**EXPERIMENT 08**

**IMPLEMENTATION OF MULTIPLEXERS AND DEMULTIPLEXERS**

***Objectives:***

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***Equipment Required:***

***Background Theory***

A multiplexer is a combinational circuit that selects binary information from one of many input lines and directs the information to a single output line. The selection of a particular input line is controlled by a set of input variables, called selection input. Normally, there are 2n input lines and n selection inputs whose bit combination determines which input is selected.

A de multiplexer is doing the opposite function of multiplexer. It takes input on a single input line and the select lines determines one of the 2n output lines and the input contents is visible on that particular output.

***Symbol used for multiplexer:***

**Multiplexer (4-to-1)**

***Truth Table:***

|  |  |  |
| --- | --- | --- |
| ***S0*** | ***S1*** | ***Y*** |
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***Boolean Equations:***

***Logic Diagram***

**Multiplexer (8-to-1)**

***Truth Table:***

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| --- | --- | --- | --- |
| ***S0*** | ***S1*** | ***S2*** | ***Y*** |
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***Boolean Equation:***

***Logic Diagram***

**DeMultiplexer (1-to-4)**

***Truth Table:***

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| --- | --- | --- | --- | --- | --- |
| ***S0*** | ***S1*** | ***Y0*** | ***Y1*** | ***Y2*** | ***Y3*** |
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***Boolean Equation:***

***Logic Diagram***

**DeMultiplexer (1-to-8)**

***Truth Table:***

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***S0*** | ***S1*** | ***S2*** | ***Y0*** | ***Y1*** | ***Y2*** | ***Y3*** | ***Y4*** | ***Y5*** | ***Y6*** | ***Y7*** |
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***Boolean Equation:***

***Logic Diagram***

***Procedure:***

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***Observations and Conclusions:***

***Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Marks Obtained: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Instructor’s Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­­­\_\_\_\_***