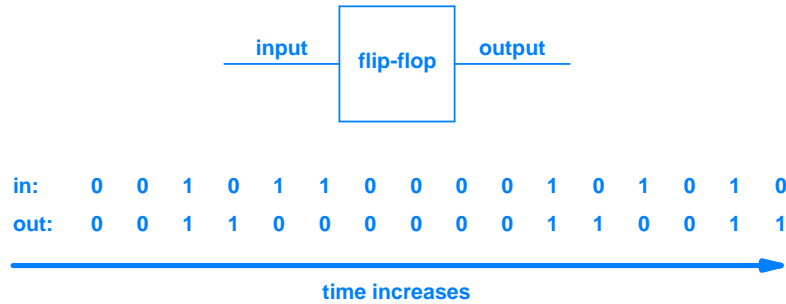


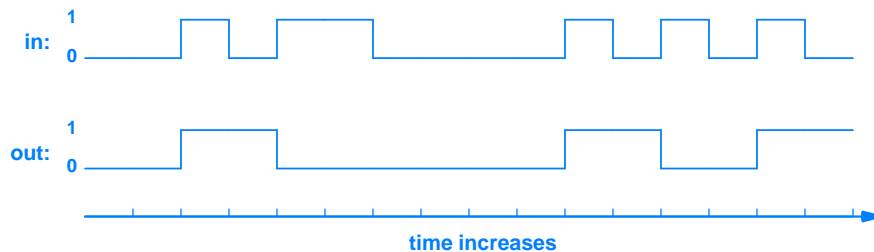
the output. That is, receiving an input of 1 causes the flip-flop to change the output from the current state to the opposite. Like a push-button switch used to control power, a flip-flop does not respond to a continuous input — the input must return to 0 before a value of 1 will cause the flip-flop to change state. Figure 2.11 shows a sequence of inputs and the resulting output.



**Figure 2.11** Illustration of how one type of flip-flop reacts to a sequence of inputs. The flip-flop output changes when the input transitions from 0 to 1 (i.e., from zero volts to five volts).

## 2.11 Transition Diagrams

To understand how a flip-flop works, it is helpful to plot the input and output in graphical form as a function of time. Engineers use the term *transition diagram* for such a plot. Figure 2.12 illustrates a transition diagram for the flip-flop values from Figure 2.11.



**Figure 2.12** Illustration of a transition diagram that shows how a flip flop reacts to the series of inputs in Figure 2.11. Marks along the x-axis indicate times; each corresponds to one clock tick.