EXPERIMENT- 5

Objective: To study the one input two output demultiplexer.

Resources Required: one input two output demultiplexer trainer kit

Theory:

De- multiplexer:

A De-multiplexer is a combinational circuit that has only 1 input line and 2N output lines. Simply, the multiplexer is a single-input and multi-output combinational circuit. The information is received from the single input lines and directed to the output line. On the basis of the values of the selection lines, the input will be connected to one of these outputs. De-multiplexer is opposite to the multiplexer.

Unlike encoder and decoder, there are n selection lines and 2n outputs. So, there is a total of 2n possible combinations of inputs. De-multiplexer is also treated as **De-mux**.

1×2 De-multiplexer:

In the 1 to 2 De-multiplexer, there are only two outputs, i.e., Y0, and Y1, 1 selection lines, i.e., S0, and single input, i.e., A. On the basis of the selection value, the input will be connected to one of the outputs. The block diagram and the truth table of the 1×2 multiplexer are given below.
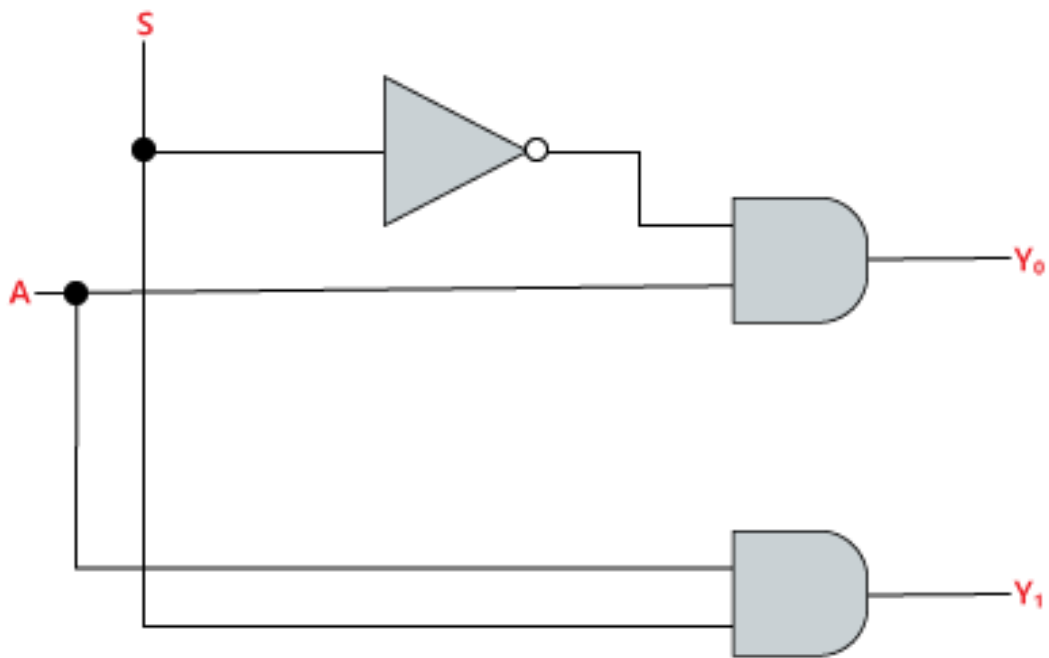
Block Diagram:
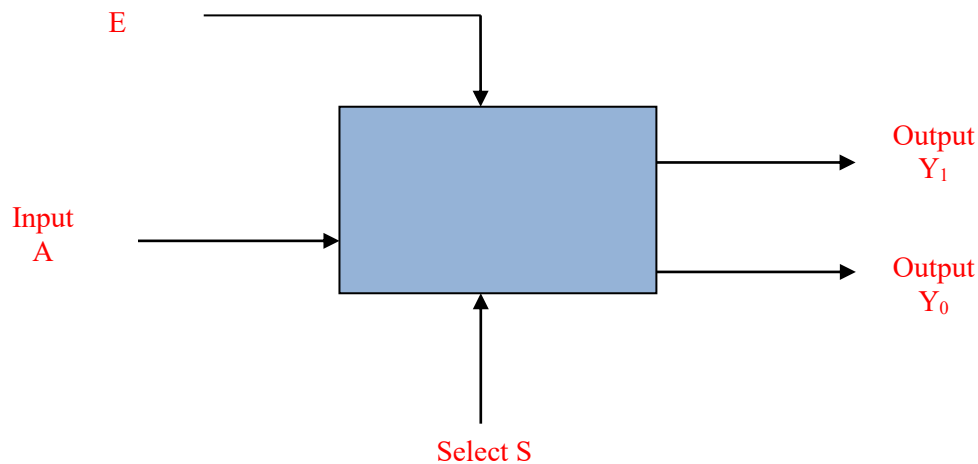
Truth Table:

INPUT	OUTPUT	
S_0	Y_1	Y_0
0	0	A
1	A	0

The logical expression of the term Y is as follows:

Y0=S0'.A

Y1=S0.A

Logical circuit of the above expressions is given below:

RESULT: one input two output demultiplexer have been studied and verified.