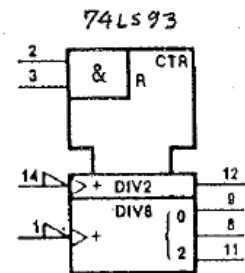
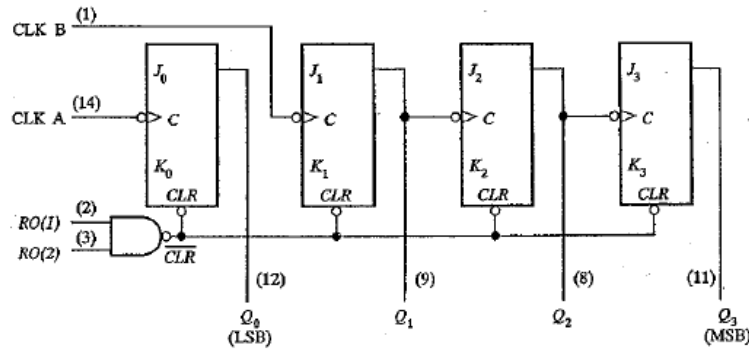


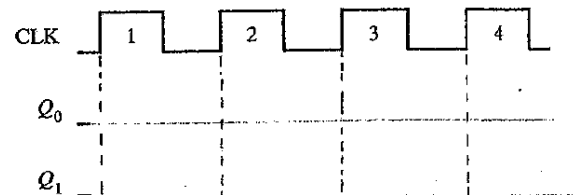
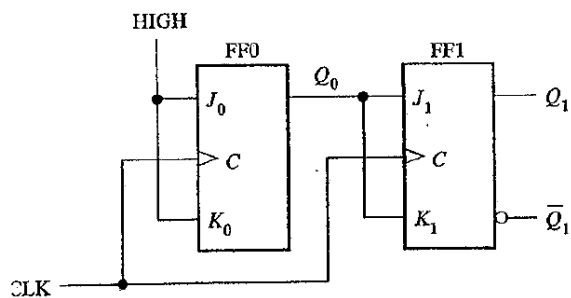
Exercise 4

- Design (by using 74LS93 and some external gates) a counter that counts from 0 to 12 (0,1,...,12,0,1,...)



The 74LS93A 4-bit binary counter logic diagram. (Pin numbers are in parentheses, and all J and K inputs are internally connected HIGH.)

- Draw Q_0 and Q_1 .



- Draw Q_1 and Q_2 . Add also the timescale in your diagram.

