Date 17/10/2023 or Wednesday (sixth class) Pg # 19

ADDERS:-

A digital circuit used for addition of numbers. There are 2 types of adders

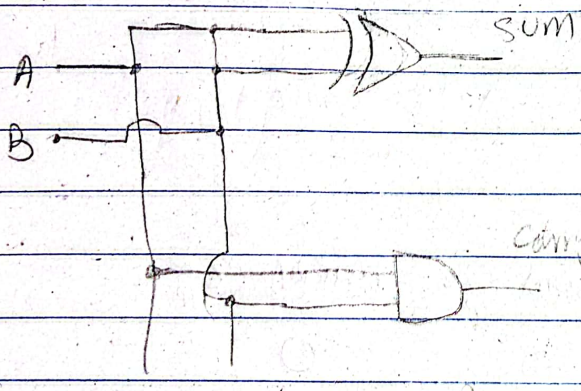
→ Half Adder.
→ Full Adder.

1) HALF ADDER:-

→ Add two bits
*) Produces a sum & carry

→ PROBLEM:- Can not use it to build larger inputs.

→ $\boxed{Sum = A.B + A.B'}$



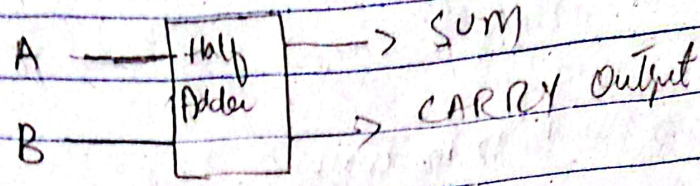
TRUTHTABLE (1ST)

A	B	C (OP)
0	0	0
0	1	1
1	0	1
1	1	0

TRUTHTABLE (2nd)

A	B	Sum	CARRY (OP)
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

BY BLOCK DIAGRAM:-



2) FULL ADDER:-

→ Adds three 1-bit values to like half adder, produces a sum & carry

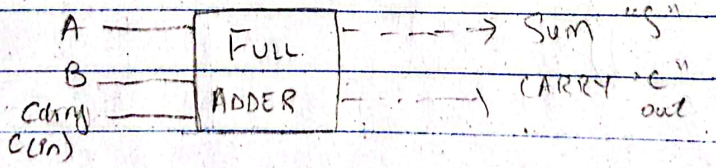
→ SIMPLE TECHNIQUE :-

(*) To connect "Cout" of on adder to the next.

*) This is known as "Ripple Carry Adder".

REPRESENTATION:-

i) BY BLOCK DIAGRAM:-



ii) BY TRUT-TABLE:-

A	B	CARRY IN "C in"	Sum "S" o/p	CARRY "C o/p"
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

iii) BY GRAPHICAL REPRESENTATION