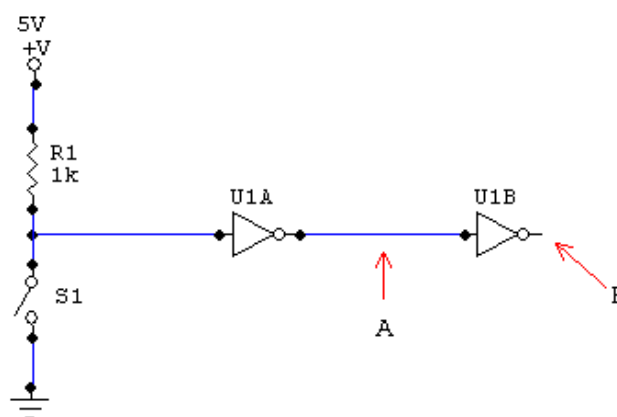


Lab. Script 4

Digital Electronic Systems implementation using Integrated Circuits.

Double Inverter

- Using the 74LS04 build the following circuit:



Connect two LED at the output of each NOT gate and fill the following truth table:

Input	A	B
0		
1		

Observations:

To proceed to the connections use the “pinout” of the integrated circuit present in the component data sheets. Before connect the circuit confirm that:

- The circuit voltage source is 5V
- The pins 7 and 14 of the IC are connected to GND and +5V respectively.

Canonic Form

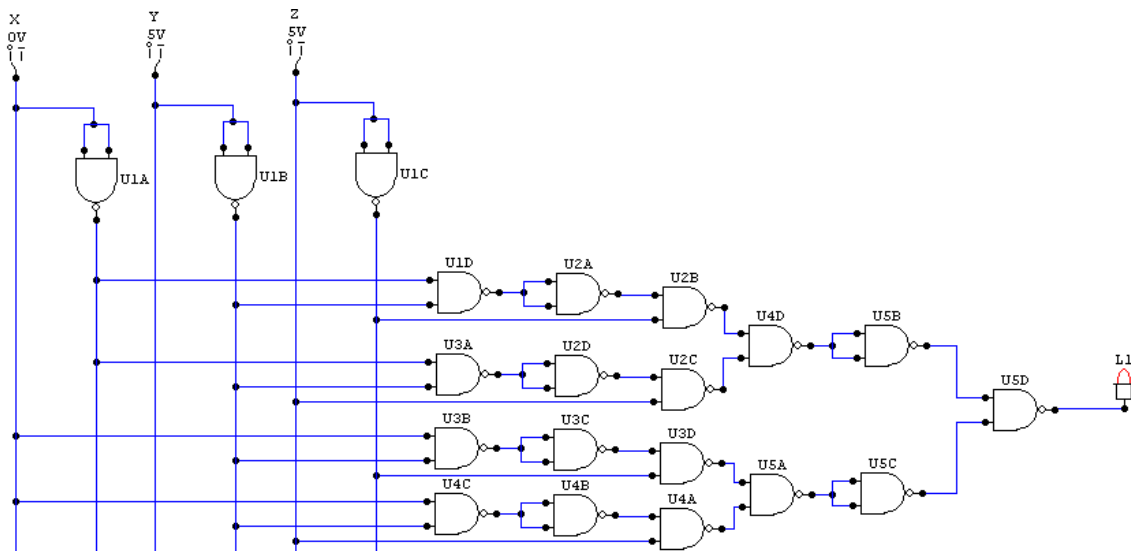
- (February 14, 2008 exam) Mr. John is a great investor in the stock market. However, he likes to invest its money safely and, before buying any stocks, he ask the opinion of three persons: Mr. X, a famous corrector, Ms. Y, a millionaire that has enriched playing on the

stock, and Ms. Z a known astrologer. After several months receiving the advices of these persons, he got the conclusion that he should:

- Buy if X and Y tell to buy and Y tells to don't buy;
 - Buy if Z tells to buy;
 - Don't buy in all other situations;
- a) Obtain the truth table.
 - b) Get the logic expression in the disjunctive canonical form.
 - c) Using the Boole algebraic theorems, simplify the previous expression.
 - d) Draw the logic diagram using only NAND gates.
 - e) Using the IC 74LS00 physically implement the digital circuit of (c).

Functions Simplification

3. Assume the following logic diagram:



- a) Using the De Boole algebraic theorems reduce the circuit to its simpler form.
- b) Implement the circuit obtained in (a) using only NAND gates.