**Lab 7**

**To Demonstrate the Working of a Digital Comparator**

***Note: You may draw all the logic diagrams with hand and paste the pictures here or on logicly software with your name, roll number & section mentioned in your workspace. Make sure that all of your connections are clearly visible and distinguishable. In logicly, use “text” label to point out/show all your inputs & outputs***

**Tasks**

1. **Construct a logic circuit for a 2 bit magnitude comparator Also write the Boolean expression for output(s). Simulate your circuit in logicly software.**

**Hint: Take 2 bits of each input i.e. A1A0 & B1B0**

2-Bit Magnitude Comparator

1. Truth Table
2. Boolean Expression (Simplified)
3. Logic Diagram
4. Software Simulation (Show here your results for each combination that gives a high output)
5. **Construct a logic circuit for a 4-bit magnitude comparator Also write the Boolean expression for output(s). Simulate your circuit in logicaly software.**

**You may take help from the logic diagram available on the Internet and compare it with yours for better understanding.**

**The logic circuit should be hand drawn (neatly) with all necessary labels (inputs/outputs).**

4-Bit Magnitude Comparator

1. Truth Table
2. Boolean Expression
3. Logic Diagram
4. Software Simulation (Show here your results for each combination that gives a high output)