



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35**

**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with  
'A++' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University,  
Chennai



## **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

### **23ECB222- Digital Principles and Computer Organization**

**II AIML / III SEMESTER**

**UNIT 2 – Combinational Circuits**

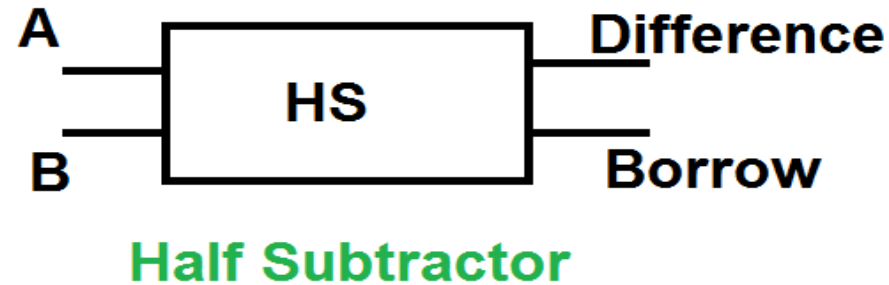
**Half Subtractor**



## Subtractor

Subtractor is a combinational logic circuit that can perform the subtraction of two number (binary numbers) and produce the difference between them.

- It is a combinational circuit that means its output depends on its present inputs only.
- The subtraction of two binary number is accomplished by taking the 1's or 2's compliment of the subtrahend and adding it to the minuend.





Truth table

A	B	Diff	Borrow
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	0

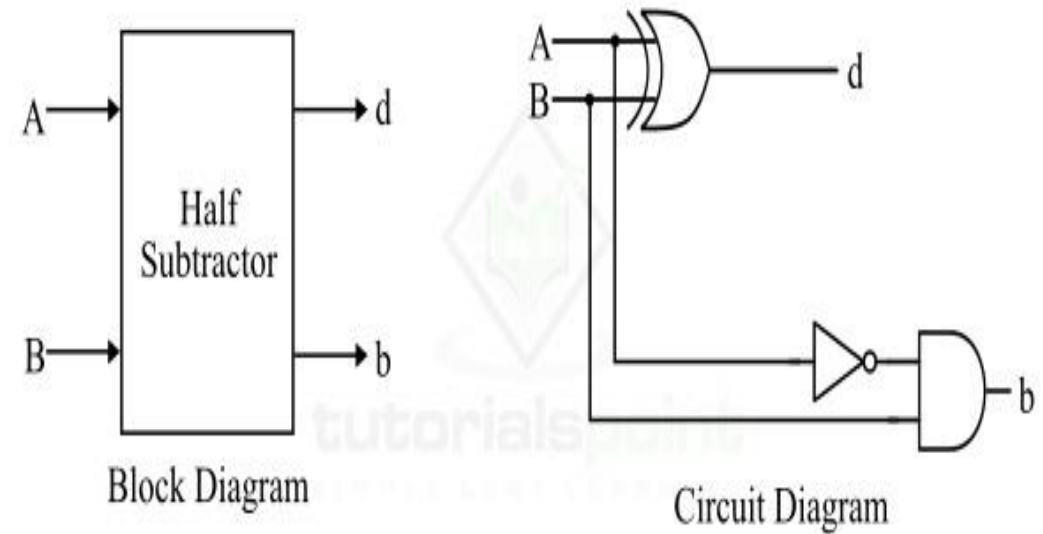
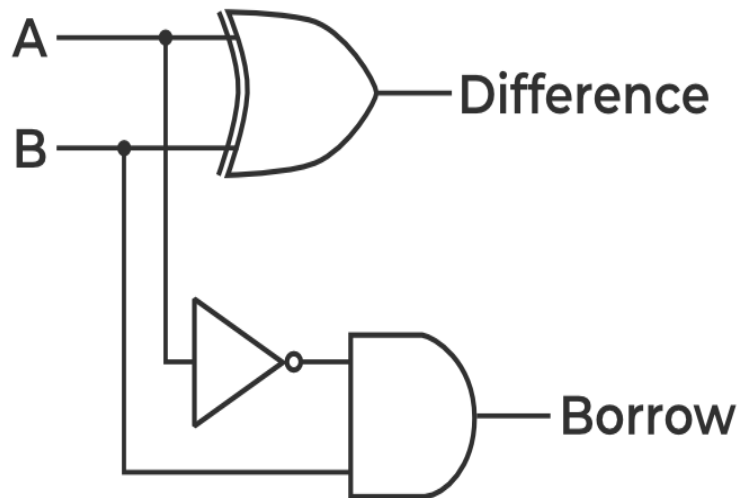


Figure 1 - Half Subtractor



## Logical diagram



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

$$\text{Carry} = \bar{A}.B$$



## Application of Half Subtractor in Digital Logic

- Half subtractor is used in ALU (Arithmetic Logic Unit) of processors.
- It is used in amplifiers to compensate the sound distortion.
- It is used to decrease the force of radio signals or audio signals.
- Half subtractor is also used to increase or decrease operators.



THANK YOU