

L10 practice problems

CMOS Logic

Determine the truth tables for the following CMOS logic circuits.

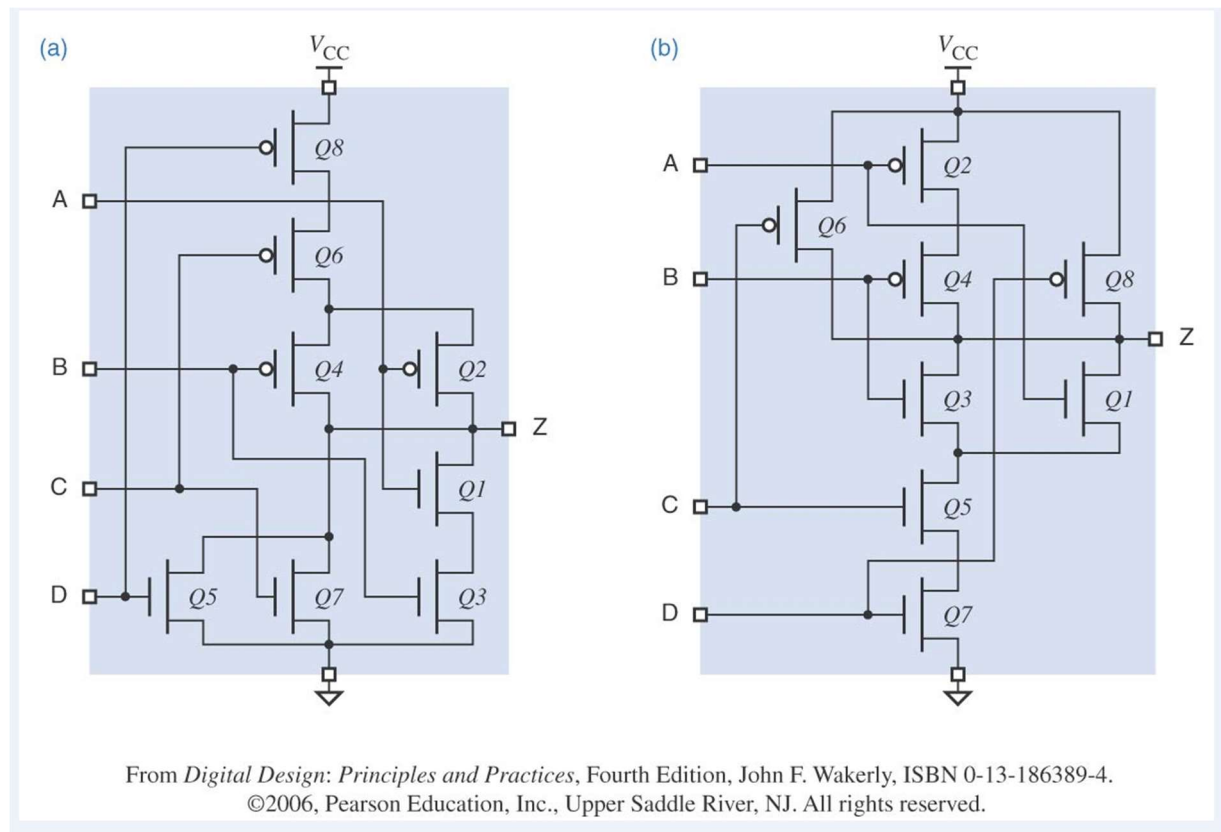


Fig. X3.11

Hint:

From the circuit diagram

Step 1: identify the inputs (e.g. A, B, C, D)

Step 2: identify the pair of transistors directly controlled by each input (e.g. input A controls Q1 and Q2)

Step 3: identify all the possible current paths (series as well as parallel) from V_{CC} to output so as to make output = 1.

For each possible path, identify the correct input values, and fill up the corresponding rows in the truth table with output=1

Step 4: identify all the possible current paths (series as well as parallel) from output to GND so as to make output = 0.

For each possible path, identify the correct input values, and fill up the corresponding rows in the truth table with output=0