BOOLEAN ALGEBRA

AND LAWS

OR + LAWS

DE MORGAN’S THEOREM

NOTE THIS

PROPERTIES OF BOOLEAN ALGEBRA

Commutative Law:

Associative Law

Distributive Law

QUESTIONS

1.

Solution

2.

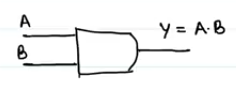
That’s the end of that question

3.

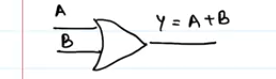
LOGIC GATES

Basic Gates → And, Or, Not

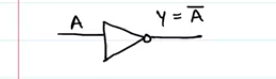
AND.



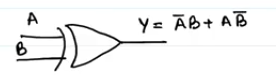
OR



NOT



EXOR / XOR → Exclusive Or

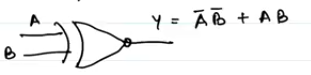


You’ll notice that when you make the truth table of an exor gate, you’ll notice that

If inputs are same, output = 0

If inputs are different, output = 1

EXNOR, XNOR. This is the opposite of the exor gate



On solving with De Morgan’s theorem, you’ll get

For the truth that if both inputs are the same, the output will be 1

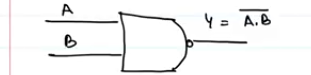
If the inputs are not the same, output is 0.

UNIVERSAL GATES

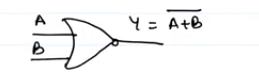
These are the NAND and NOR gates.

These are called universal gates because they can be used to construct any other gate as will be seen below

NAND GATE

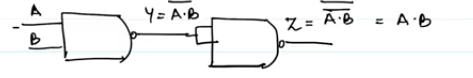


NOR GATE

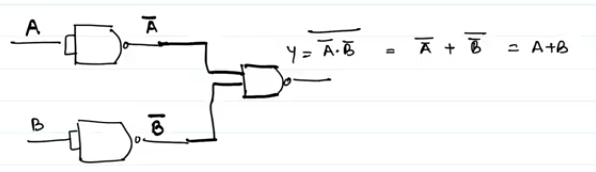


CONSTRUCTION OF GATES USING NAND GATE

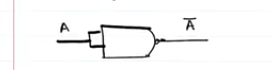
AND GATE



OR GATE BY NAND GATE

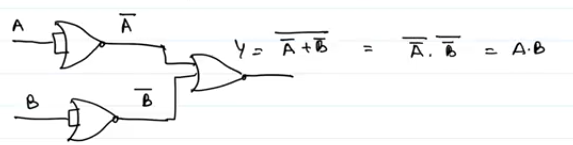


NOT GATE BY NAND GATE

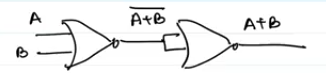


CONSTRUCTING THE GATES USING THE NOR GATE

AND GATE BY NOR GATE



OR GATE WITH NOR GATE



NOT GATE WITH NOR GATE



So those are the gates and solvings