EC0319 : Digital Electronics Date:_____

PRACTICAL-7

AIM: To Verify 1×4 Demultiplexer using Truth Table and Logic Diagram

- To verify 1 x 4 Demultiplexer using truth table and logic diagram :
- A 1 x 4 demultiplexer is a digital logic device that takes a single input and routes it to one of several outputs based on the value of the control signals. To verify the functionality of a 1 x 4 demultiplexer, you can use a truth table and a logic diagram.

ii). Boolean Expression :-

$\bar{S}_1\bar{S}_0 A + \bar{S}_1 S_0 A + S_1\bar{S}_0 A + S_1 S_0 A$

iii). Truth Table :-

INPUTS		OUTPUTS			
S_1	S_0	Y_3	Y_2	Y_1	Y_0
0	0	0	0	0	A
0	1	0	0	A	0
1	0	0	A	0	0
1	1	A	0	0	0

The Logical expression of the term Y is as follows :

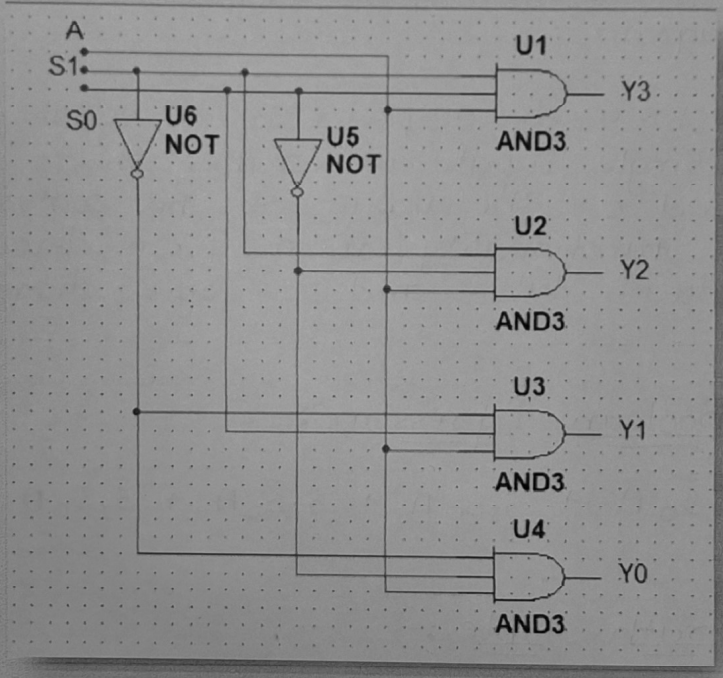
$Y_0 = \bar{S}_1\bar{S}_0 A$
$Y_1 = \bar{S}_1 S_0 A$
$Y_2 = S_1\bar{S}_0 A$
$Y_3 = S_1 S_0 A$

iii. Logic circuit Diagram :-

- Logic diagram components we will use are :

i). AND gates
ii). NOT gates

Here, we will use four AND gates and two NOT gates.



Conclusion :-

In these experiment, we had done a verification of a 1-to-4 or 1 x 4 demultiplexer using truth tables and logic diagrams which provides a clear understanding of its functionality and operation.