

Experiment Name: Implementation of 4
variable logic function using 8X1 MUX.
Eg. $F(1, 3, 4, 7, 10, 15)$

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Course: CSE-2112

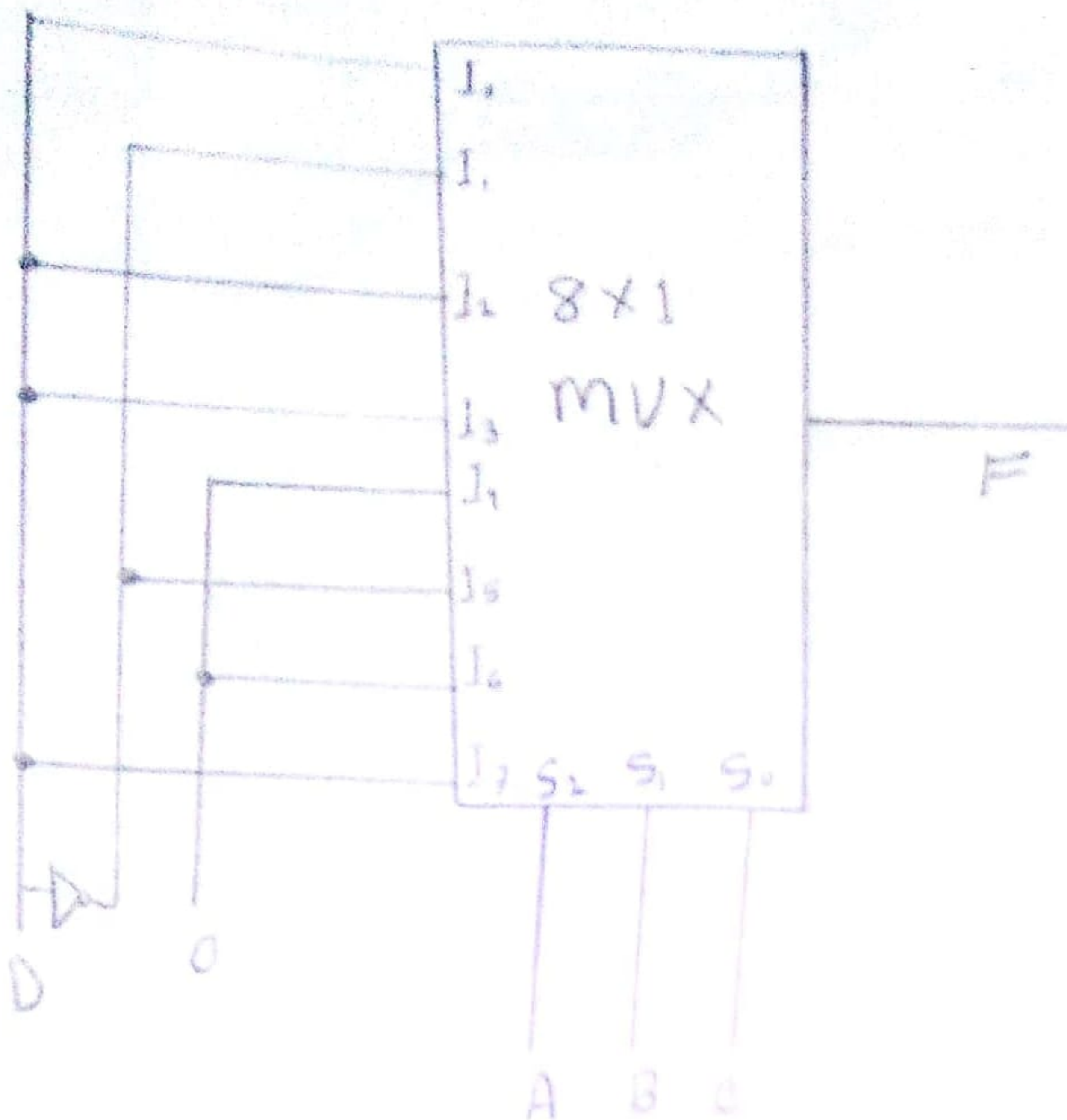
Date : 23-04-2018

Experiment: Implementation of 4 variable logic function using 8X1 MUX. Eg. $F(1, 3, 4, 7, 10, 15)$

Theory: MUX or multiplexer is a digital logic circuit which takes 2^n input and give 1 output. n selector work there to select what input line will work as output line. In this experiment we will implement a logic function using 8X1 MUX.

Instruments: wire, bread-board, power source, Not gate (74LS04) and 8X1 MUX IC (74LS151).

Circuit



Truth Table:

Value	A	B	C	D	F	Output Position	Remark
0	0	0	0	0	0		
1	0	0	0	1	1	$F=D$	I_0 ✓
2	0	0	1	0	0		✓
3	0	0	1	1	1	$F=D$	I_1 ✓
4	0	1	0	0	1		✓
5	0	1	0	1	0	$F=\bar{D}$	I_2 ✓
6	0	1	1	0	0		✓
7	0	1	1	1	1	$F=D$	I_3 ✓
8	1	0	0	0	0		✓
9	1	0	0	1	0	$F=0$	I_4 ✓
10	1	0	1	0	1		✓
11	1	0	1	1	0	$F=\bar{D}$	I_5 ✓
12	1	1	0	0	0		✓
13	1	1	0	1	0	$F=0$	I_6 ✓
14	1	1	1	0	0		✓
15	1	1	1	1	1	$F=D$	I_7 ✓

Result and Discussion: From the circuit we have designed the results we got is same to the results from digital logic. So the circuit and equation and logics are right.

Pre-caution:

1. Connect the circuit when design is complete.
2. Please check the circuit before connecting.
3. Wear shoes in the lab.
4. After finishing experiment switch off the power source.