Title: INVERTERS

Materials:
[1] 7404 hex inverter IC
[6] LED's with 150Ω resistors
[1] logic switch

Procedure:

1. Insert a 7404 IC into the breadboard.
2. Connect power to the 7404: red wire for the +5V(V_{cc}) and the black wire for GND (V_{ss}).
3. Refer to Fig. 3-7. Wire the inverter (input switch, 7404, and LED). Refer to pinout diagrams.
4. Move the input switch to the positions shown in the Input column, Table 3-6. Observe and record the results in the Output column, Table 3-6. **Get Instructor's Signature.**
5. Wire the circuit diagrammed in Fig. 3-8 to test all six inverters in the 7404 IC package. Pin numbers are shown in Fig. 3-8.
6. Operate the input switch and observe the results on the six output LED's. Record the results in Table 3-7.
7. Look over the results in Table 3-7 and decide if the six inverters in the 7404 are working properly. Contact your instructor if you find a faulty inverter. **Get Instructor's Signature.**

Questions (answer on a separate piece of paper)**:**

1. The power connection (V_{cc}) on the 7404 is connected to what on the power supply?
2. An input of near +5V on a 7404 inverter will produce an output of _____ volts from the inverter.
3. The output of an inverter will be a logical _____, with a logical 1 input.
4. If we invert a signal twice, what output do we get from the second inverter?
5. What does the Boolean expression $\overline{A}$ mean?

Input	Output
A	$\overline{A}$
0	
1	

Table 3-6

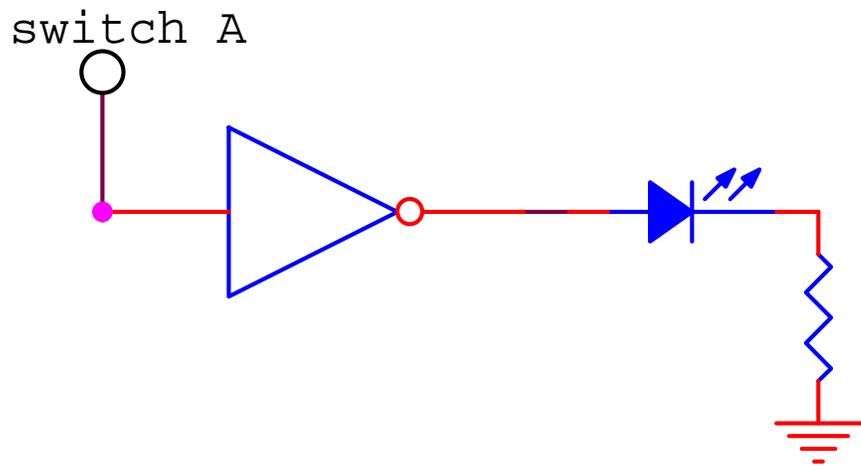| Input	Output					
A	$\overline{A}$	A_1	$\overline{A_1}$	A_2	$\overline{A_2}$	A_3
0						
1						

Table 3-7

Figure 3-7 Wiring an inverter.

switch A

Figure 3-8 Testing all inverters in the 7404 IC.

switch A

1   2   3   4   5   6   9   8   11   10   13   12

$\overline{A}$ A_1 $\overline{A}_1$ A_2 $\overline{A}_2$ A_3