

Basic Gates

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OBJECTIVE

To demonstrate the function of the basic logic gates and functions.

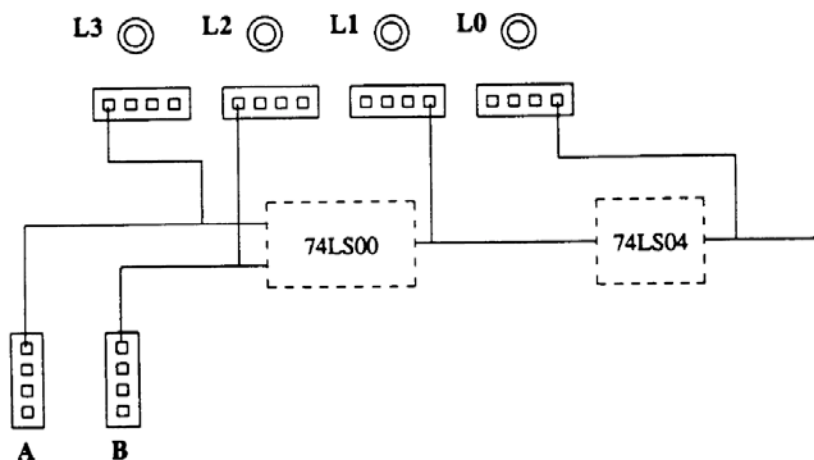
PREPARATION

Design and construct the required circuits.

PROCEDURE

- 1) Using the following information for the various chips you have purchased, determine:
 - the truth table for each gate in the circuit
 - the type of gate packaged in each chip
 - the truth table for the entire circuit
- 2) Use the logic lights to examine the output and input of each gate. Use the logic switches to vary the inputs through all possible combinations. (Before connecting the +5 volt supply to your circuit check the value with the multimeter. The value must be within $\pm 5\%$ otherwise the integrated circuit chip may be damaged.)

| Integrated Circuit | Input pins | Output Pins | V_{cc} , +5V | Gnd, 0V |
|--------------------|------------|-------------|----------------|---------|
| 74LS00 | 1, 2 | 3 | 14 | 7 |
| 74LS04 | 1 | 2 | 14 | 7 |



- 3) Determine the type of three input logic gate that corresponds to each of the following timing diagrams, and verify your solution experimentally.

