

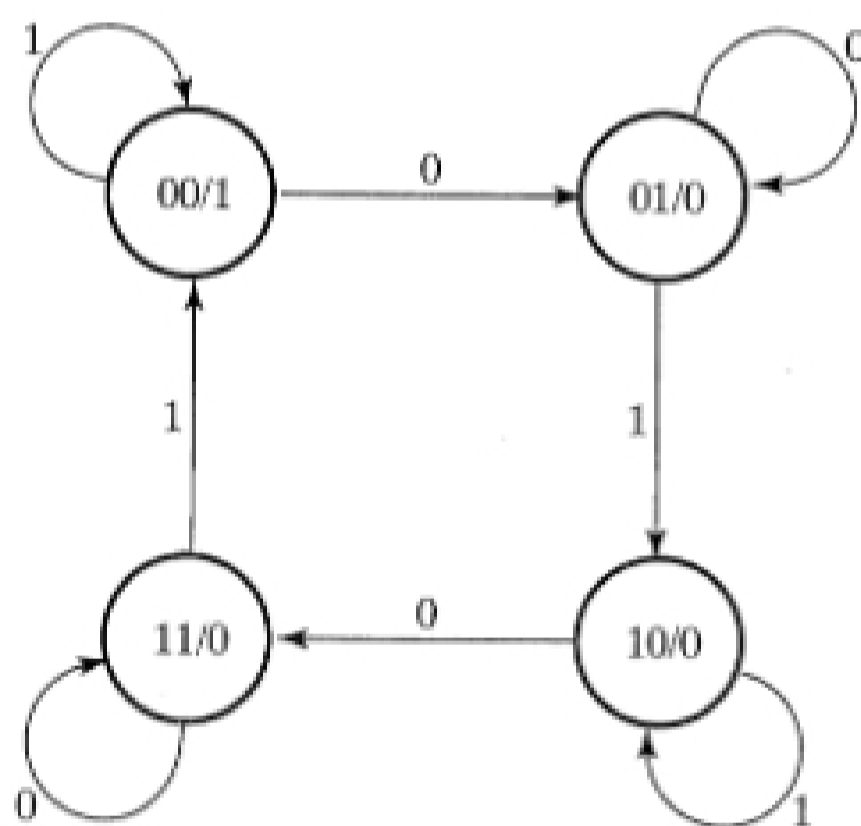
Homework Assignment #7

Reading Assignment:

Chapter 5 in the textbook Logic and Computer Design Fundamentals, 4th Edition by Mano
 Online supplement "Design and Analysis using JK and T Flip-Flops" (see www.prenhall.com/mano)

Problem Assignment:

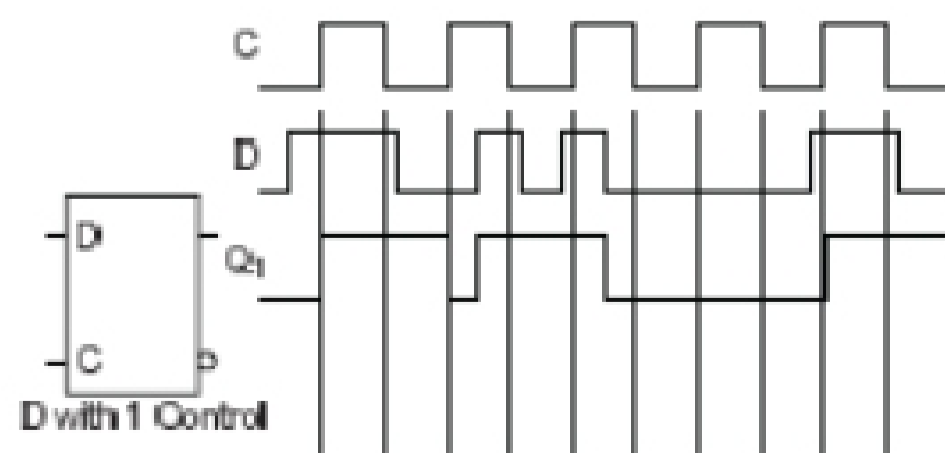
- 1) Chapter 5 problems: 4, 6, 7, 10, 11, 13
- 2) Problems 4 and 5 in the online supplement "Design and Analysis using JK and T Flip-Flops." These problems are also shown below. Note: Problem 4 should refer to Figure 5-44, not Figure 6-40, in the text.
 4. *Design a sequential circuit for the state diagram given in Figure 6-40 of the text (see Reference 1) using *JK* flip-flops.
 5. *Design a sequential circuit with two *JK* flip-flops *A* and *B* and two inputs *E* and *X*. If *E* = 0, the circuit remains in the same state, regardless of the value of *X*. When *E* = 1 and *X* = 1, the circuit goes through the state transitions from 00 to 01 to 10 to 11, back to 00, and then repeats. When *E* = 1 and *X* = 0, the circuit goes through the state transitions from 00 to 1 to 10 to 01, back to 00, and then repeats.



□ FIGURE 5-44

Selected Answers:

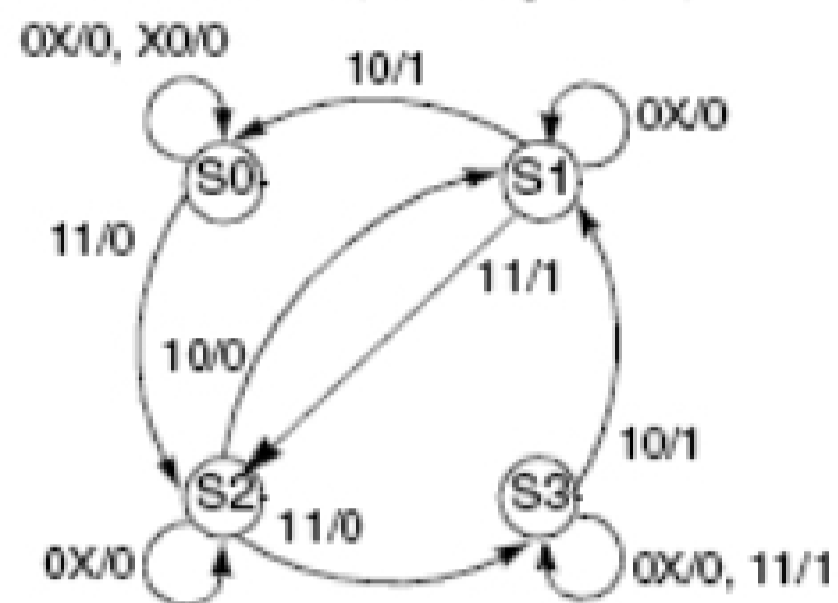
5-4.



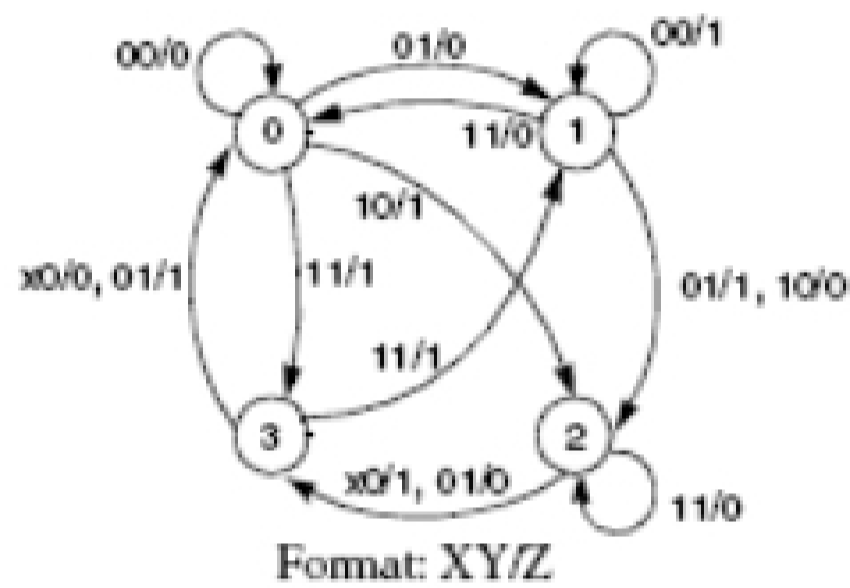
5-6)

S0 - 00
 S1 - 01
 S2 - 10
 S3 - 11

Format: XY/Z (X = unspecified)



5-10.



Online Supplement Problem 4) $J_A = K_A = X_B$, $J_B = K_B = X'$

Online Supplement Problem 5) $J_A = K_A = EX_B + EX'B'$, $J_B = K_B = E$