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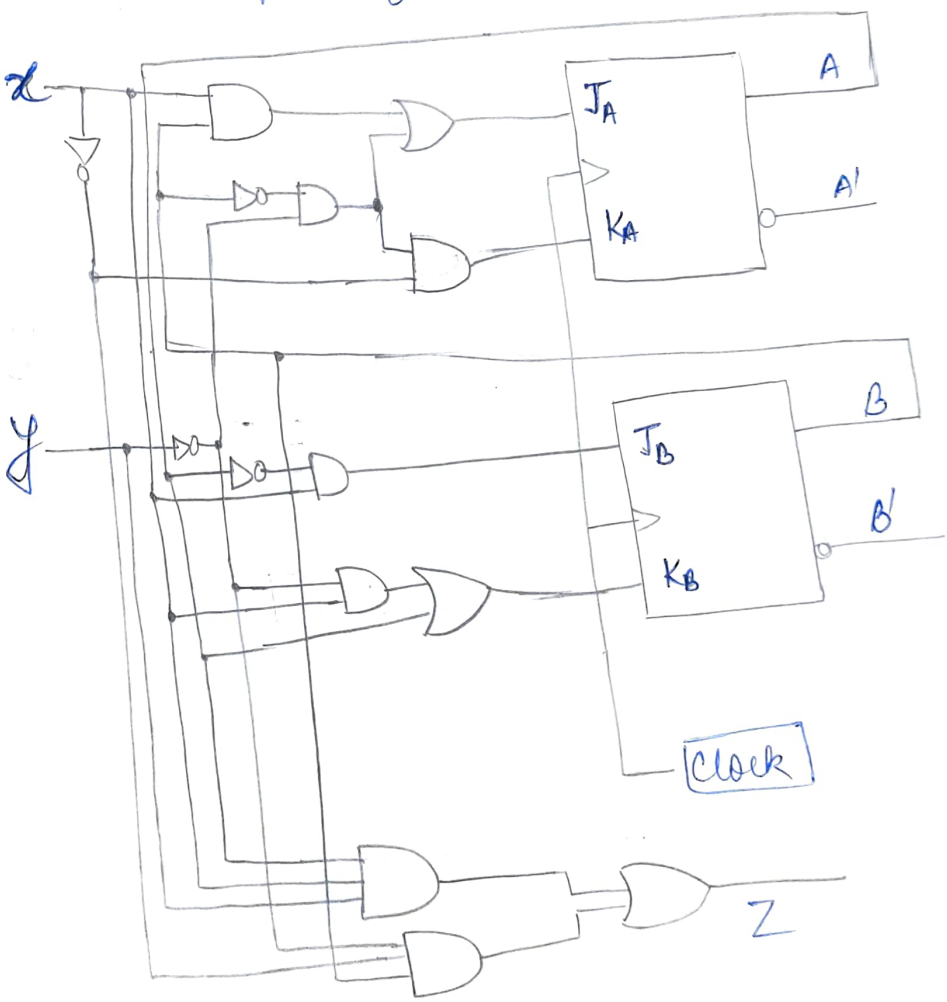
Title of the Paper :- Understanding Computer System Architecture

Solution 2

A/Q $J_A = Bx + B'y'$ $J_B = A'x$ $Z = Axy + Bx'y'$

$K_A = B'x'y'$ $K_B = A + xy'$

(1) Logic diagram of circuit.



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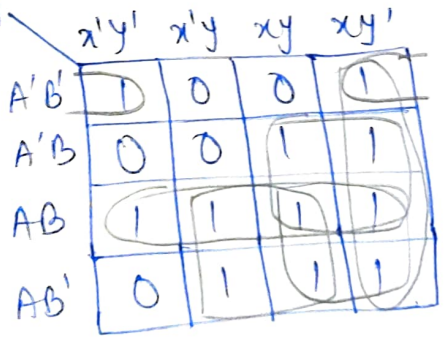
(ii) State table.

P/S		I/P		N/S		Flip flops				O/P
A	B	x	y	A^+	B^+	J_A	K_A	J_B	K_B	Z
0	0	0	0	1	0	1	1	0	0	0
0	0	0	1	0	0	0	0	0	0	0
0	0	1	0	1	1	1	0	1	1	0
0	0	1	1	0	1	0	0	1	0	0
0	1	0	0	0	1	0	0	0	0	1
0	1	0	1	0	1	0	0	0	0	0
0	1	1	0	1	0	1	0	1	1	0
0	1	1	1	1	1	1	0	1	0	0
1	0	0	0	0	0	1	1	0	1	0
1	0	0	1	1	0	0	0	0	1	0
1	0	1	0	1	0	1	0	0	1	0
1	0	1	1	1	0	0	0	0	1	1
1	1	0	0	1	0	0	0	0	1	1
1	1	0	1	1	0	0	0	0	1	0
1	1	1	0	1	0	1	0	0	1	0
1	1	1	1	1	0	1	0	0	1	1

(iii) Next state eqn.

a) for A



$A(t+1) = xy' + xB + AB + yA + A'B'y$

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b) for B

	$x'y'$	$x'y$	xy	xy'
$A'B'$	0	0	1	1
$A'B$	1	1	1	0
AB	0	0	0	0
AB'	0	0	0	0

$B(t+1) = A'B'x + A'Bx' + A'xy$