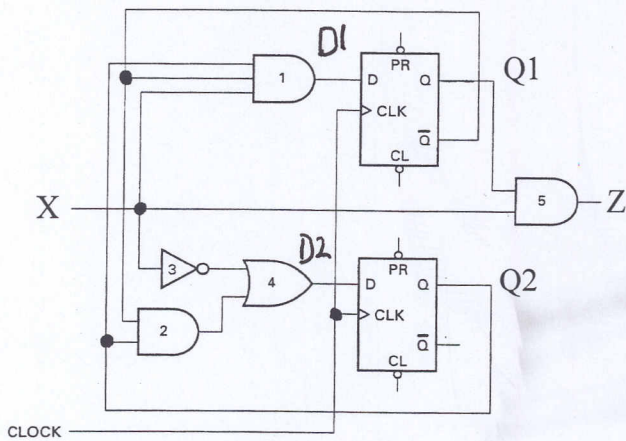


Name: Artswey

Instructions: Answer all questions. Do NOT use any notes, book or calculator and show all work using back of page if necessary. Clearly indicate the final answer on the front of the page.

1. (10 points) Analyze the clocked sequential state machine shown below. Write the excitation equations, excitation/transition table, and state/output table (use state names A-D for Q1 Q2=00-11). Draw the state diagram. Is this a Mealy or Moore model?



Excitation Eqs

$$D1 = Q1' \cdot Q2 \cdot X$$

$$D2 = Q1' \cdot Q2 + X'$$

Next-State Eqs

$$Q1^* = Q1' \cdot Q2 \cdot X$$

$$Q2^* = Q1' \cdot Q2 + X'$$

Output Eq

$$Z = Q1 \cdot X$$

Mealy FSM

Transition Table

Q1	Q2	x=0	x=1
0	0	0 1	0 0
0	1	0 1	1 1
1	0	0 1	0 0
1	1	0 1	0 0
		Q1* Q2*	Q1* Q2*

state/output table

S	x=0	x=1
A	B, 0	A, 0
B	B, 0	D, 0
C	B, 0	A, 1
D	B, 0	A, 1

state Diagram

