



Assignment no 8: Chapter 9

Note: You can check the exercises after the book Chapter. In our assignment, we are using the 11th edition of “Digital Fundamentals” By Thomas L. Floyd”

- For the ripple counter in Figure 9–66, show the complete timing diagram for sixteen clock pulses. Show the clock, Q_0 , Q_1 and Q_2 waveforms.

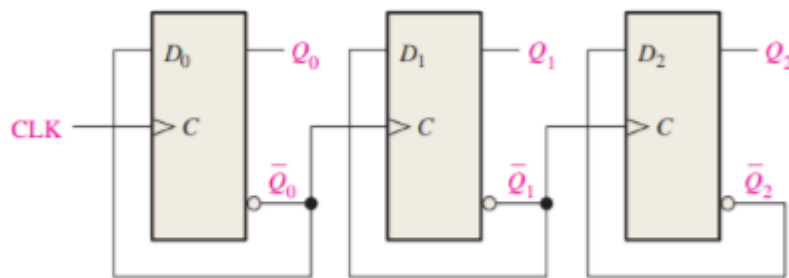


FIGURE 9-66

- Show the complete timing diagram for the 5 stage synchronous binary counter in Figure 9–67, verify that the waveforms of the Q outputs represent the proper binary number after each clock pulse.

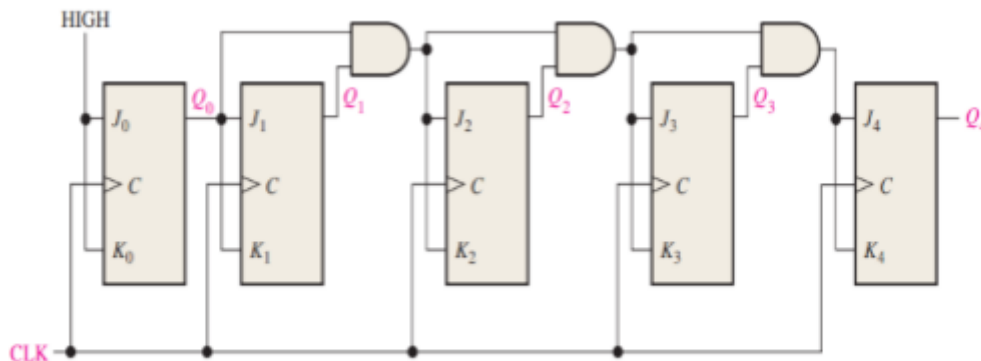


FIGURE 9-67



10. The waveforms in Figure 9–69 are applied to the count enable, clear, and clock inputs as indicated. Show the counter output waveforms in proper relation to these inputs. The clear input is asynchronous.

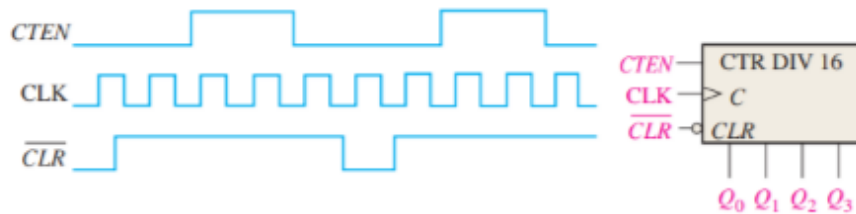


FIGURE 9-69

12. The waveforms in Figure 9–71 are applied to a 74HC163 binary counter. Determine the Q outputs and the RCO. The inputs are $D_0 = 1$, $D_1 = 1$, $D_2 = 0$, and $D_3 = 1$.

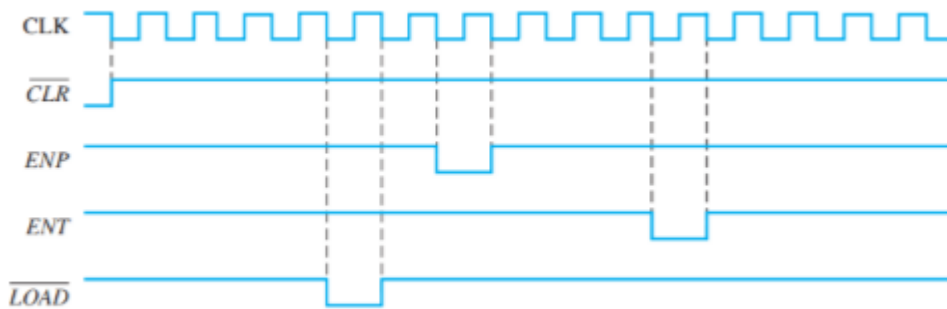


FIGURE 9-71

18. Determine the sequence of the counter in Figure 9–73.

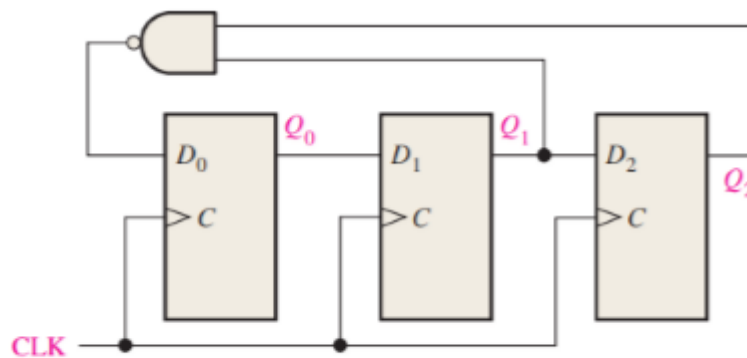


FIGURE 9-73



20. Design a counter to produce the following sequence. Use J-K flip-flops.

00, 10, 01, 11, 00, ...

22. Design a counter to produce the following binary sequence. Use J-K flip-flops.

0, 9, 1, 8, 2, 7, 3, 6, 4, 5, 0, ...

23. Design a binary counter with the sequence shown in the state diagram of Figure 9-75.

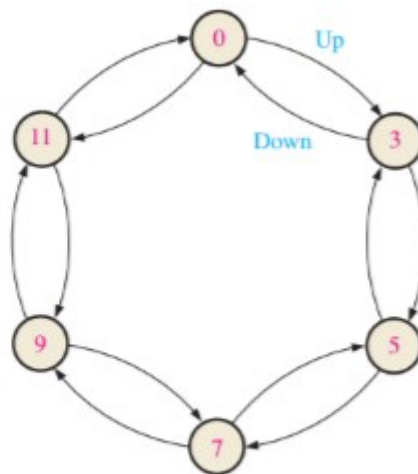


FIGURE 9-75