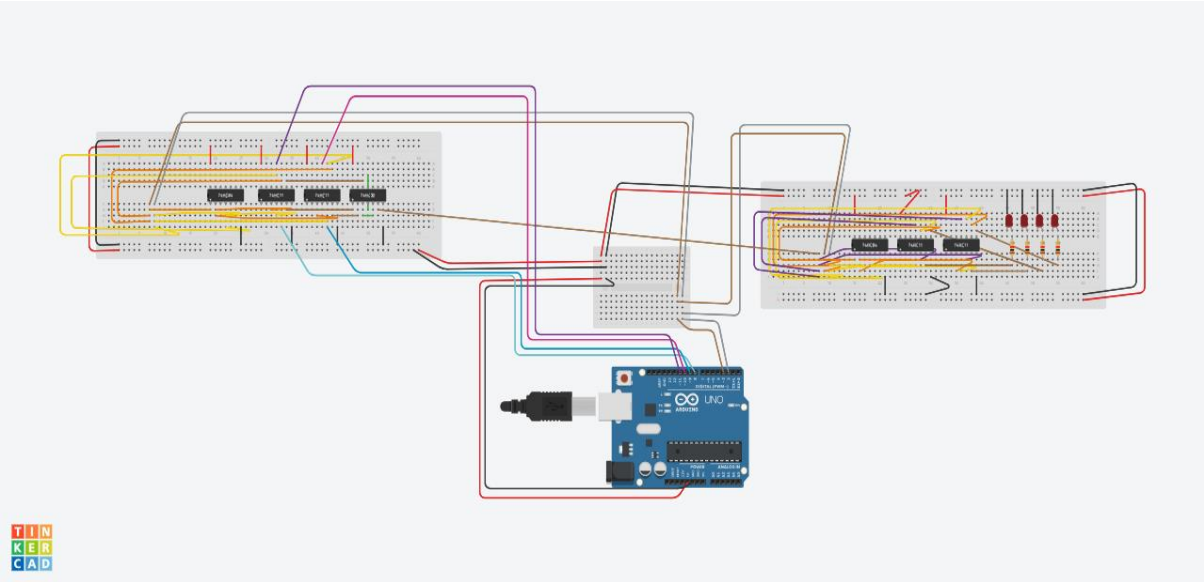


MUX-DEMUX:

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