12-April-2023 (Third class)

Topics :-

1) arithematic and logic gates
2) exclusive 'OR' and 'NOR' gate
3) families logic gates
4) Boolean algebra
5) combinational circuit

EXCLUSIVE OR GATE

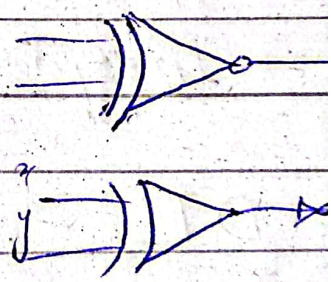
- It is similar as OR gate

- It can have an abitrary number of inputs and its outputs value is "1" if and only if exactly one input is 1 (& thus others "0")

x	y	z
0	0	0
0	1	1
1	0	1
1	1	0

EXCLUSIVE NOR GATE

x	y	z
0	0	1
0	1	0
1	0	0
1	1	1



FAMILIES LOGIC GATES :-

1) Diode logic (AND & OR logic function

→ Diode act as logical switch.
→ Easily passing an electrical current in one direction but not other.
→ They can not perform a NOT operator
→ So their use fulness is quite limi

2) RTL (Resistor-Transistor logic)

→ Use Transistors to combine multiple inputs signals.
→ It can also amplify & invert. (NO
→ Inexpensive and simple.

3) DTL (diode transistor logic
4) TTL (transistor transistor
5) ECL (Emitter coupled logic)
→ known as current mode logic (

6) CMOS Logic (complementary metal oxid semiconductor

BOOLEAN ALGEBRA

- An algebric structure defined on a set of elements "B" together with two Binary operator (+, •) multiplication

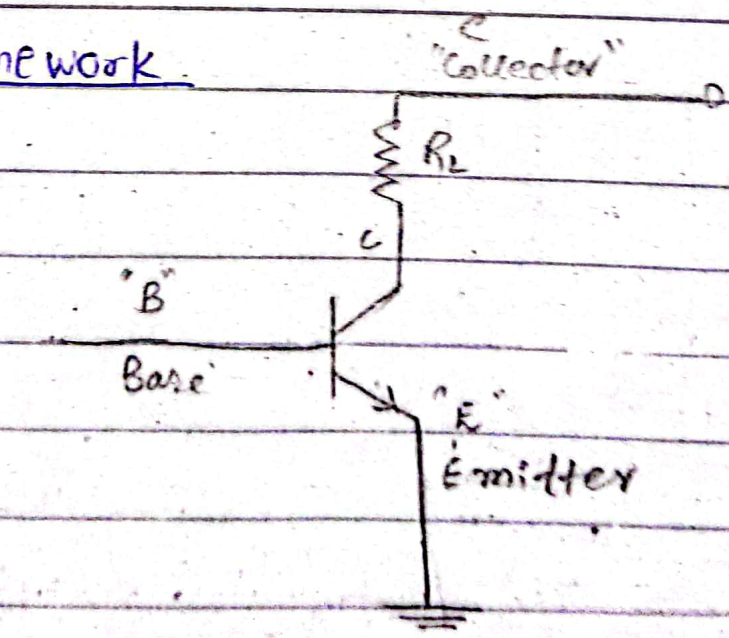
symbols	
OR	+
AND	•
NOT	a`

Boolean laws simplify complex calculations.

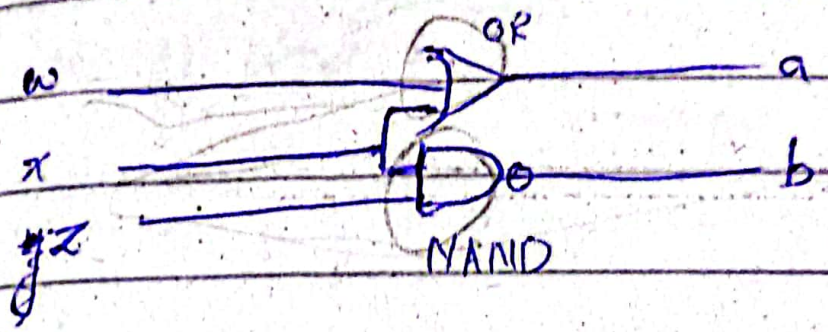
ASSIGNMENT 03

distributive laws of Bolean Algebra. i.e.
• Commulative • distributive • Identity
with truth tables.

Homework



COMBINATIONAL CIRCUIT



w	x	z	a	b
0	0	0	0	1
0	0	1	0	1
0	1	0	1	1
0	1	1	1	0
1	0	0	1	1
1	0	1	1	1
1	1	0	1	1
1	1	1	1	0

Two types of Combinational Circuit.

1) Existing Circuit.
2) Specifying Circuit.