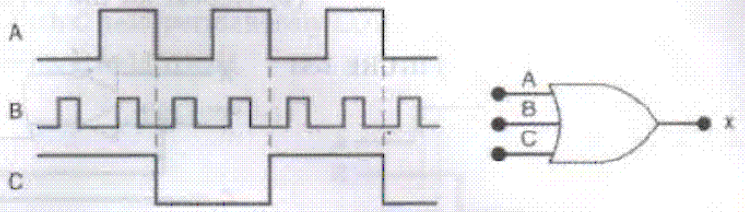
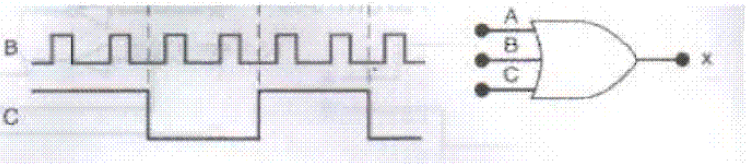
→3-1. Draw the output waveform for the OR gate of Figure 3-52.

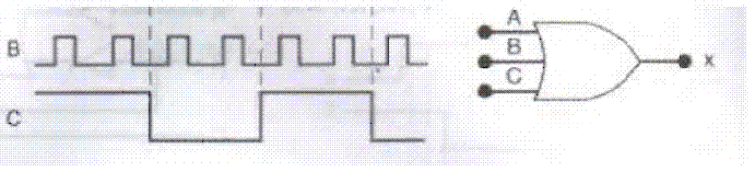
FIGURE 3-52



→ 3-2. Suppose that the *A* input in Figure 3-52 is unintentionally shorted to ground (i.e., $A = 0$). Draw the resulting output waveform.



→ 3-3. Suppose that the *A* input in Figure 3-52 is unintentionally shorted to the +5 V supply line (i.e., *A* = 1). Draw the resulting output waveform.



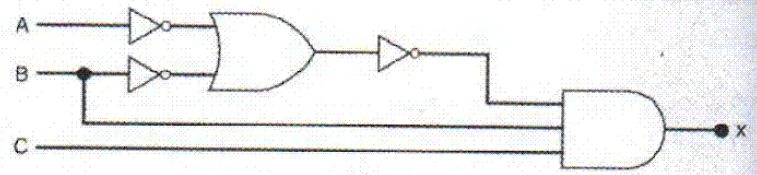
→ 3-5. How many different sets of input conditions will produce a HIGH output from a five-input OR gate?

3-9. Suppose that you have an unknown two-input gate that is either an OR gate or an AND gate. What combination of input levels should you apply to the gate's inputs to determine which type of gate it is?

B →3-12. (a) Write the Boolean expression for output x in Figure 3-53(a). Determine the value of x for all possible input conditions, and list the values in a truth table.

(b) Repeat for the circuit in Figure 3-53(b).

FIGURE 3-53



(a)

3-12 (b)