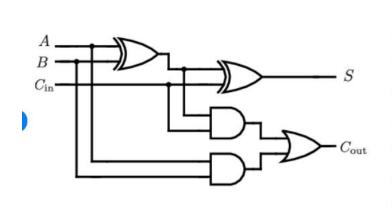
FULL ADDER

Full Adder:

A **Full Adder** is a **combinational logic circuit** that performs the addition of **three binary inputs**: two significant bits (**A** and **B**) and a **carry-in bit** (**C_in**). It produces two binary outputs: the **sum** (**S**) and the **carry-out** (**C_out**).

Circuit Diagram:



Inputs			Outputs	
A	B	$C_{ m in}$	S	$C_{ m out}$
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

Logic Equations:

 $_{\text{Sum}} = A \oplus B \oplus Cin$

Carry-out= $(A \cdot B) + (Cin \cdot (A \oplus B))$