EEE Digital Assignment

Design of Half Adder circuit

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Slot: L10+L11

Batch: 10(B-Tech Computer Science (Core))

Design of Half Adder circuits

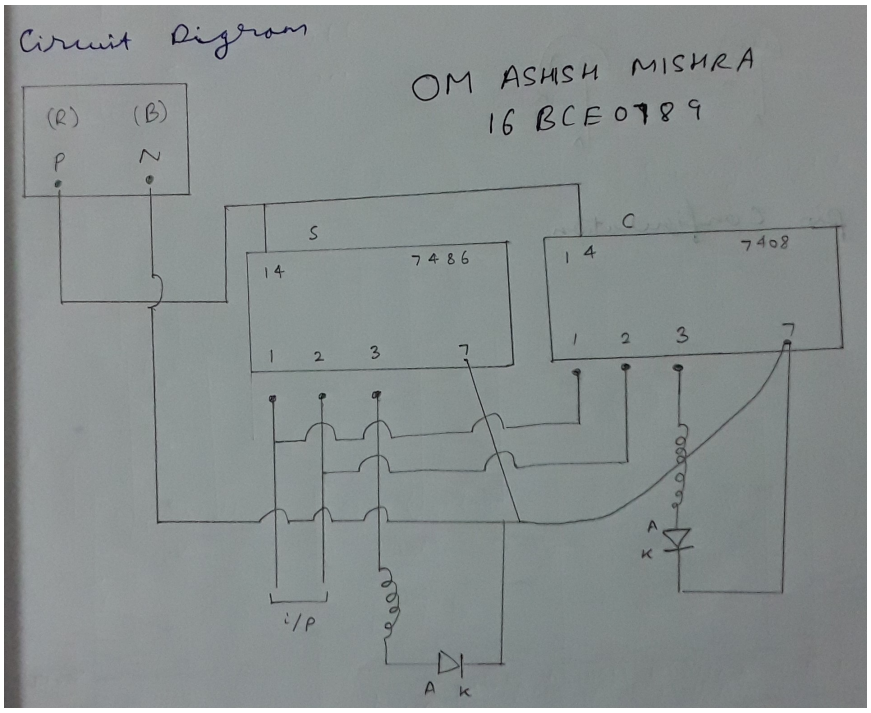
AIM:

Design a Half adder circuit using logic gates.

APPARATUS REQUIRED:

- Bread Broad
- Connecting wires
- LED
- Voltage source
- AND GATE(7408)
- XOR GATE(7486)

CIRCUIT DIAGRAMS:



Connection diagram

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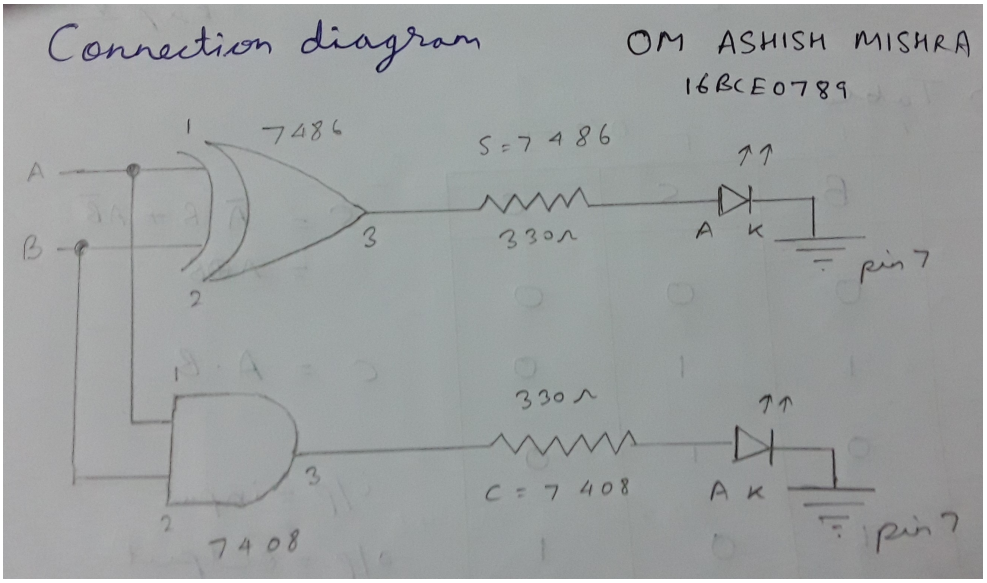
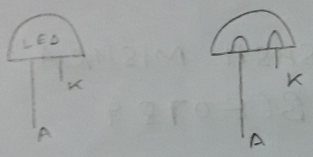
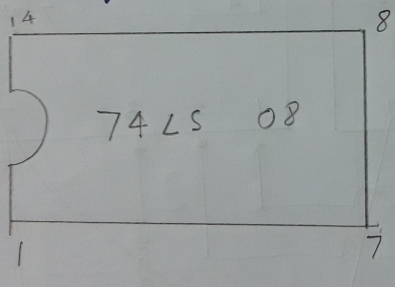




pin configuration



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PICTURE OF BREADBOARD CONNECTION:

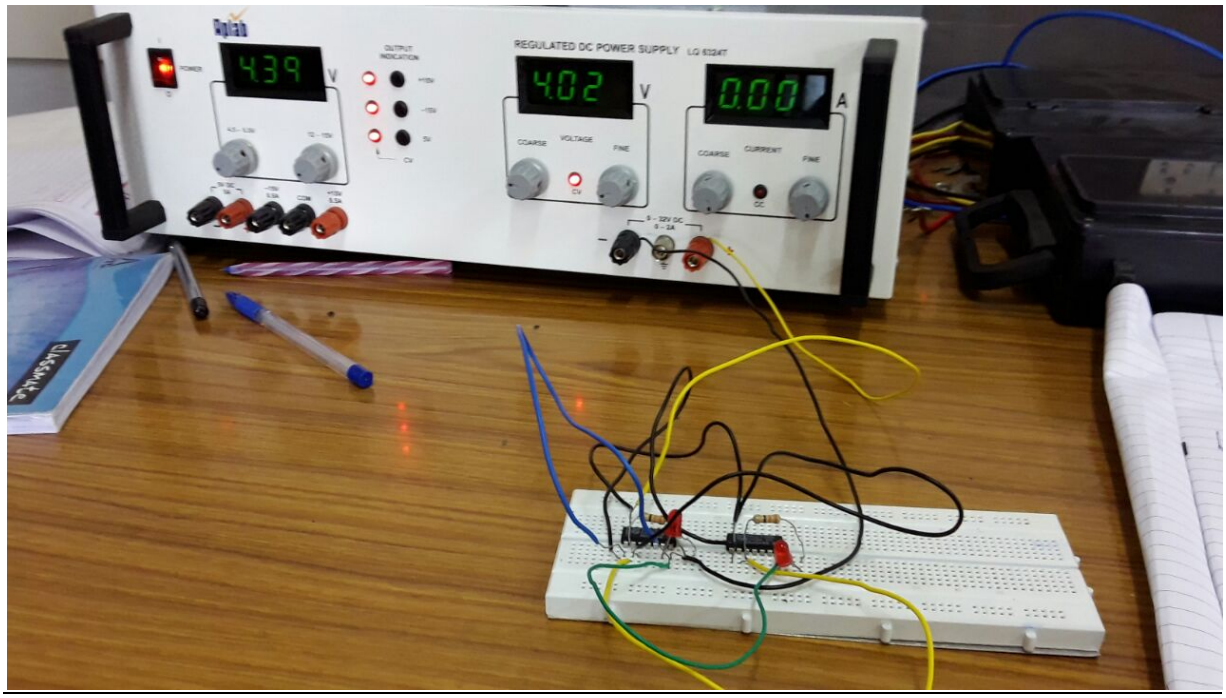

Fig: The LED is not glowing.(The Half Adder)

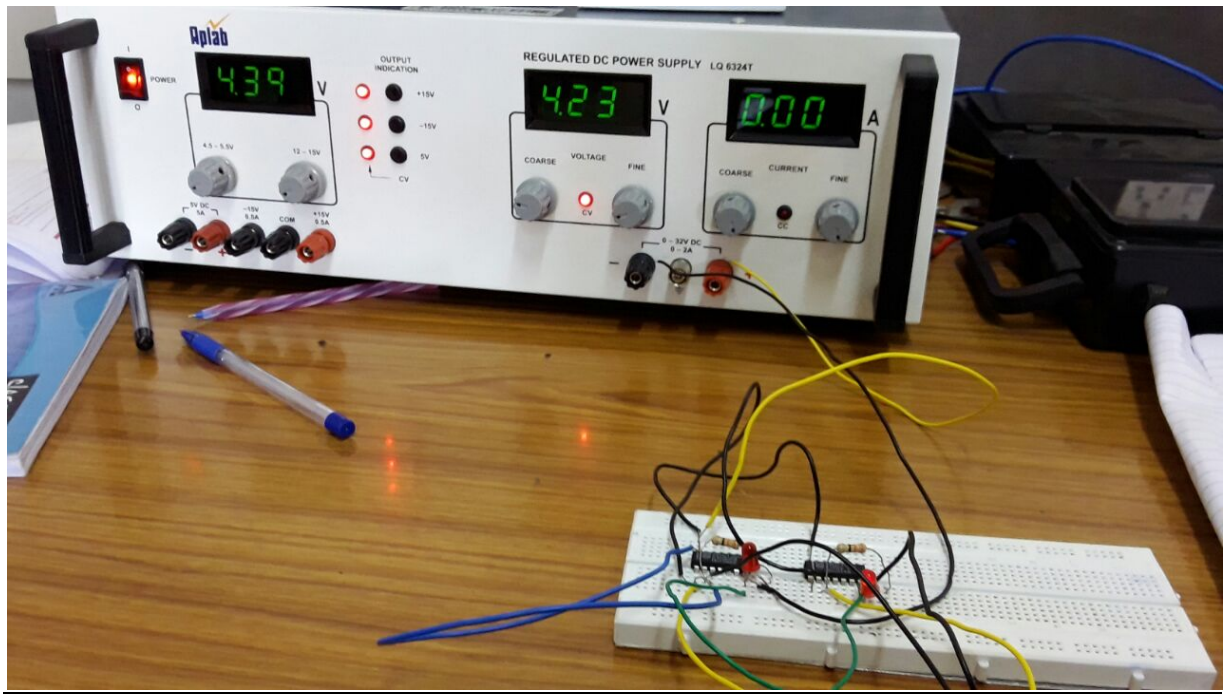

Fig: The LED is glowing.

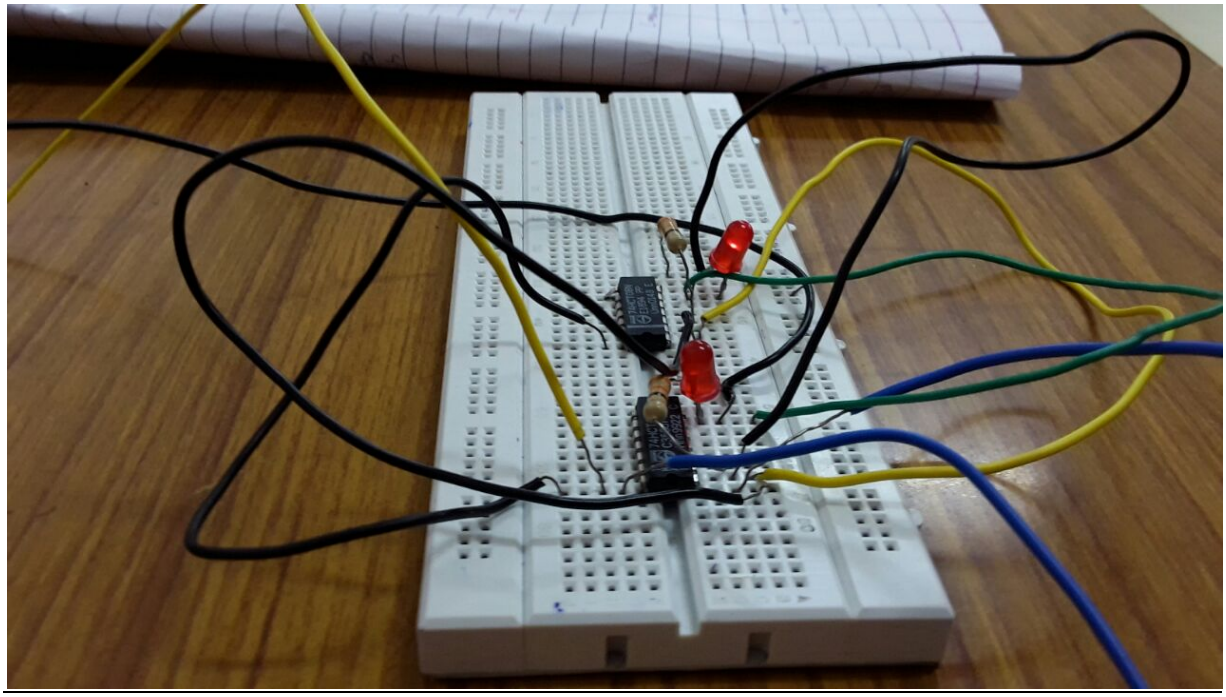

Fig: The glowing LED

MANUAL CALCULATION(S) / ROUGH WORK:

No Manual Calculation(S) / Rough Work is done for this experiment.

TABULATIONS:

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Truth Table

i/p A	i/p B	o/p S	o/p C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

$S = \bar{A} \cdot B + A\bar{B}$
$= A \oplus B$

$C = A \cdot B$

i/p = input
o/p = output

INFERENCE / RESULT:

(i) The Half Adder can add only two input bits (A and B) and has nothing to do with the carry if there is any (1 or 0) in the input. So if the input to a half adder have a carry, then it will be neglected it and adds only the A and B bits.

(ii) Binary addition process is not complete and that's why it is called a half adder.