Practical-3

Design and verifya halffulladder.

Aim :To design and construct halfadder, full adder, circuitsand verifythe truthtableusing logic gates.

Theory :

HALF ADDER :

A halfadder has two inputs for the two bitsto be added and two outputs one from the sum 's' and other from the carry 'c' into the higher adder position. Above circuitiscalledas a carry signal from the additionof the less significantbitssum from the X-OR Gate the carry out from the AND gate.

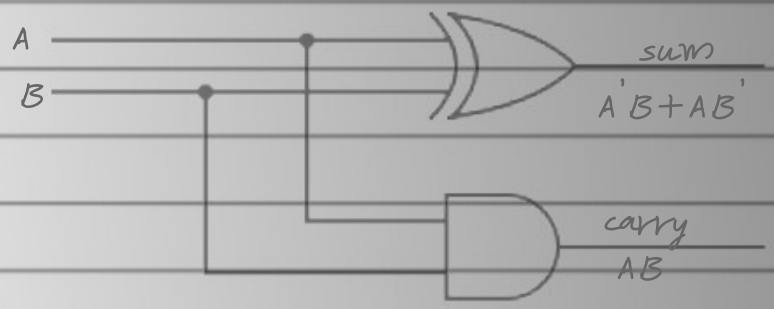
FULL ADDER :

A fulladder iscombinational circuitthat forms the arithmeticsum of input; itconsists of three input and outputs. A fulladder is

useful to add three bitsat a time but a half adder cannot do so. In fulladder sum output willbe taken from X-OR gate, carry output will be taken from OR Gate.

Logic Diagram :

Half Adder



Truth table :

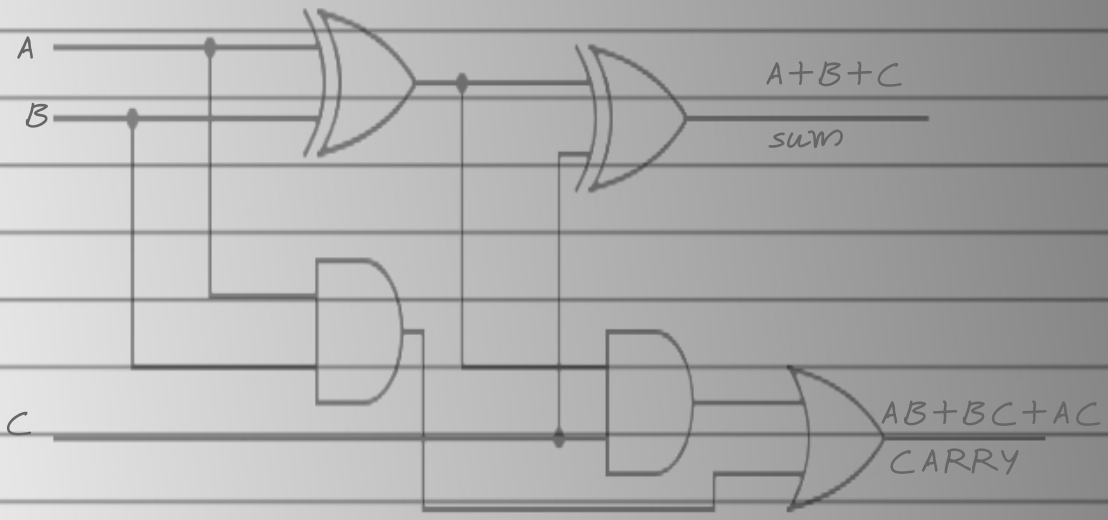
Truth Table

A	B	Carry	Sum
0	0	0	0
0	1	0	1
1	0	0	1
1	1	1	

0

Full Adder

fulladder using two halfadder



Truth table

A	B	C	Carry	Sum
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	1	0
1	0	0	0	1
1	0	1	1	