SLIIT UNI
THE KNOWLEDGE UNIVERSITY

Faculty of Computing

Year 1 Semester 1 (2024)

IIT1140 – Fundamental of Computing Lab Sheet 05

Objectives:

1. *To understand the behavior of combinational and sequential circuits.*
2. *To understand the design and the operation of comparator circuits and flip-flops.*

Activity 01:

a) Consider the truth table given below. This truth table is for a 2- bit comparator circuit.

A	B	A=B	A>B	A<B
0	0	1	0	0
0	1	0	0	1
1	0	0	1	0
1	1	1	0	0

b) Design a circuit for the above truth table in MM Logic. Use switches, wires and LED wherever needed.

c) Test your circuit for different inputs. Copy your answer to the submission file. Draw the circuit for P XOR Q and write the truth table for them.

Activity 02:

a) Consider the circuit diagram given in figure 5.1 and answer the questions given below.

1. Design the circuit given in the figure using MM Logic.
2. Develop the truth table for the circuit.
3. Name the purpose of this circuit.

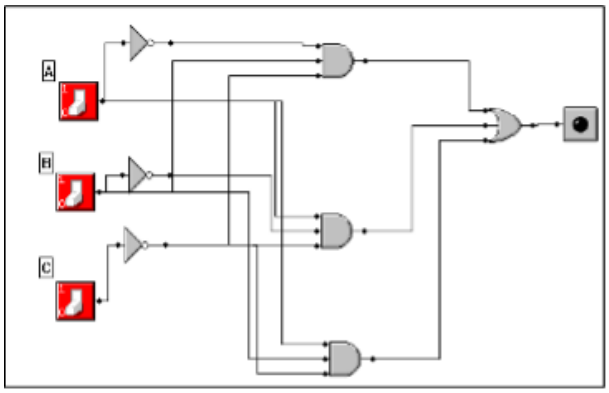

Figure 5.1

Activity 03:

The circuit diagram of SR latch is given in figure 5.2.

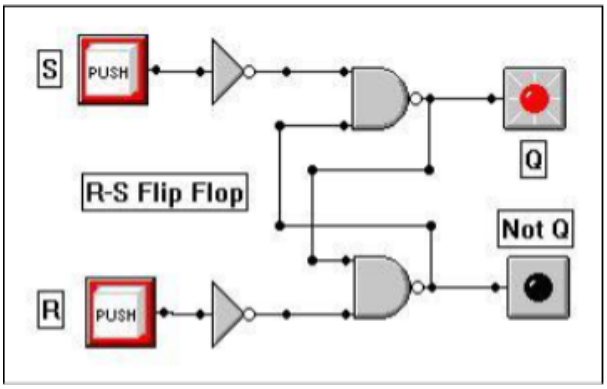

Figure 5.2

a) Design the circuit using MM Logic and observe its behavior.

b) Design a circuit to convert this latch to a flip flop and observe its behavior. Use the flip flop icon in figure 5.3 for the circuit.

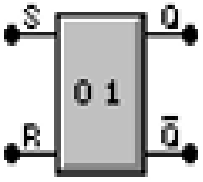

Figure 5.3