



**Assignment no 09: Chapter 08**

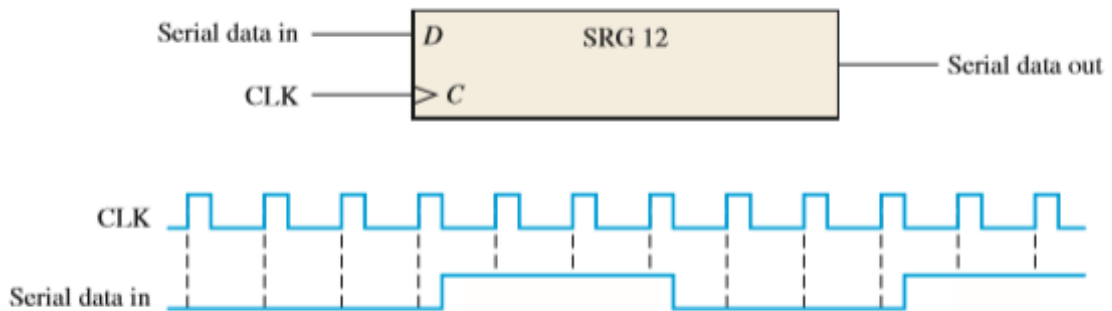
**Note:** You can check the exercises after the book Chapter. In our assignment, we are using the 11<sup>th</sup> edition of “Digital Fundamentals” By Thomas L. Floyd”

1. **What** is a register?
2. **What** is the storage capacity of a register that can retain one byte of data?
3. **What** does the “shift capacity” of a register mean?
5. For the data input and clock in [Figure 8–47](#), **determine** the states of each flip-flop in the shift register of [Figure 8–3](#) and show the Q waveforms. **Assume** that the register contains all 1s initially.



**FIGURE 8–47**

7. **What** is the state of the register in [Figure 8–49](#) after each clock pulse if it starts in the 101001111000 state?



**FIGURE 8–49**



10. A leading-edge clocked serial in/serial out shift register has a data-output waveform as shown in Figure 8–52. What binary number is stored in the 8-bit register if the first data bit out (leftmost) is the LSB?

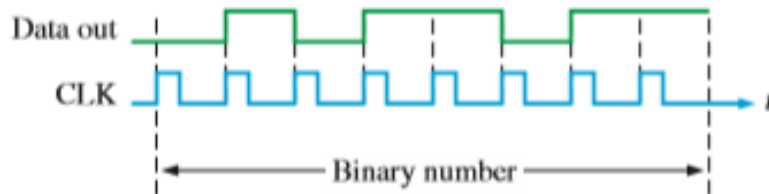


FIGURE 8–52

14. The shift register in Figure 8–54(a) has SHIFT/LOAD and CLK inputs as shown in part (b). The serial data input (SER) is a 0. The parallel data inputs are  $D_0 = 1$ ,  $D_1 = 0$ ,  $D_2 = 1$ , and  $D_3 = 0$  as shown. Develop the data-output waveform in relation to the inputs.

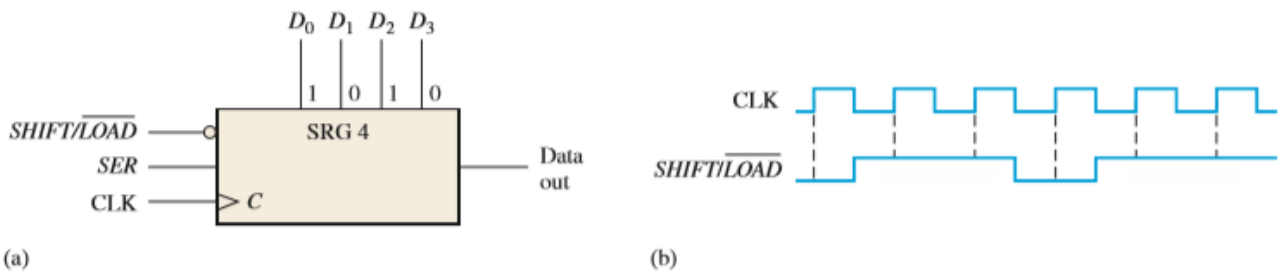


FIGURE 8–54

21. For the 8-bit bidirectional register in Figure 8–57, Determine the state of the register after each clock pulse for the RIGHT/LEFT control waveform given. Assume that the register is initially storing the decimal number seventy-six in binary, with the right-most position being the LSB. There is a LOW on the data-input line.



FIGURE 8–57



27. For the ring counter in Figure 8–60, Show the waveforms for each flip-flop output with respect to the clock. Assume that FF0 is initially SET and that the rest are RESET. Show at least ten clock pulses.

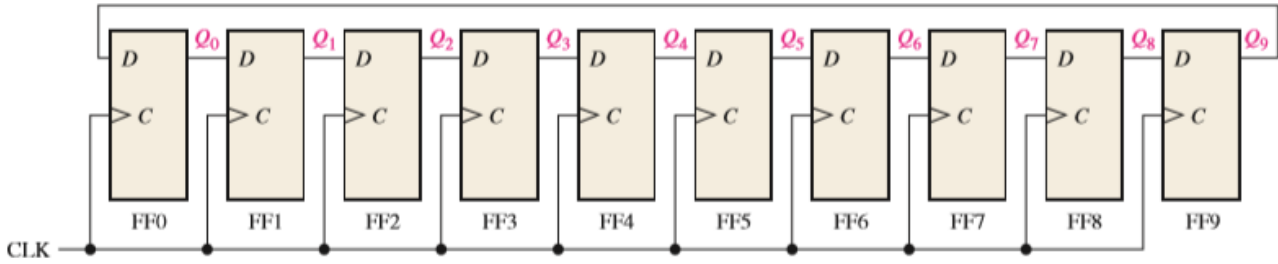


FIGURE 8-60