Ayush Patel

# Batch 13 class A

Enrolment: CS32

EXPERIMENT NO:-7

> **AIM:** To design and test   Magnitude comparator.
> **APPARATUS:** Magnitude comparator Trainer, jumpers IC's.

> **THEORY:**

The 1 bit magnitude comparator is a combinational circuit that compares magnitude of two 4 bit numbers to make either of its O/P (A>B, A=B, A<B) at logic high level.

Let A=A0   & B= B0   are 1-bit number respectively. The 1-bit magnitude comparator compares magnitudes as per following expressions for outputs.

Let xi will be at logic high level when Ai & Bi are at equal level. (i= 0, 1)

> CIRCUIT DIAGRAM OF 2-BIT MAGNITUDE COMPARATOR:
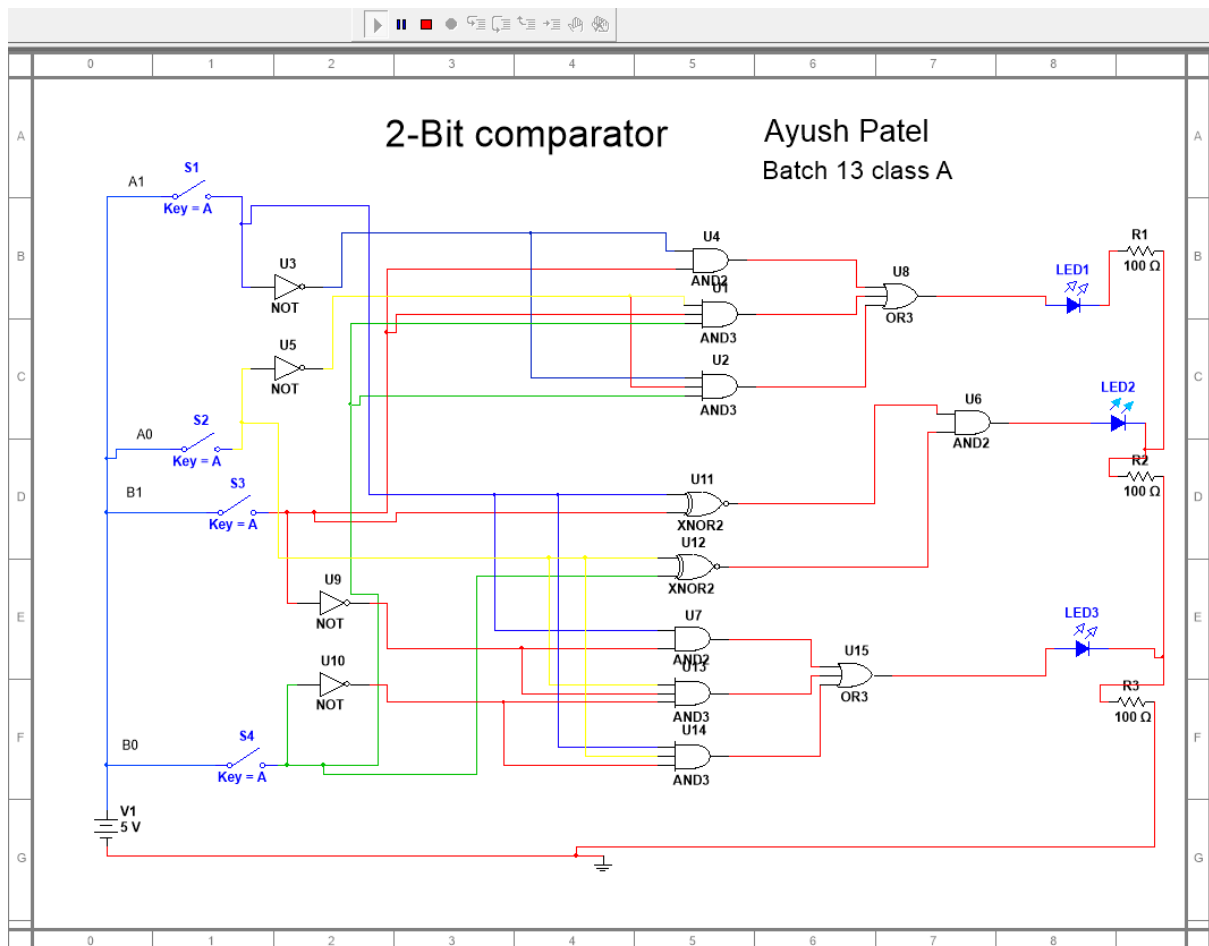
➤ TRUTH TABLE

A1	A0	B1	B0	A>B	A=B	A<B
0	0	0	0	0	1	0
0	0	0	1	0	0	1
0	0	1	0	0	0	1
0	0	1	1	0	0	1
0	1	0	0	1	0	0
0	1	0	1	0	1	0
0	1	1	0	0	0	1
0	1	1	1	0	0	1
1	0	0	0	1	0	0
1	0	0	1	1	0	0
1	0	1	0	0	1	0
1	0	1	1	0	0	1
1	1	0	0	1	0	0
1	1	0	1	1	0	0
1	1	1	0	1	0	0
1	1	1	1	0	1	0

➤ **PROCEDURE:**

1. Connect VCC pin to +5V supply.
2. Connect output signals A>B, A<B and A=B to output LED indicators.
3. Apply any digital input at A-inputs by high/low data switches.
4. Apply any digital input at B-inputs by high/low data switches.
5. Observe output at O/P LED indicators.
6. Repeat above procedure for different A & B inputs & observe the outputs

➤ **CONCLUSION:**

A 2-bit comparator compares two binary numbers, each of two bits and produces their relation such as one number is equal or greater than or less than the other.