Date 8/9/21

Expt. No. 3

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Experiment - 3

★ **Aim :-** Realization of all basic gates using NOR gate.

★ **Apparatus :-** Bread Board, NOR gate, wires.

★ **Theory :-** A NOR gate is formed by an OR gate followed by a NOT gate. the output of OR gate is fed as input to the NOT gate.
This gate has minimum of two inputs, output is always one.
We can realize all basic gates using NOR gate.

NOT gate :- $Y = (A + A)' = A'$

OR gate :- $Y = (\overline{A+B}) = A+B$

AND gate :- $Y = [(A'+B')'] = A \cdot B$

★ **Procedure :-**

1. Connect the trainer kit to power supply.
2. Connect the NOR gate for any of the logic function to be realized.
3. Connect the input of the first stage to logic source and output of last stage to logic indicator.
4. Apply various input combinations and observe output for each type.
5. Verify the Truth table for each input-output combination.
6. Repeat the process for all logic functions.
7. Switch off Ac supply.

★ **Result :-** We implemented and verified logic gates NOT, AND, OR, NAND, EX-OR and EX-NOR using NOR gate.

Teacher's Signature _____

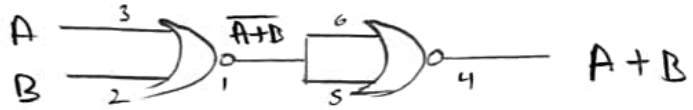
Date

Expt. No.

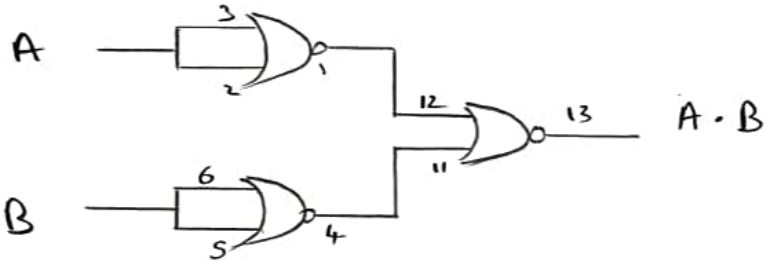
★ Discussion:- The boolean NOR-function provides a simple yet vital component of logic circuits. ~~weather~~ whether used as control glue logic or routing simplification. The key applications include cell phones, computing, STB, LCD TV, individual controllers etc.

★ Not Gate :-

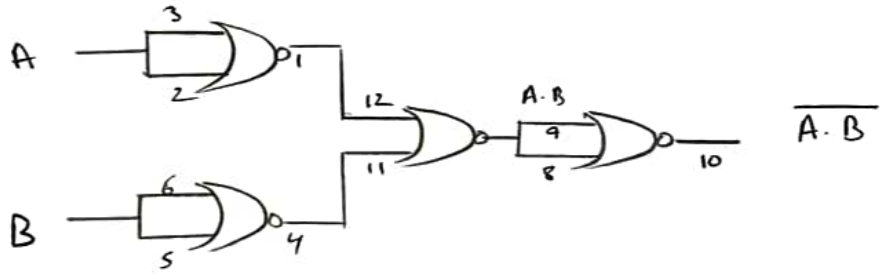
★ OR Gate :-



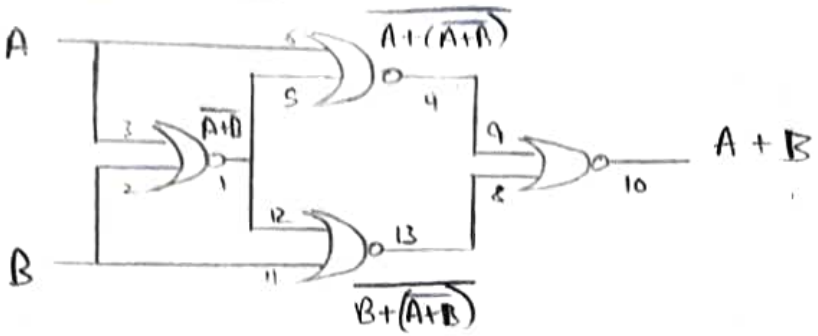
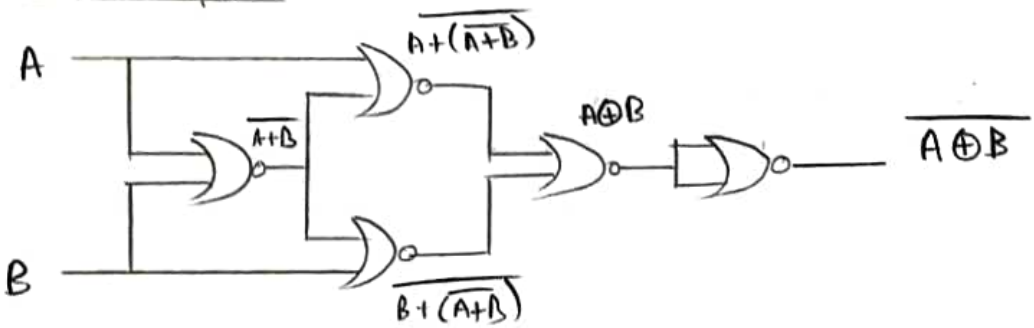
★ AND Gate :-



★ NAND Gate :-



★ XOR Gate :-



★ XNOR Gate :-