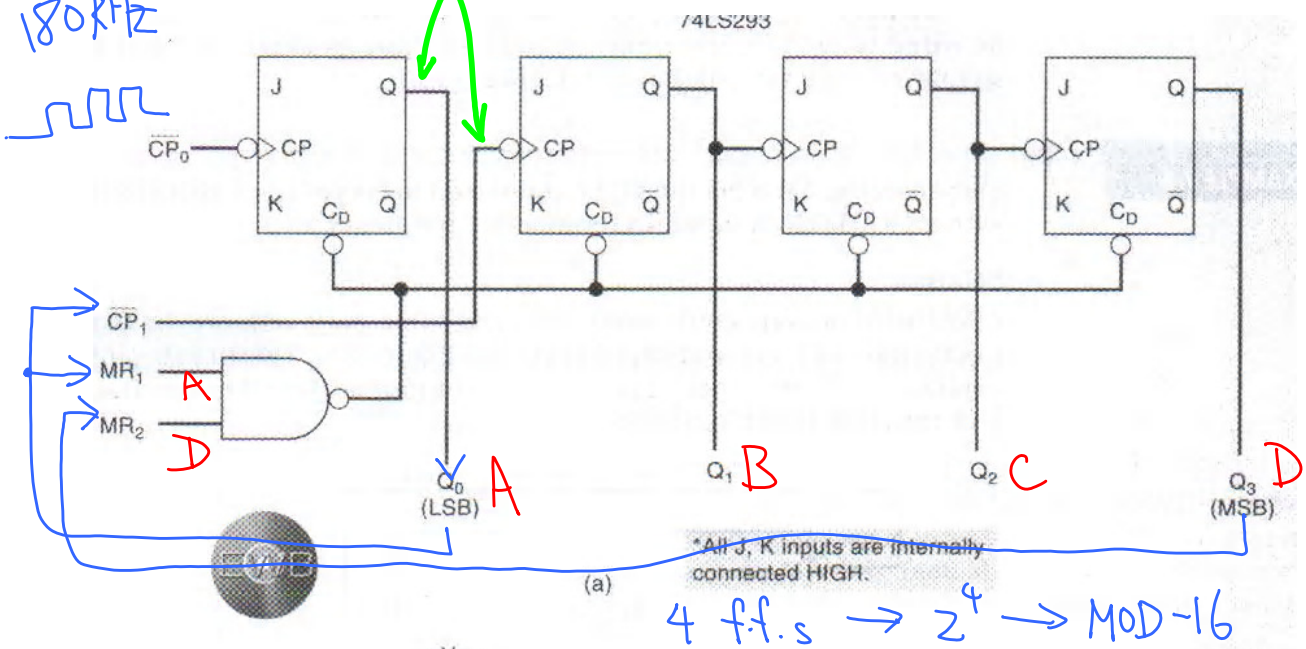
7-9. In Figure 7-8, connect Q_0 to $\overline{CP}_1$ and MR_1, and connect Q_3 to MR_2. If 180-kHz pulses are appled to $\overline{CP}_0$, determine the following: (a) the count sequence; (b) MOD number; (c) frequency at Q_3.

i.e. Connect them

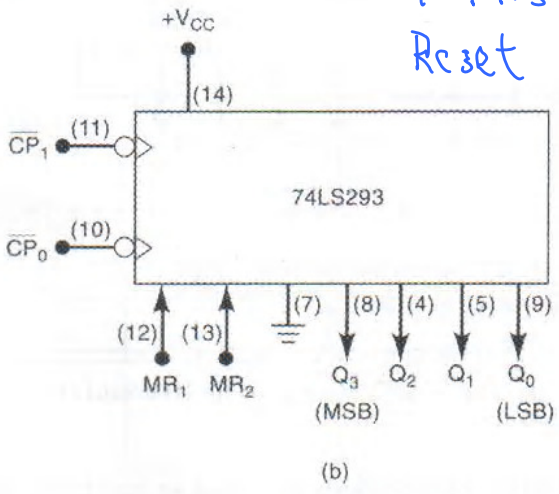
180kHz



4 f.f.s → 2^4 → MOD-16

Reset all f.f.s when D and A = 1

ie D C B A
1 0 0 1 = 9



ie Reset to 0 as soon as the count = 9.

Hence, we have counting seq: 0 to 8

ie MOD-9 counter.

FIGURE 7-8 (a) Logic diagram for 74LS293 asynchronous counter IC; (b) block symbol, with pin numbers in parentheses.