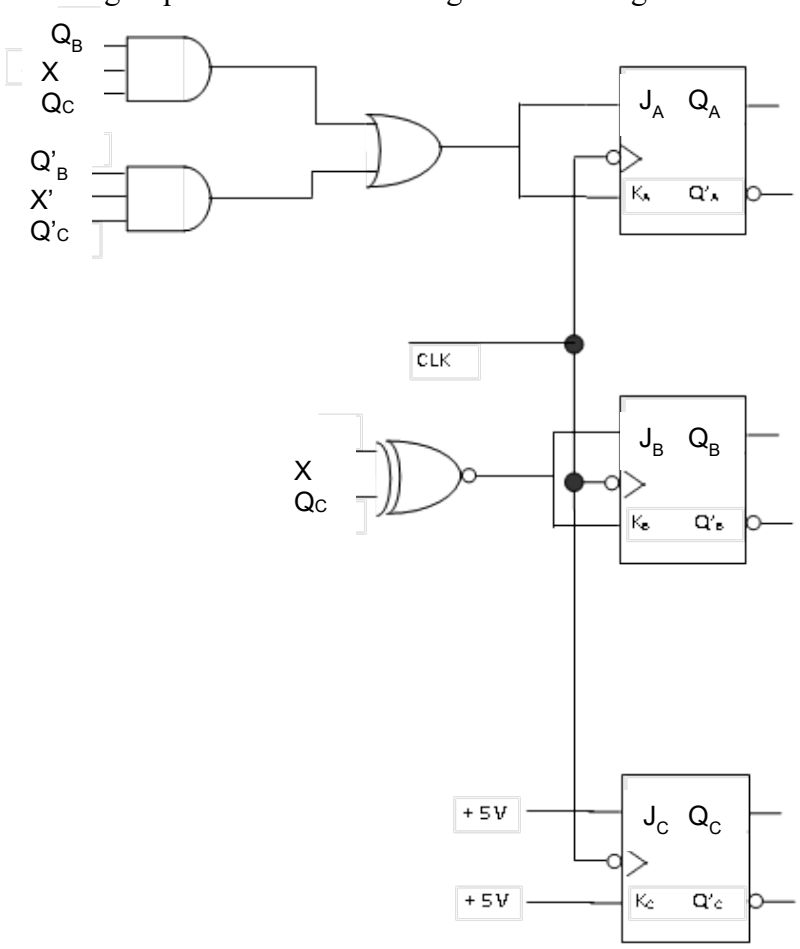
EGC220 HW #6 Dr. Izadi

First Name:_____ Last Name: _____

20 Points

Problem 1

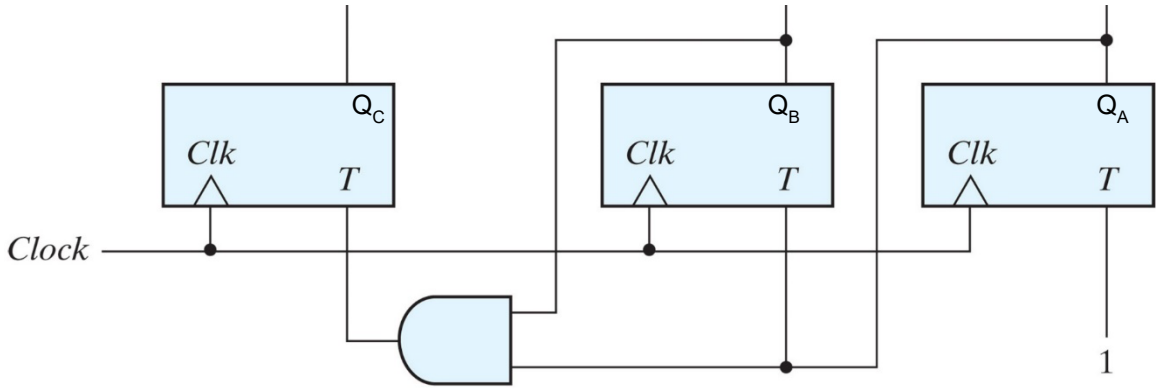
Analyze the following sequential circuits leading to a state diagram.



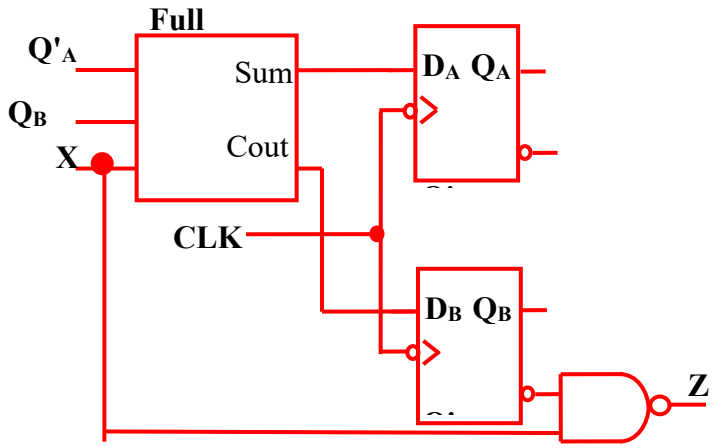
20 Points

Problem 2

Analyze the following sequential circuits leading to a state diagram.

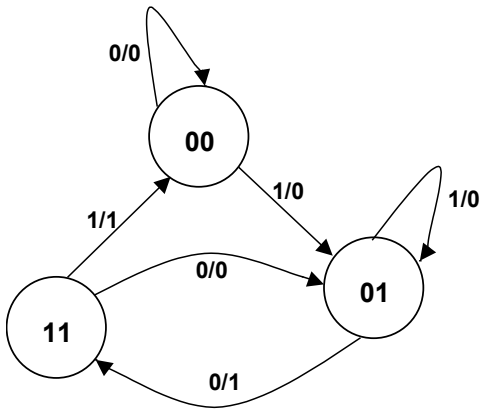


20 Points
Problem 3
Analyze the following circuit leading to its state diagram.

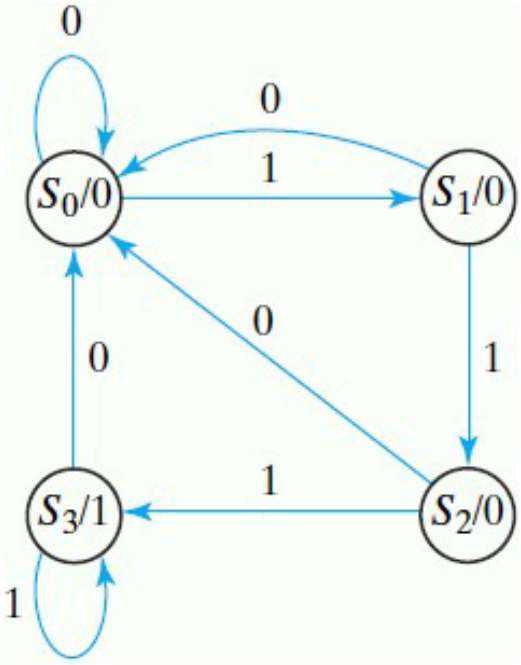


20 Points
Problem 4
Using JK flip flops, design an up/down synchronous counter that counts from 3 to 6.

20 Points
Problem 5
Using JK flip-flops, design a circuit for the following state diagram.



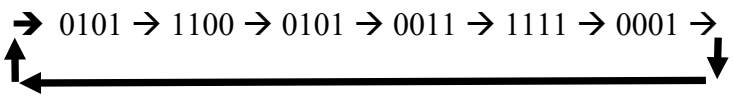
20 Points
Problem 6
Using T flip-flops, design a circuit for the following state diagram. You may make the following state assignments: S0 = 00, S1 = 10, S2 = 11, S3 = 01



25 Points
Problem 7
Using JK flip-flops, design a Moore based sequence detector with one input and one output, which would generate an output of 1 only when the input sequence is 101. Assume no overlapping, namely 10101 generates output 00100.

25 Points
Problem 8
Using JK flip-flops, design a Moore based sequence detector with one input and one output, which would generate an output of 1 only when the input sequence is 101. Assume overlapping of sequence is allowed, namely 10101 generates output 00101.

25 Points
Problem 9
Using D flip flops, design a circuit to generate the following sequence.



Your design should be race free.

Due 5/2/2023