

THE UNIVERSITY OF AZAD JAMMU & KASHMIR, MUZAFFARABAD



COURSE TITLE	CALD
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LAB TITLE	BASIC LOGIC GATES
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# CALD

## Lab 3

### Objective:

This experiment aims to demonstrate how a combination of **AND**, **OR** and **NOT** gates can be utilized to replicate the behavior of a **NAND** and **NOR** gates, thereby reinforcing the foundational concepts of digital logic design.

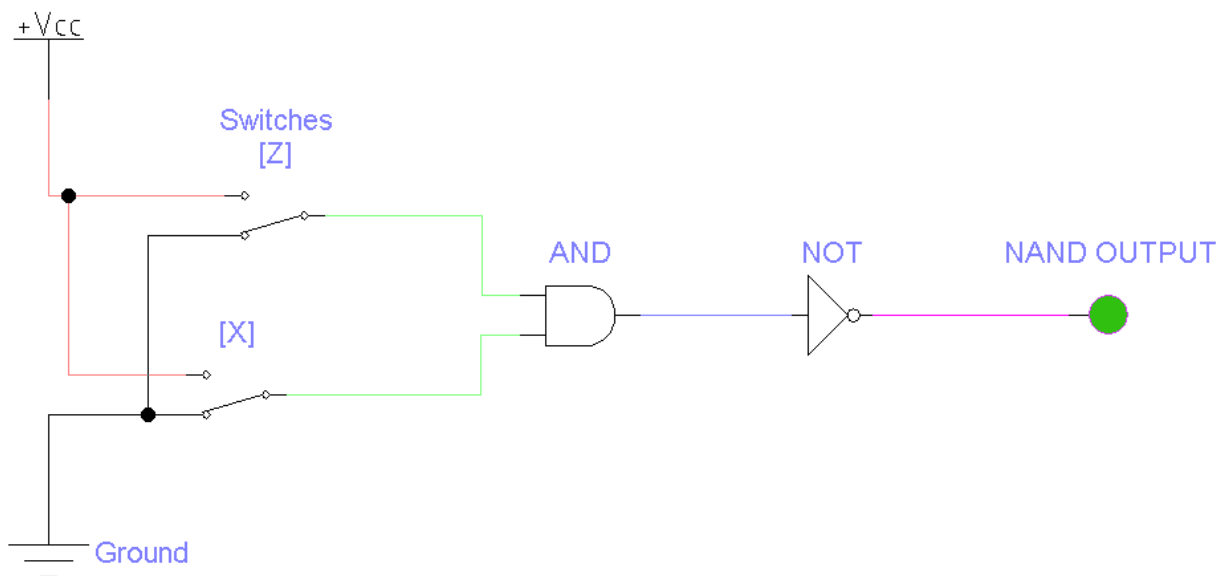
## Experiment on EWB(NAND)

### 1: Verification using a probe

#### First Combination:

- Switch Z: 0
- Switch X: 0

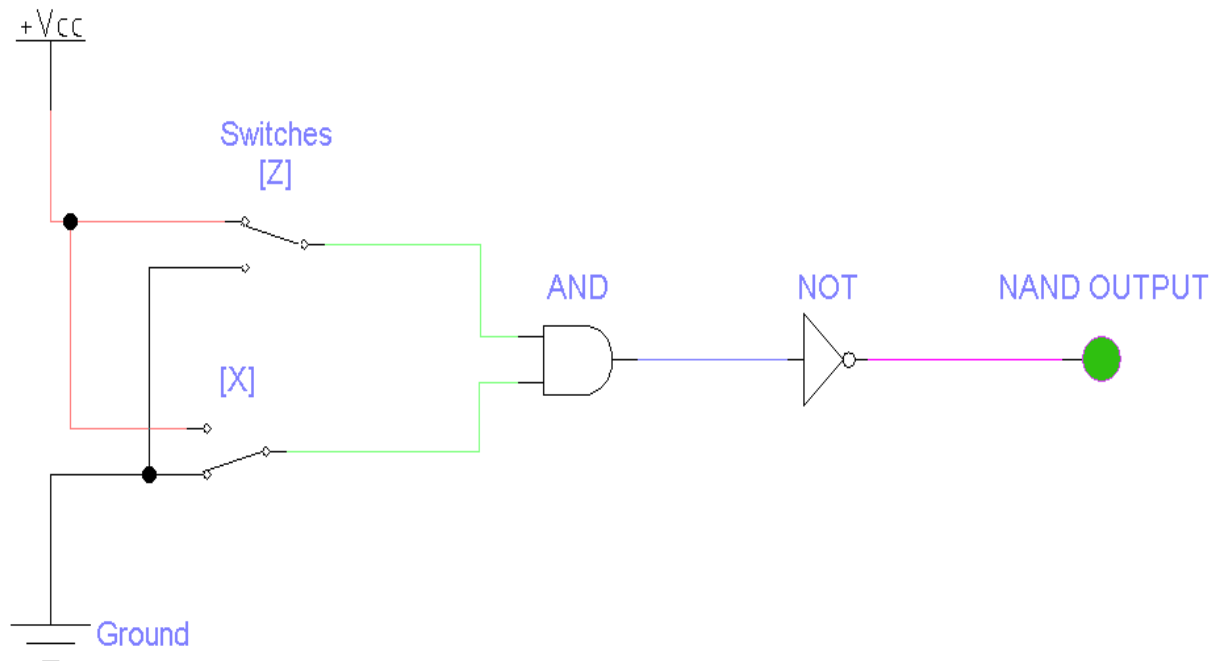
(+ve) power supply



## Second Combination:

- Switch Z: 1
- Switch X: 0

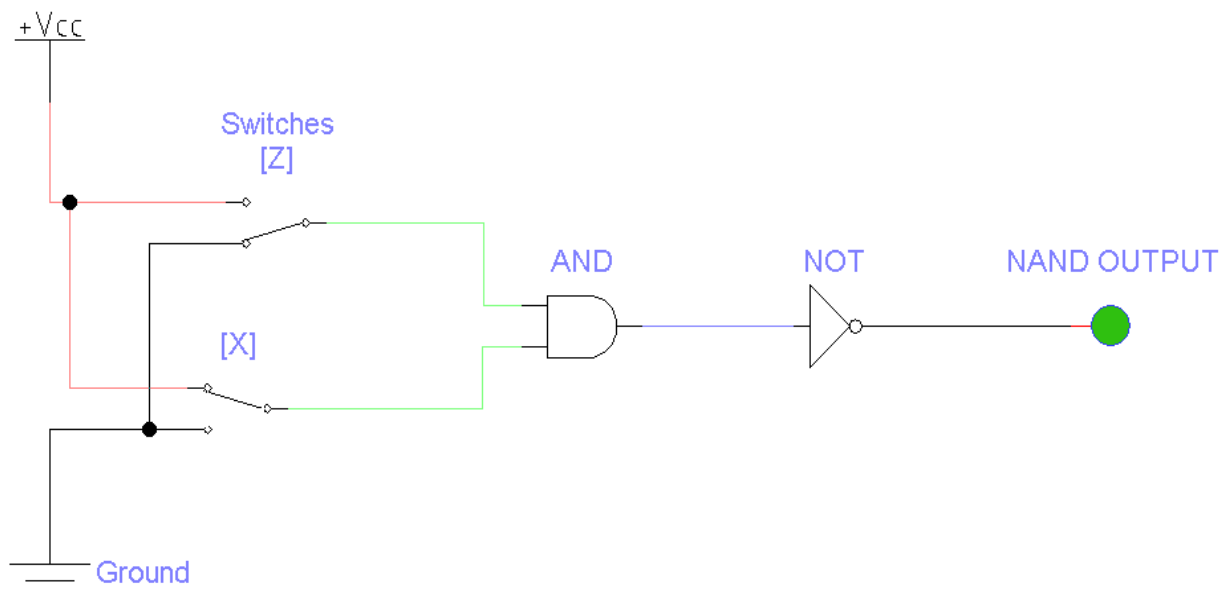
(+ve) power supply



## Third Combination:

- Switch Z: 0
- Switch X: 1

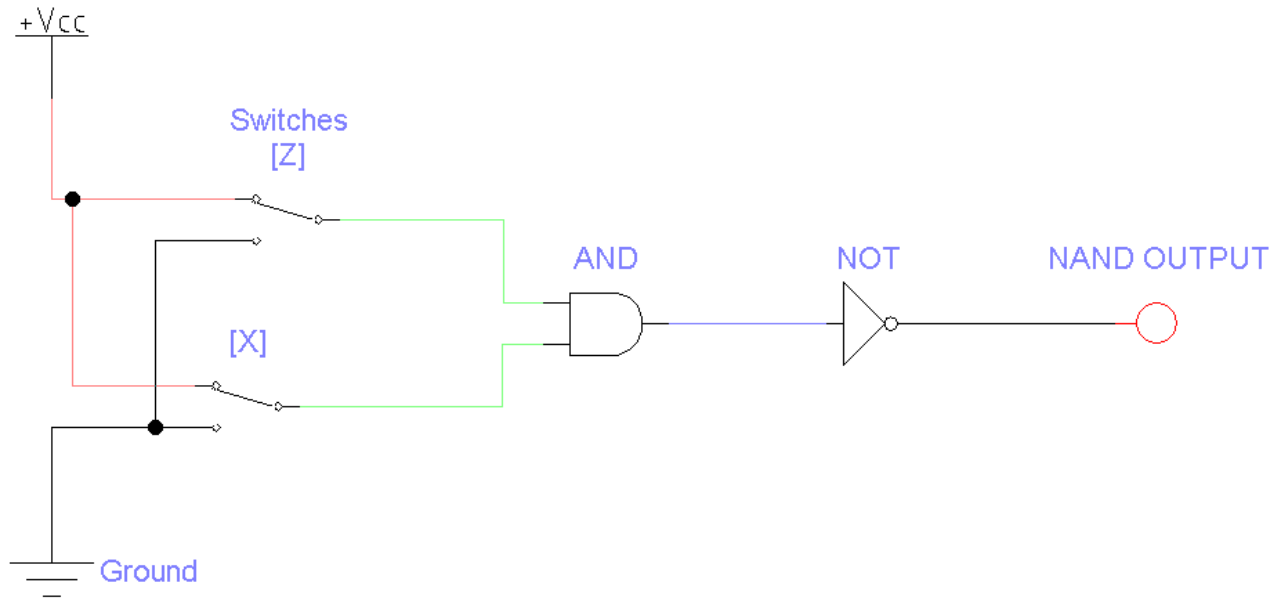
(+ve) power supply



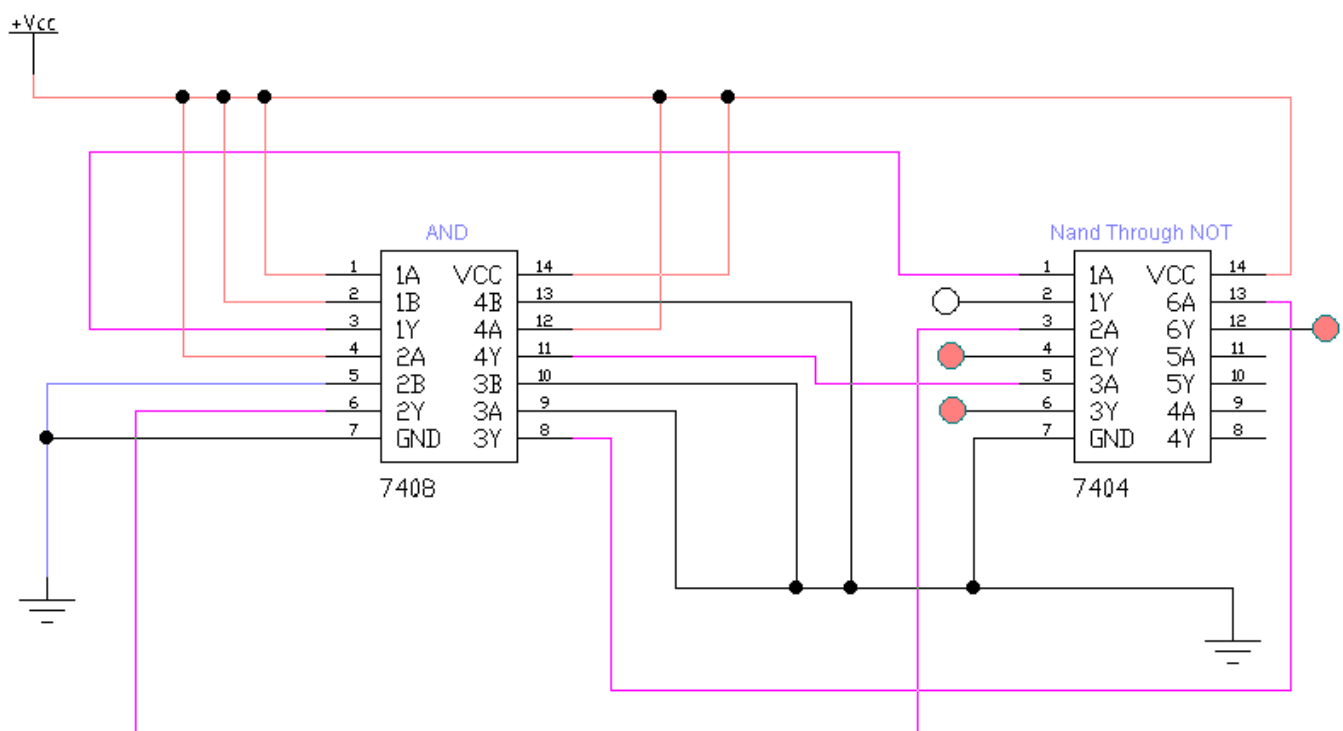
## Fourth Combination:

- Switch Z: 1
- Switch X: 1

(+ve) power supply

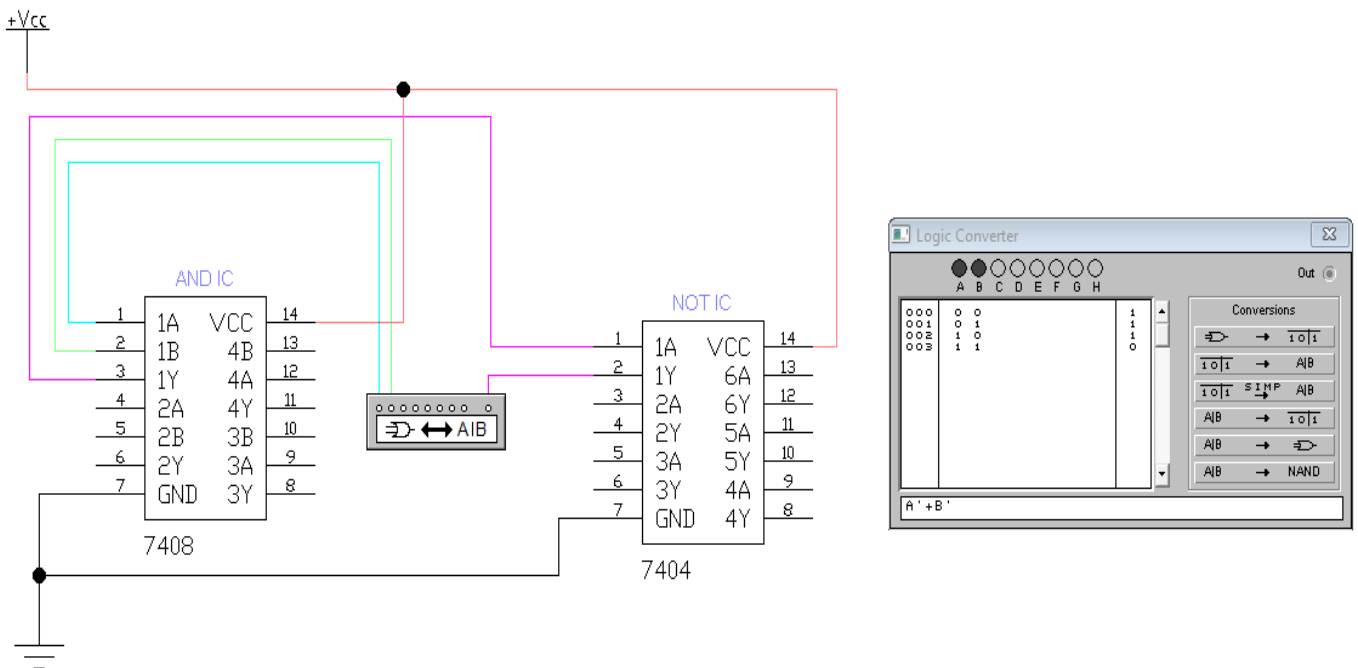


## 2: Verification using ICs

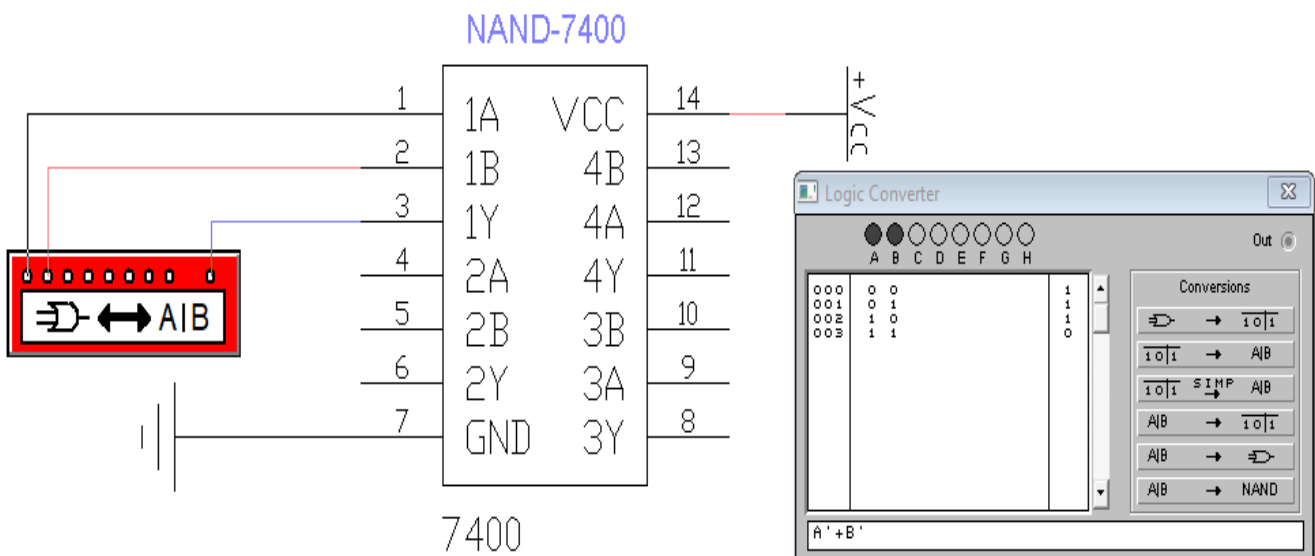


### 3: Verification by truth table

Truth table of the combination:



Truth table of NAND:



# Experiment on Hardware



- The output of the combination shows that the probe glows when both the inputs A and B are 0.

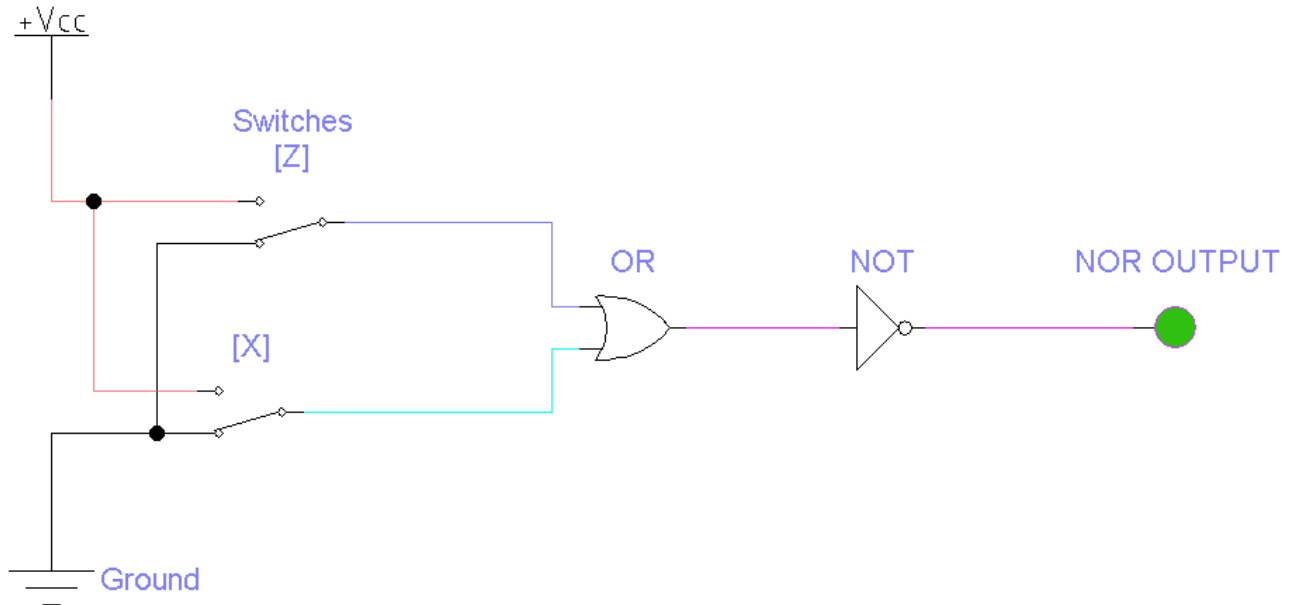
# Experiment on EWB (NOR)

## 1: Verification using a probe

### First Combination:

- Switch Z: 0
- Switch X: 0

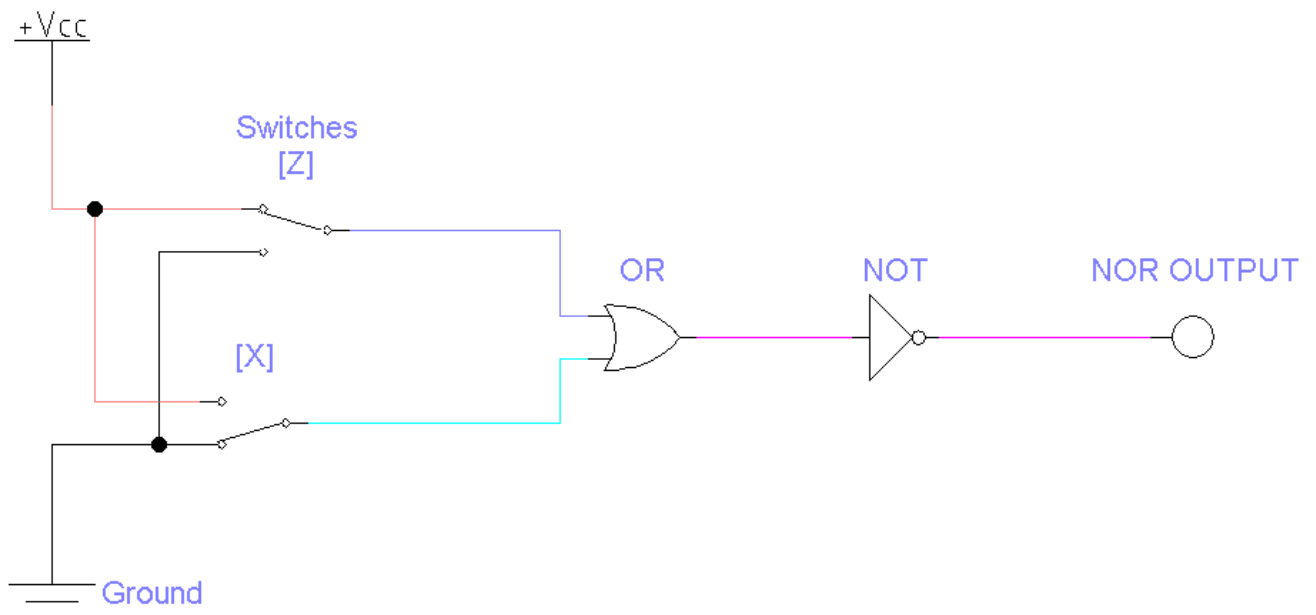
(+ve) power supply



### Second Combination:

- Switch Z: 1
- Switch X: 0

(+ve) power supply

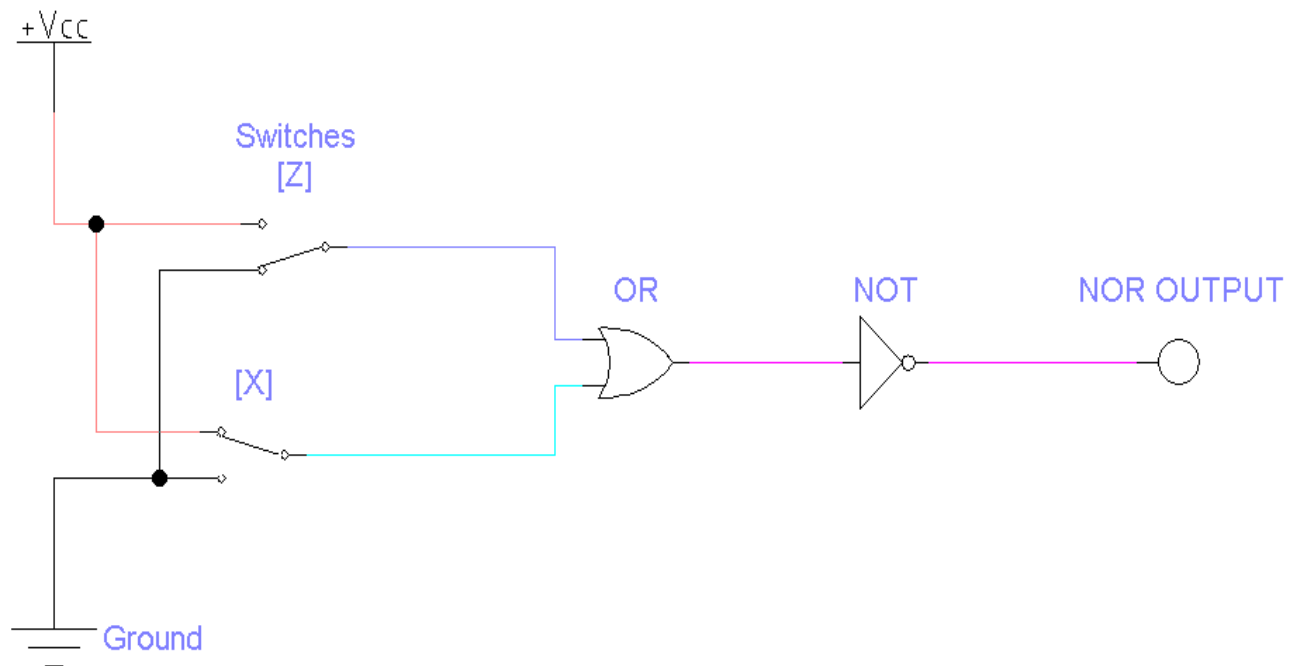




### Third Combination:

- Switch Z: 0
- Switch X: 1

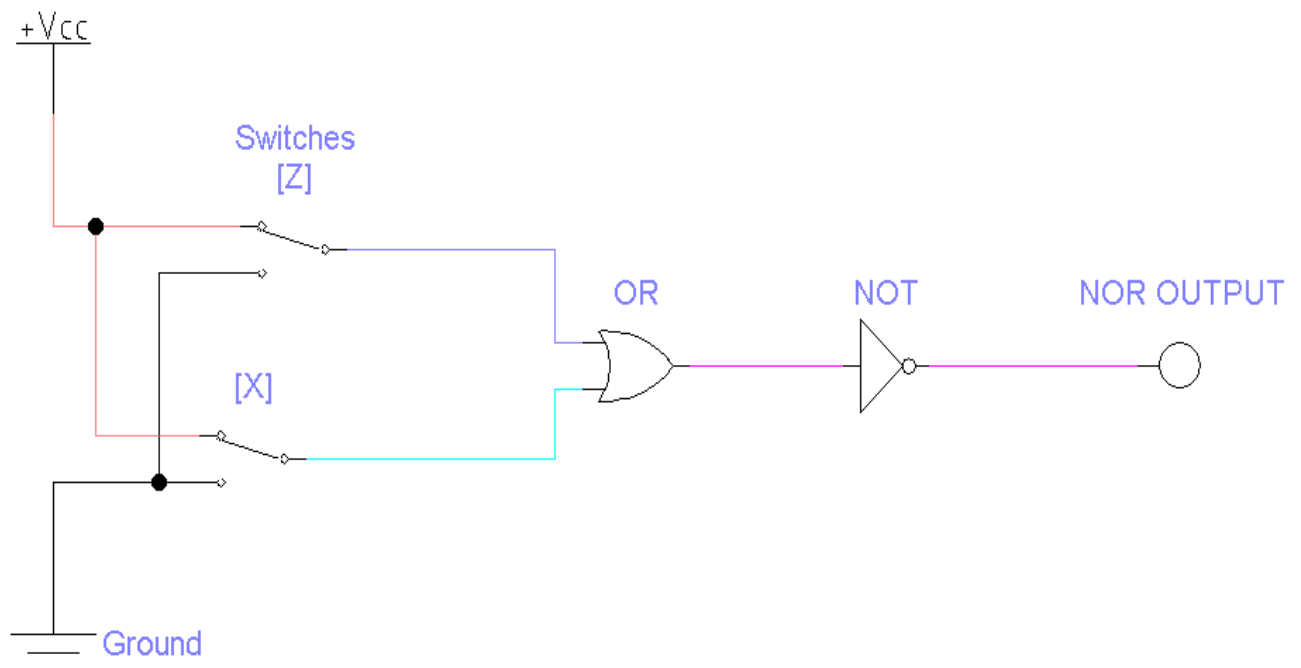
(+ve) power supply



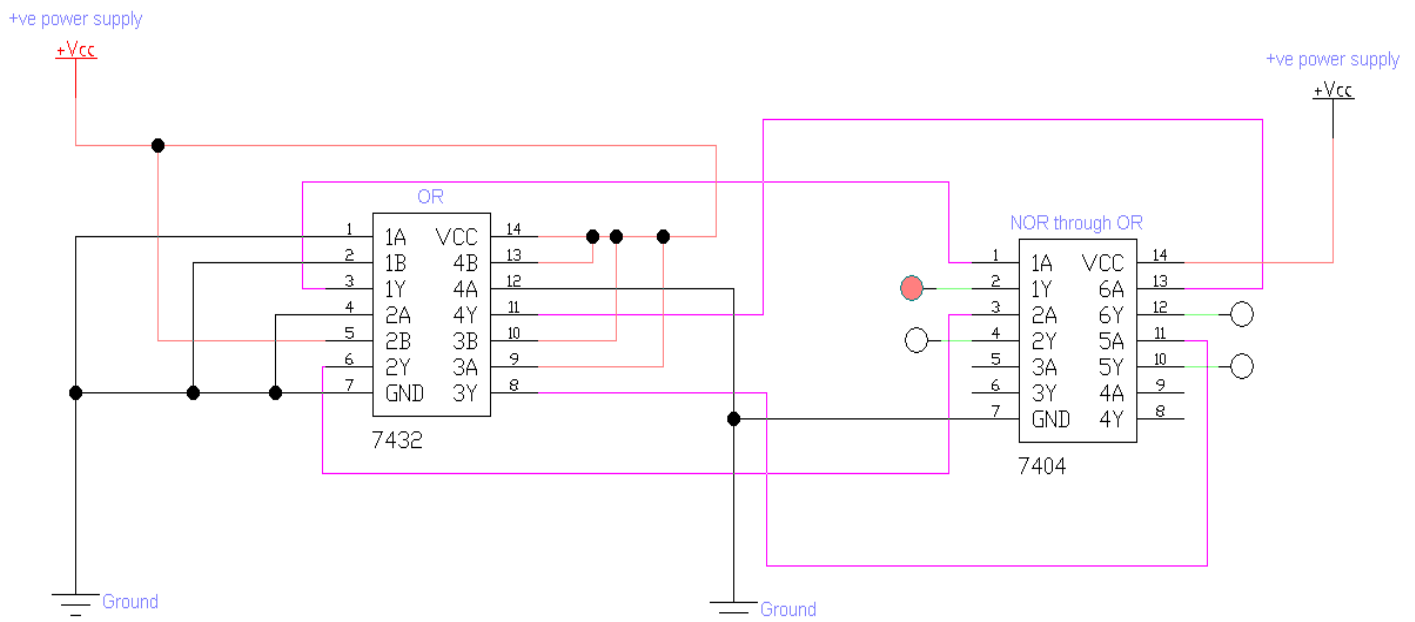
### Fourth Combination:

- Switch Z: 1
- Switch X: 1

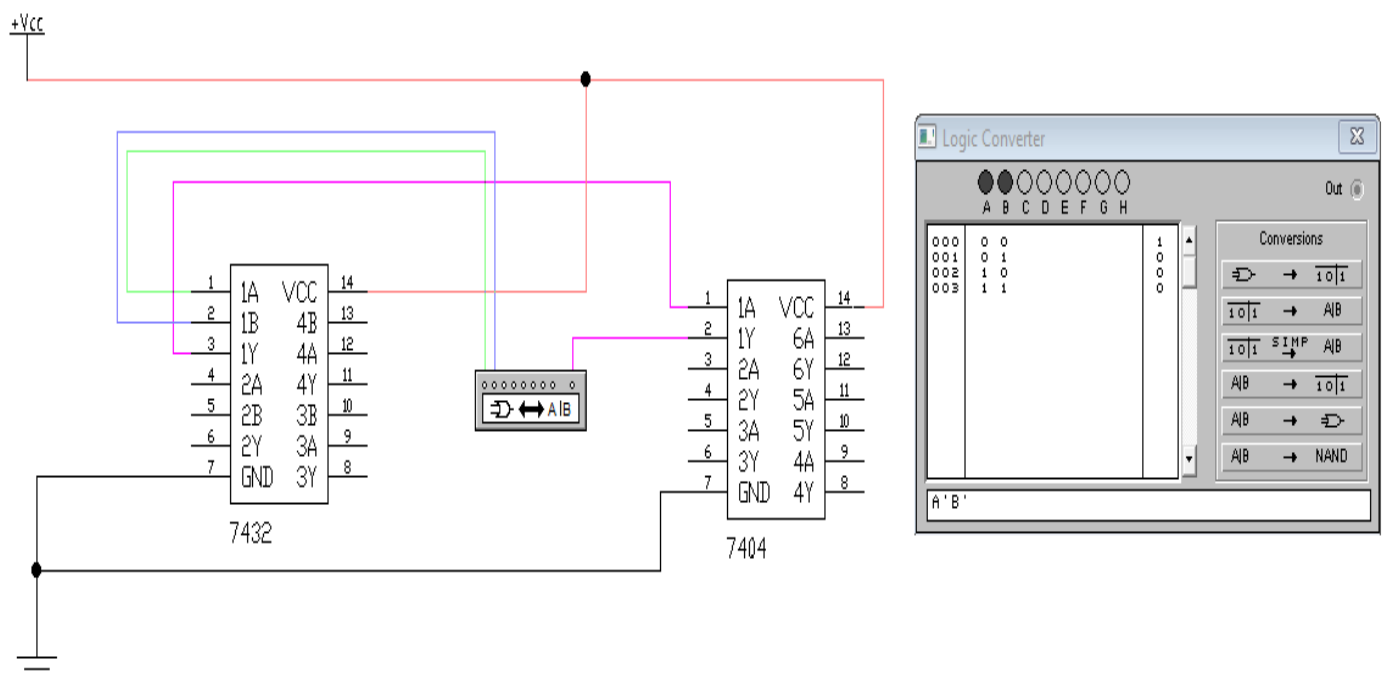
(+ve) power supply



## 2: Verification using ICs



### 3: Verification by truth table



# Experiment on Hardware

