# Lab Report 2

## Materials:

Logic Box, Gates –NOR, AND & NAND, wire.

## Method:

1. Build each of the circuits shown below.
2. Connect the inputs to the switches on the logic boxes labeled below.
3. Connect the output to the LED.
4. Record the truth table results for each part.



**Circuit 1**



**Circuit 2**

## Results:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Circuit 1** | | | | |  | **Circuit 2** | | | | |
| **S4** | **S2** | **S1** | **S0** | **L6** | **S4** | **S2** | **S1** | **S0** | **L6** |
| 0 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | **1** |
| 0 | 0 | 0 | 1 | **0** | 0 | 0 | 0 | 1 | **1** |
| 0 | 0 | 1 | 0 | **0** | 0 | 0 | 1 | 0 | **1** |
| 0 | 0 | 1 | 1 | **0** | 0 | 0 | 1 | 1 | **1** |
| 0 | 1 | 0 | 0 | **0** | 0 | 1 | 0 | 0 | **1** |
| 0 | 1 | 0 | 1 | **0** | 0 | 1 | 0 | 1 | **1** |
| 0 | 1 | 1 | 0 | **0** | 0 | 1 | 1 | 0 | **1** |
| 0 | 1 | 1 | 1 | **0** | 0 | 1 | 1 | 1 | **0** |
| 1 | 0 | 0 | 0 | **0** | 1 | 0 | 0 | 0 | **1** |
| 1 | 0 | 0 | 1 | **0** | 1 | 0 | 0 | 1 | **1** |
| 1 | 0 | 1 | 0 | **0** | 1 | 0 | 1 | 0 | **1** |
| 1 | 0 | 1 | 1 | **0** | 1 | 0 | 1 | 1 | **1** |
| 1 | 1 | 0 | 0 | **0** | 1 | 1 | 0 | 0 | **1** |
| 1 | 1 | 0 | 1 | **0** | 1 | 1 | 0 | 1 | **1** |
| 1 | 1 | 1 | 0 | **0** | 1 | 1 | 1 | 0 | **1** |
| 1 | 1 | 1 | 1 | **0** | 1 | 1 | 1 | 1 | **1** |
| **Table 1** | | | | | **Table 2** | | | | |

## Conclusion:

* **Circuit 1:**
* **The output (Table 1) is HIGH when all of the inputs are LOW.**
* **The output is LOW otherwise.**
* **It’s equivalent to NOR Gate.**
* **In theory, the output corresponds with the lab results.**
* **Circuit 2:**
* **The output is LOW when S4 is LOW and S3, S2, S1 are HIGH.**
* **The output is HIGH otherwise.**
* **In theory, the output corresponds with the lab results.**