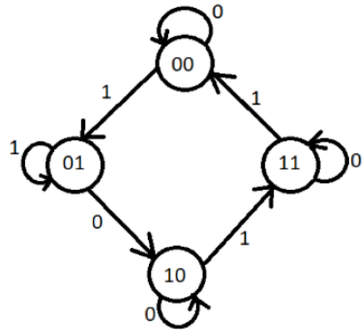
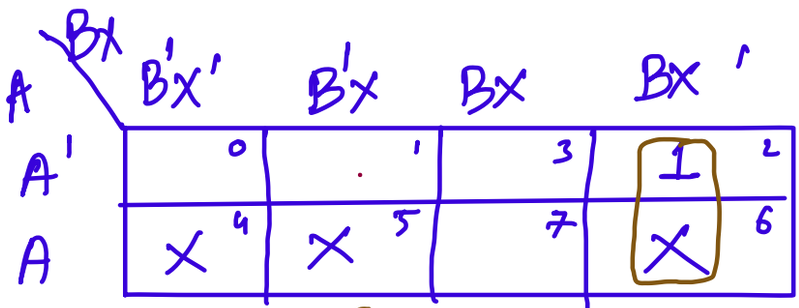
Question 1 (10 Marks):
Given the state diagram as follows, get the sequential circuit using SR flipflop. Show all necessary tables.



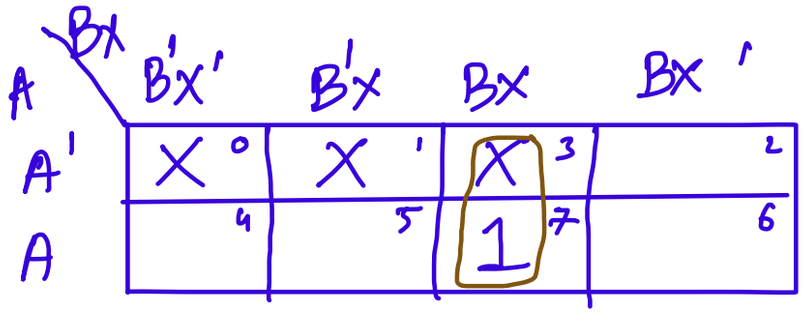
Once you get the circuit diagram, try to build the above state diagram from your circuit diagram. Show all necessary tables.

1

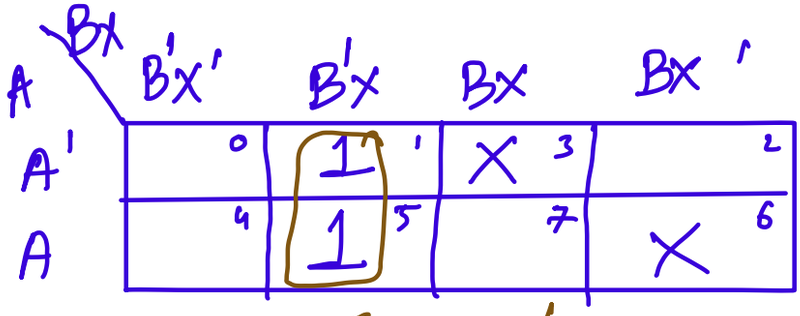
A	B	X	A^+	B^+	S_A	R_A	S_B	R_B
0	0	0	0	0	0	X	0	X
0	0	1	0	1	0	X	1	0
0	1	0	1	0	1	0	0	1
0	1	1	0	1	0	X	X	0
1	0	0	1	0	X	0	0	X
1	0	1	1	1	X	0	1	0
1	1	0	1	1	X	0	X	0
1	1	1	0	0	0	1	0	1



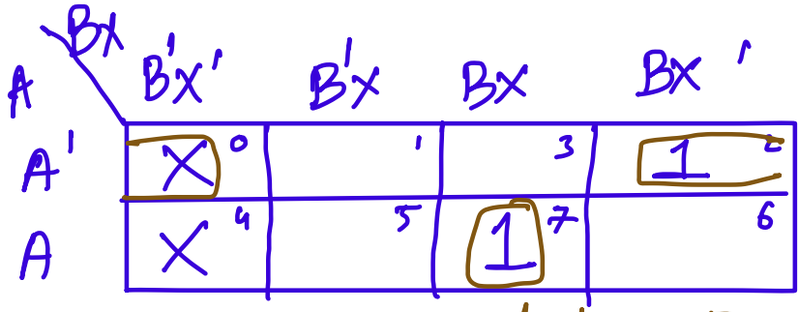
$S_A = BX'$



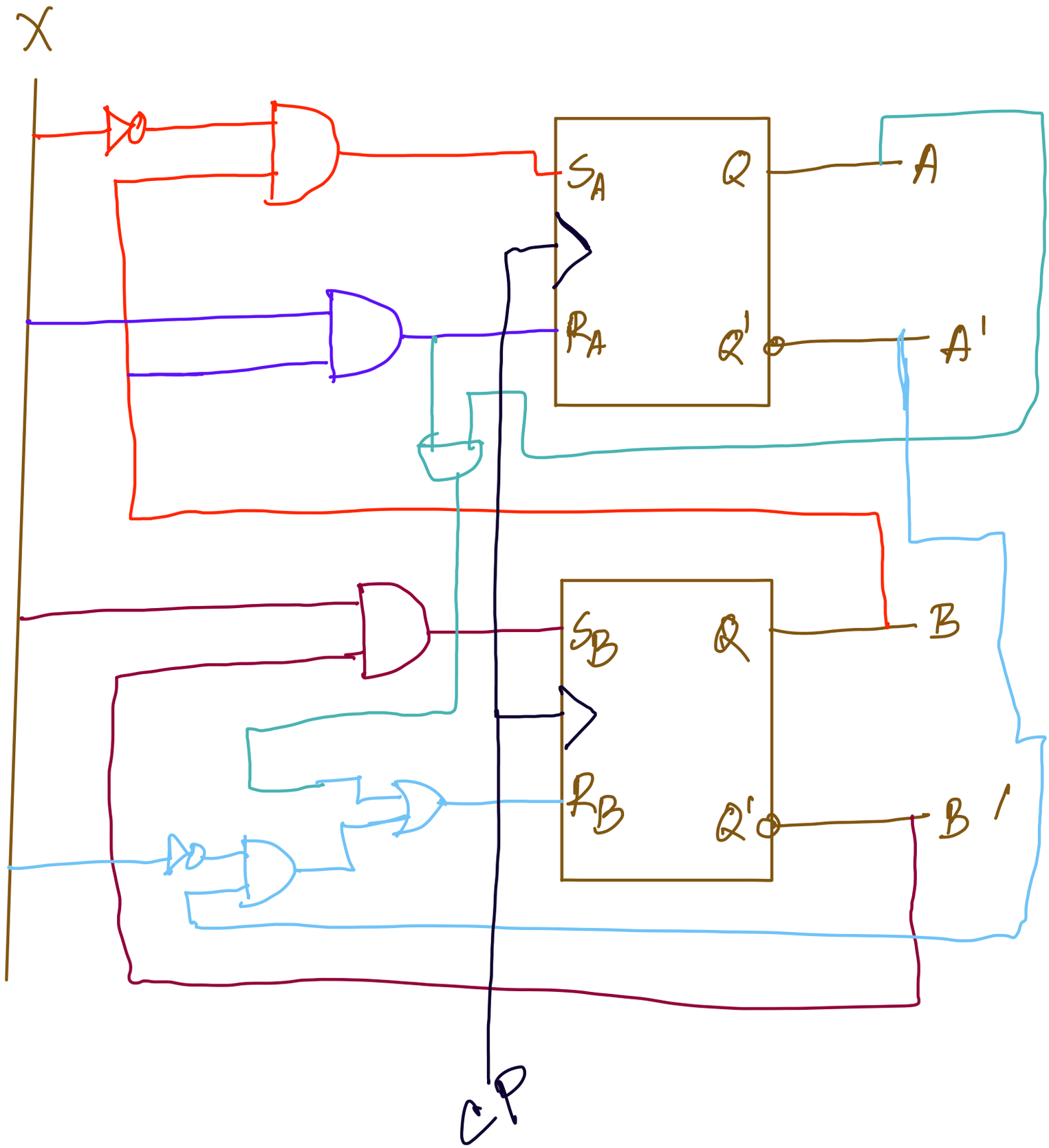
$R_A = BX$



$S_B = B'X$



$R_B = A'X' + ABX$


X
S_A
Q
A
R_A
Q'
A'
S_B
Q
B
R_B
Q'
B'
CP

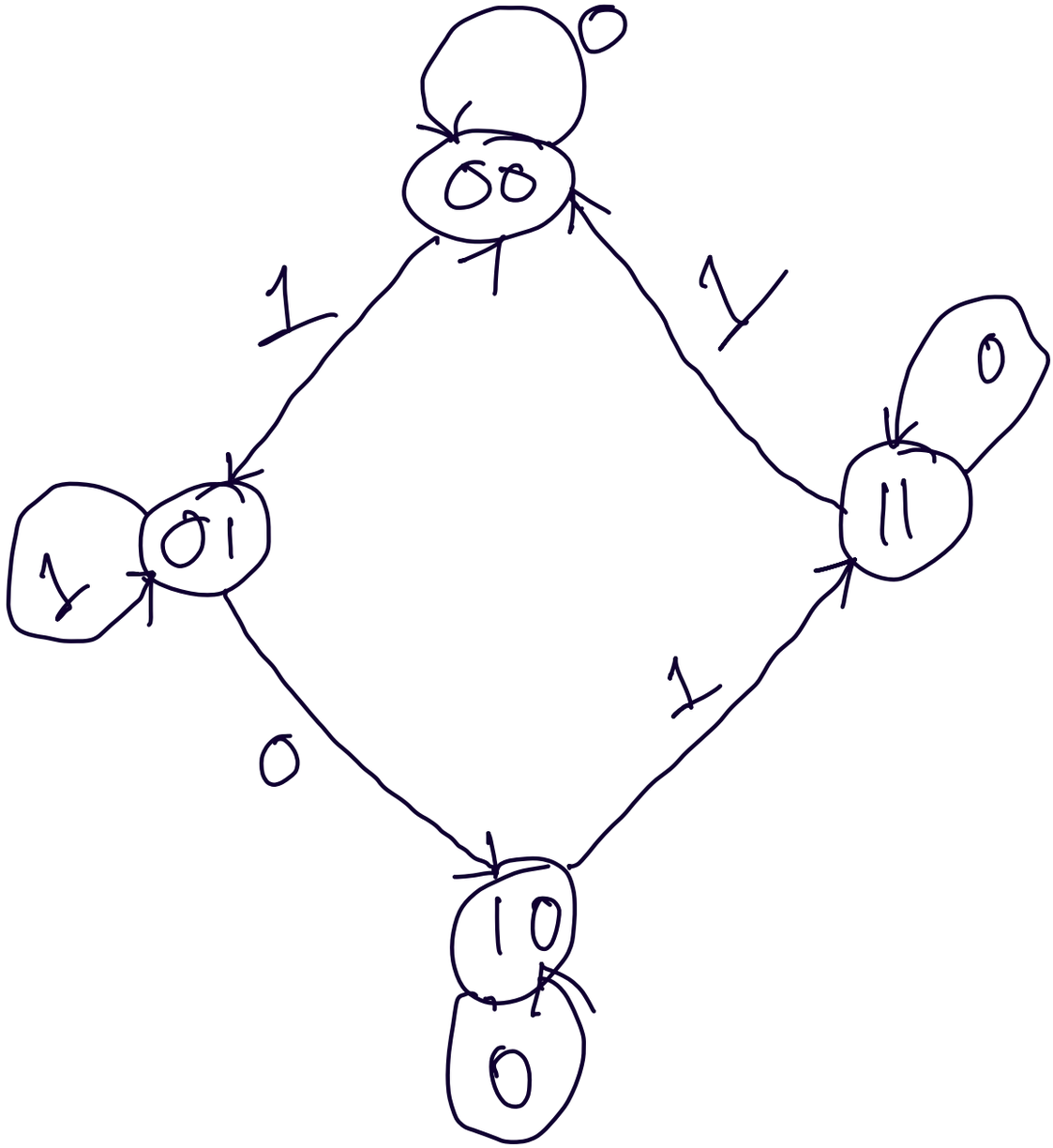
$S_A = Bx'$

$S_B = B'x$

$R_A = Bx$

$R_B = A'x' + ABx$

A	B	X	S_A	R_A	S_B	R_B	A^+	B^+
0	0	0	0	0	0	1	0	0
0	0	1	0	0	1	0	0	1
0	1	0	1	0	0	1	1	0
0	1	1	0	1	0	0	0	1
1	0	0	0	0	0	0	1	0
1	0	1	0	0	1	0	1	1
1	1	0	1	0	0	0	1	1
1	1	1	0	1	0	1	0	0


0
00
1
1
0
11
1
01
1
0
1
10
0