



Dept. of Computer Science & Engineering

Course Code: CSE-2324

Course Title : Digital Logic Design Lab

Submitted by:

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Semester: 3rd

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SUBMISSION: 17-10-21

Experiment No: 07

Experiment Name:

Implementation boolean expression using 8*1 multiplexer of $F(A,B,C,D)=\sum(0,2,4,5,7,8,12,13,15)$

Required tools:

- IC 74151
- NOT
- Wires
- LED
- Electronic Workbench Software

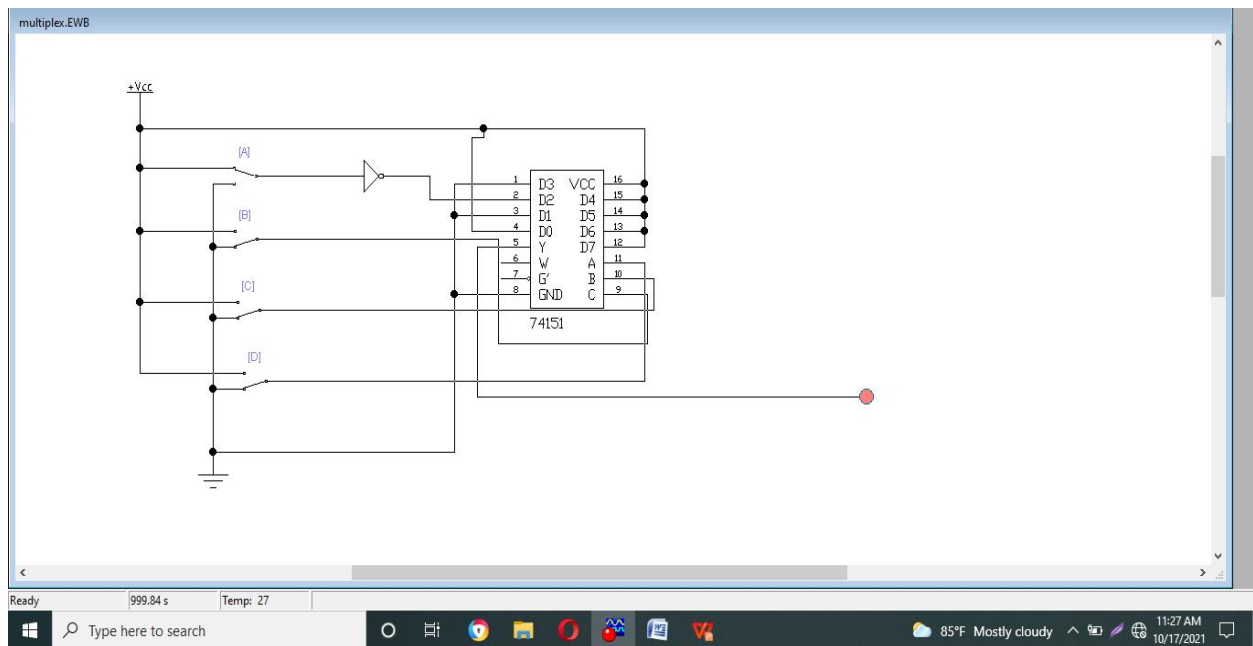
Implementation Table:

D_i	D₀	D₁	D₂	D₃	D₄	D₅	D₆	D₇
A'	<u>0</u>	1	<u>2</u>	3	<u>4</u>	<u>5</u>	6	<u>7</u>
A	<u>8</u>	9	10	11	<u>12</u>	<u>13</u>	14	<u>15</u>
	1	0	A'	0	1	1	0	1

Turth Table:

A	B	C	D	OUTPUT
0	0	0	0	1
0	0	0	1	0
0	0	1	0	1
0	0	1	1	0
0	1	0	0	1
0	1	0	1	1
0	1	1	0	0
0	1	1	1	1
1	0	0	0	1
1	0	0	1	0
1	0	1	0	0
1	0	1	1	0
1	1	0	0	1
1	1	0	1	1
1	1	1	0	0
1	1	1	1	1

IC level diagram:



Result Discussion:

8*1 multiplexer: circuits can designed using Multiplexers (MUX). Standard ICs like 74151(8:1 MUX) are available in market. Combinational logic design using Multiplexer provide many advantages like reduction of IC package count, simplified logic design, no requirement of logic expression simplification in the circuit etc.

Any problem arises:

No.

What Have I learnt:

Computers need a way to manipulate those 1s and 0s, so that they can eventually do more complicated operations like calculating the 50th digit of π . Computers use logic gates to transform the 1s and 0s from input wires. A logic gate accepts inputs and then outputs a result based on their state.