(DE3 -4) Logic Inverter

Aim of experiment

This experiment will examine the operation of the logic inverter gate and compare the expected outputs to the truth tables for this device.

Apparatus

Prototyping board– DC Power Supply 5V or 9V Battery – Light Emitting Diode (LEDs) – Digital ICs: 7404 NOT Gate – Connection Wires.

Theory of experiment

The NOT circuit or inverter performs the basic logic function of complementation. It may be identified by the presence of a bubble on the input or the output of the traditional logic symbol or a triangle on the IEEE/IEC logic symbol as seen in figure 1. The inverter has one input and one output and the output is the complement of the input. Figure 1 contains the truth table for the NOT function.

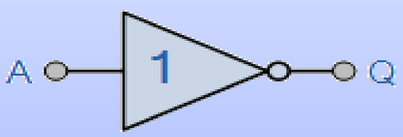
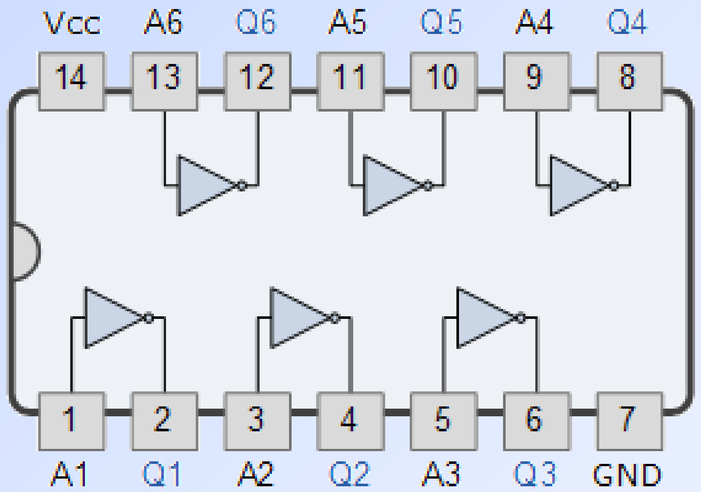
Symbol	Truth Table	
	**A**	**Q**
	0	1
	1	0
Boolean Expression Q = not A or A	Read as inverse of A gives Q	

Figure 1. logic symbols and truth table for the NOT function

Procedures

1. Put the 7404 NOT Gate shown in the Prototyping board.
2. Connect the pin 14 to 5 V and pin 7 to ground.
3. Connect pin 1 to input switches in Prototyping board, and connect pin 2 to output LED.
4. Change switches 1 on and off and show the output of LEDS.



5. Record the results in the following table.

Results

Switch 1	LED output
0	
1	
0	
1	

Edusoft
Innovate to educate