

'Assignment-04'

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Sec: 03-B

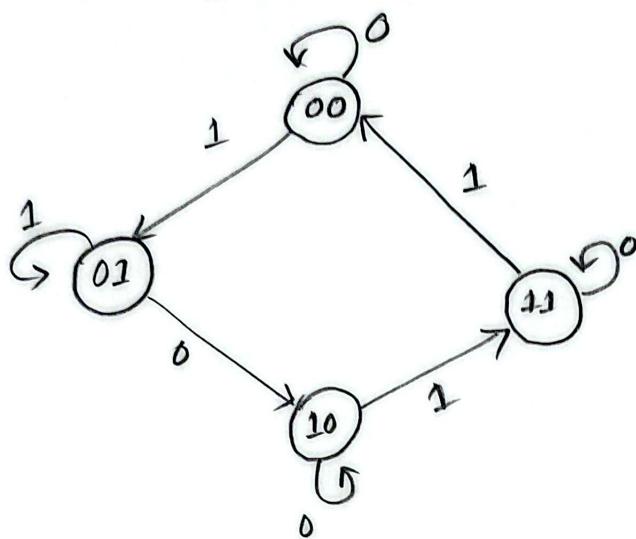
Course: CSE260

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Ans. to the que. no. 01

Given state Diagram,



SR-Flip Flop Excitation Table

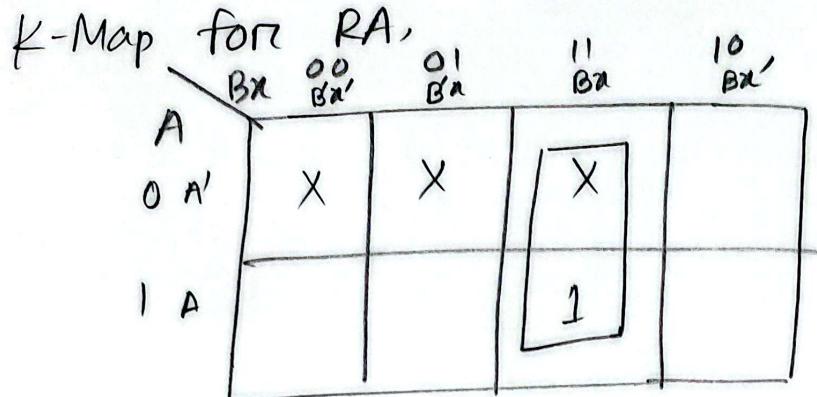
Q	Q^+	S	R
0	0	0	X
0	1	1	0
1	0	0	1
1	1	X	0

Present State		Input	Next state		Flip Flop Inputs			
A	B	X	A+	B+	SA	RA	SB	RB
0	0	0	0	0	0	0	X	0
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

K-Map for SA

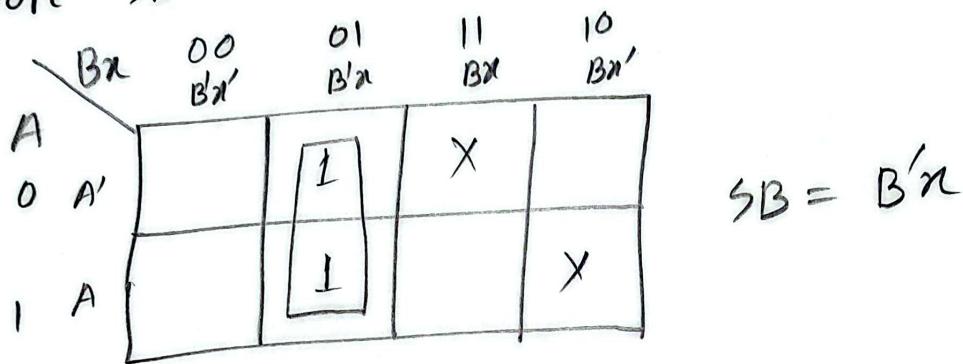
		Bx	$00_{Bx'}$	$01_{Bx'}$	$11_{Bx'}$	$10_{Bx'}$
		A				
		OA'				
O	A'					
1	A	X	X		X	

$$SA = BX'$$



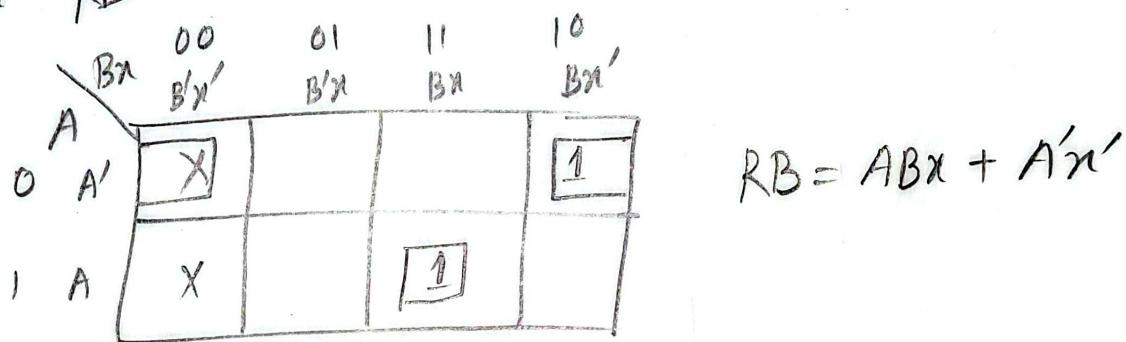
$$RA = Ba$$

K-Map for SB



$$SB = B'a$$

K-Map for RB



$$RB = ABx + A'b$$

So, the sequential circuit using SR-flip flop is given below;

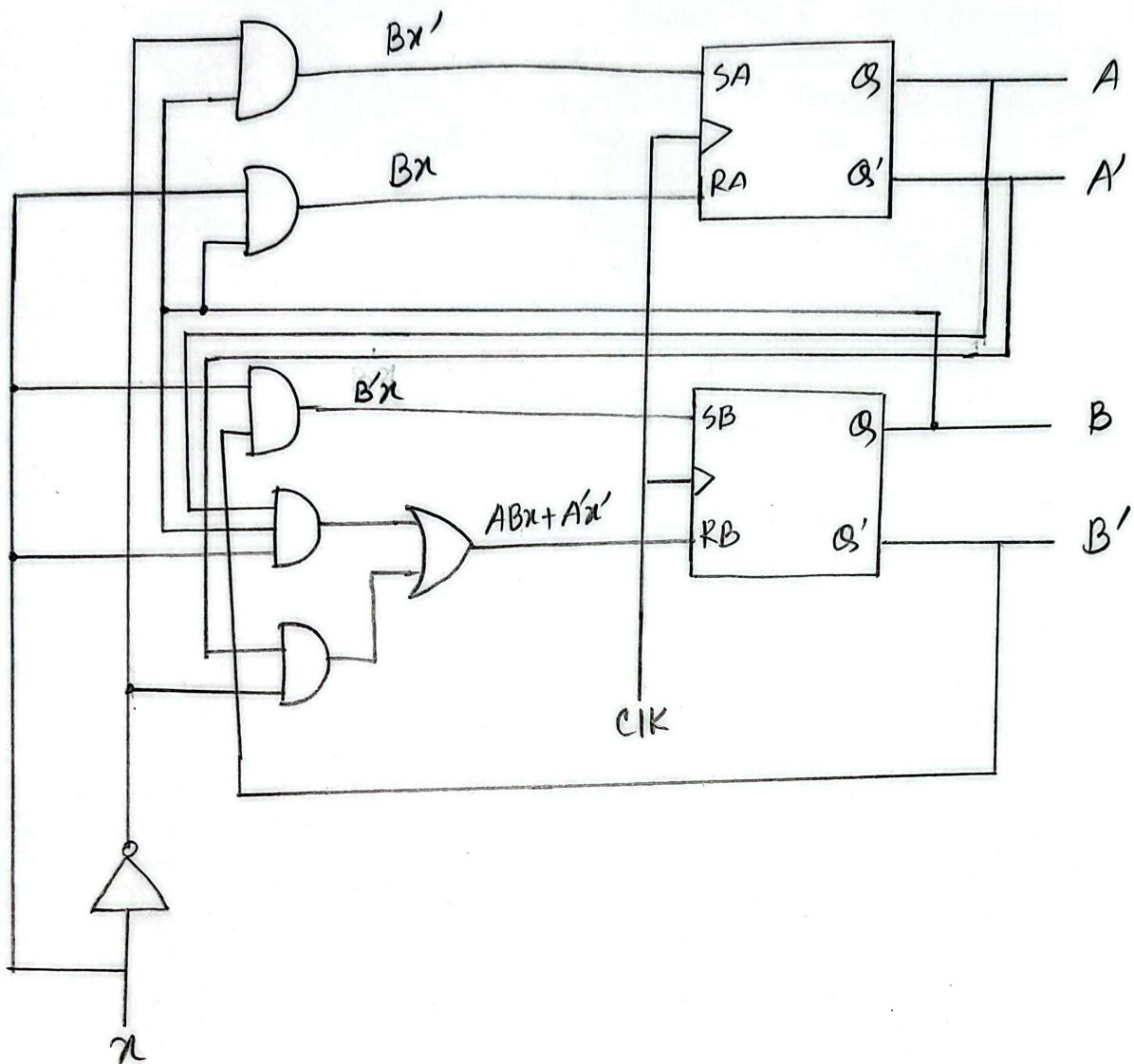
functions are,

$$SA = Bx'$$

$$SB = B'a$$

$$RA = Ba$$

$$RB = ABx + A'b$$



So, since we already have the logic diagram and the equations, we can build the state table from this, equations are,

$$SA = Bx'$$

$$SB = B'x$$

$$RA = Bx$$

$$RB = ABx + A'x'$$

SR Flip-Flop Truth Table

S	R	Q	Q'
0	0	No change	
0	1	0	1
1	0	1	0
1	1	Not Used	

State table

A	B	X	SA	RA	SB	RB	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

Now, we can draw the state diagram from the state table,

State Diagram:

