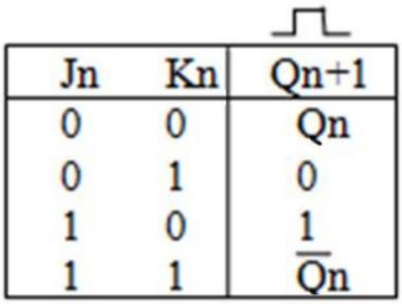
CS220 Computer Architecture
Digital Logic Design
Practical 5

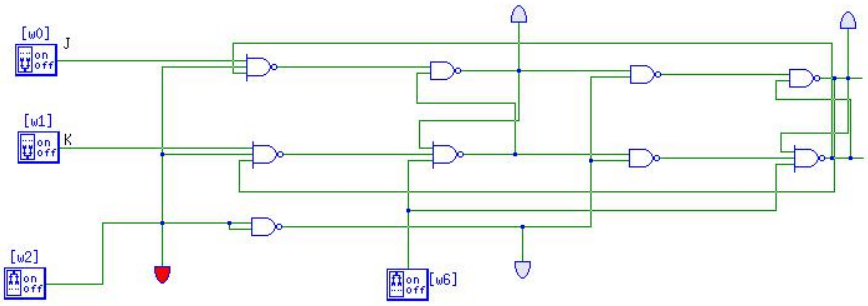
Part A

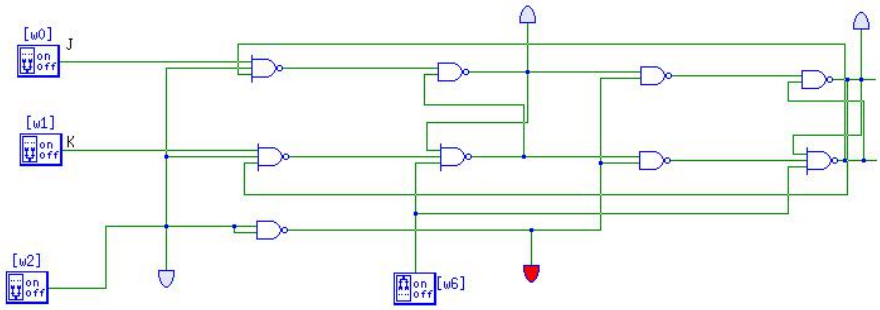
true table:



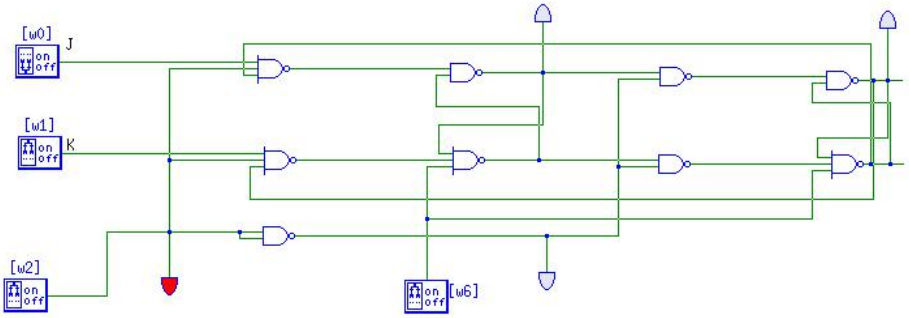
Jn	Kn	Qn+1
0	0	Qn
0	1	0
1	0	1
1	1	$\overline{Qn}$

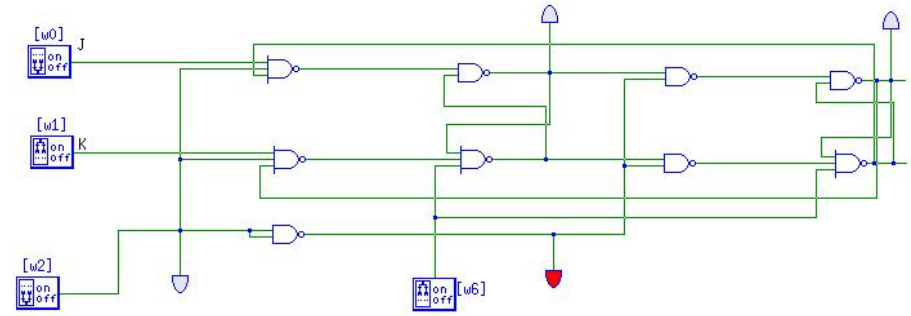
$J = 0 \quad K = 0 \quad Q_{n+1} = Q_n$



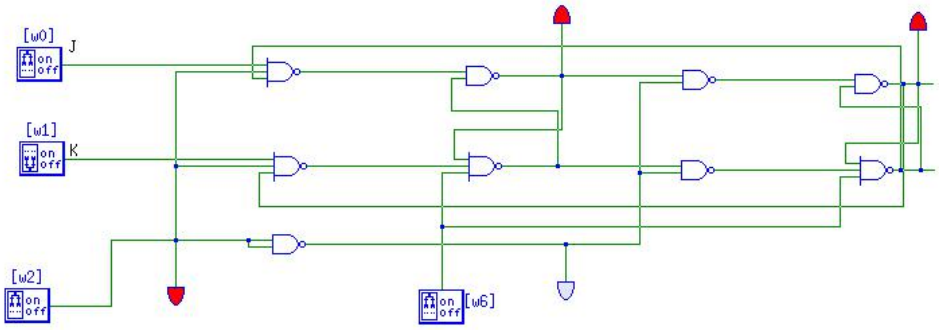


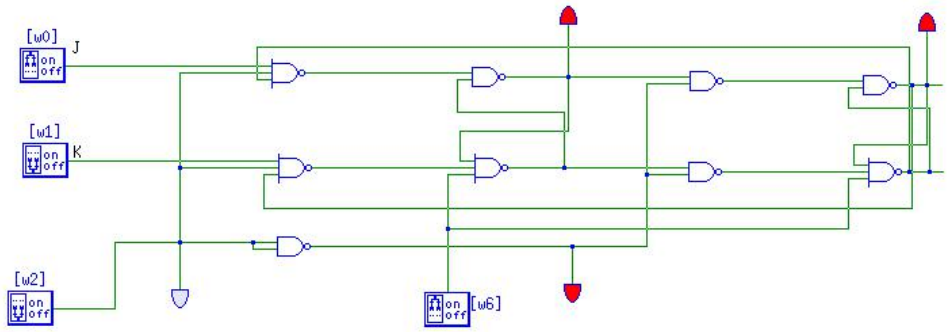
$J = 0 \quad K = 1 \quad Q_{n+1} = 0$



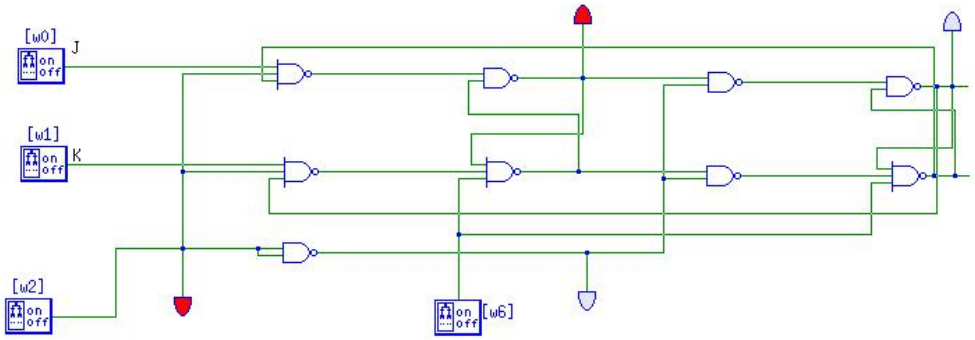


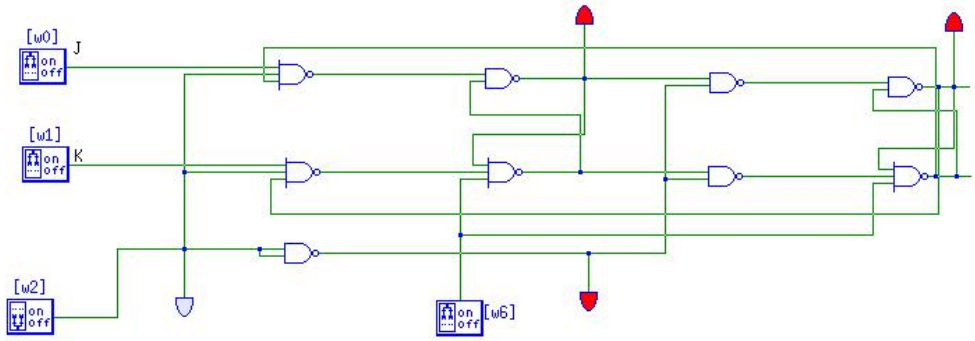
$J=1 \quad K=0 \quad Q_{n+1}=1$

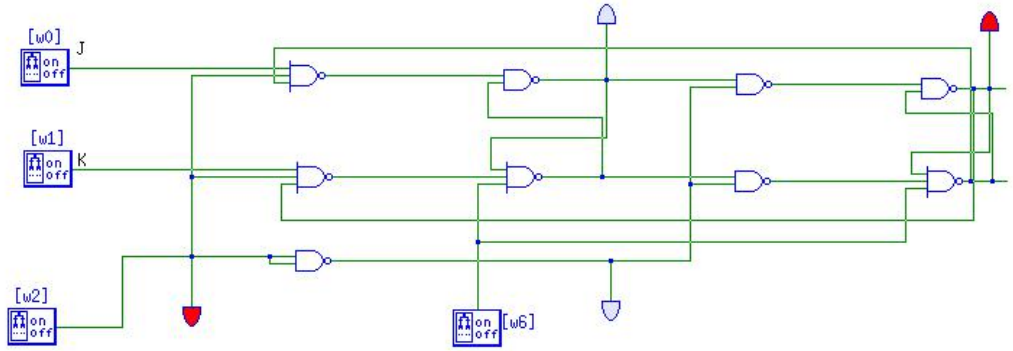




$J=1 \quad K=1 \quad Q_{n+1}=\overline{Q_n}$




[w0]
J
[w1]
K
[w2]
[w6]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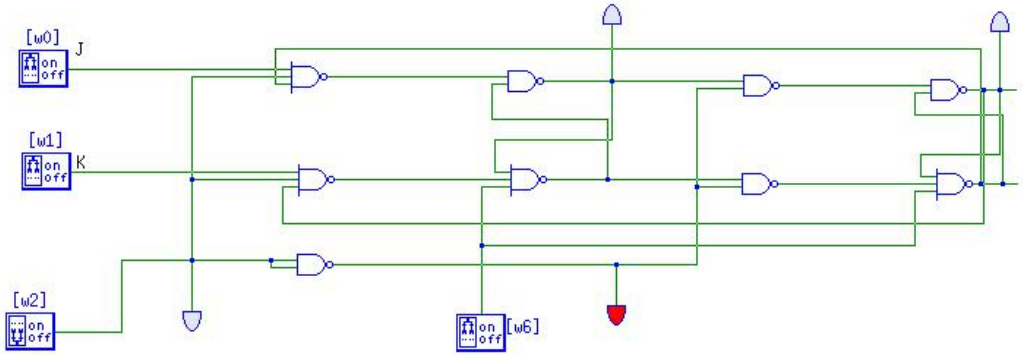
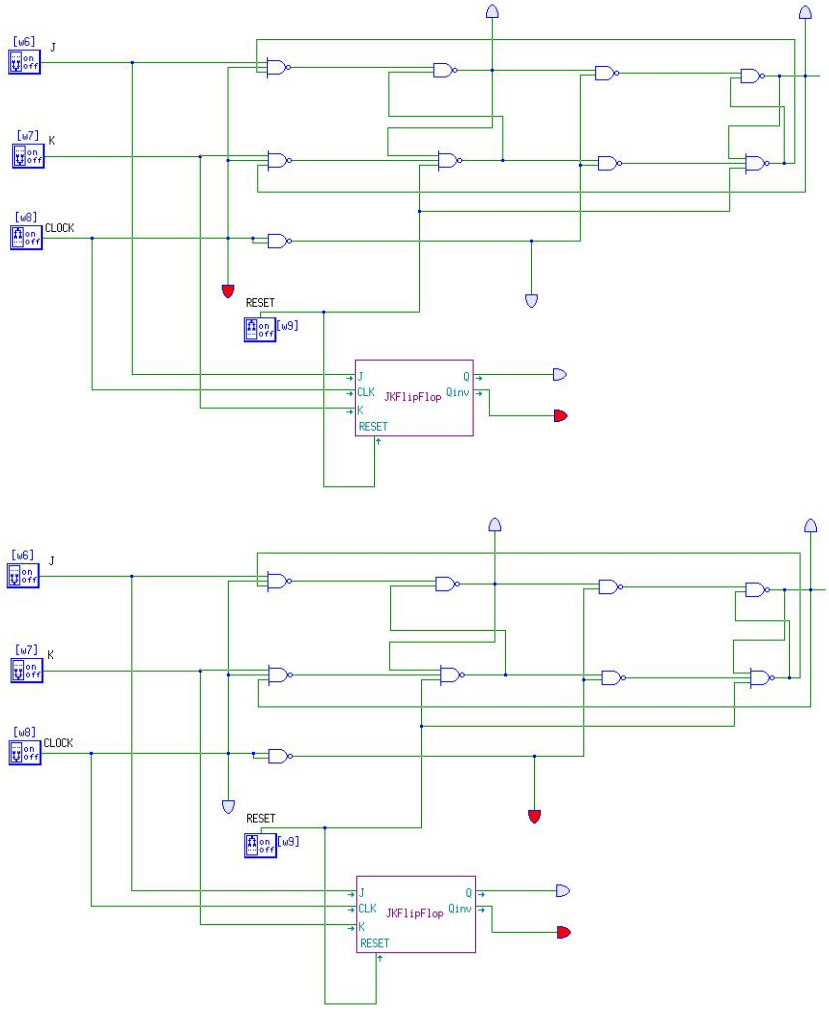
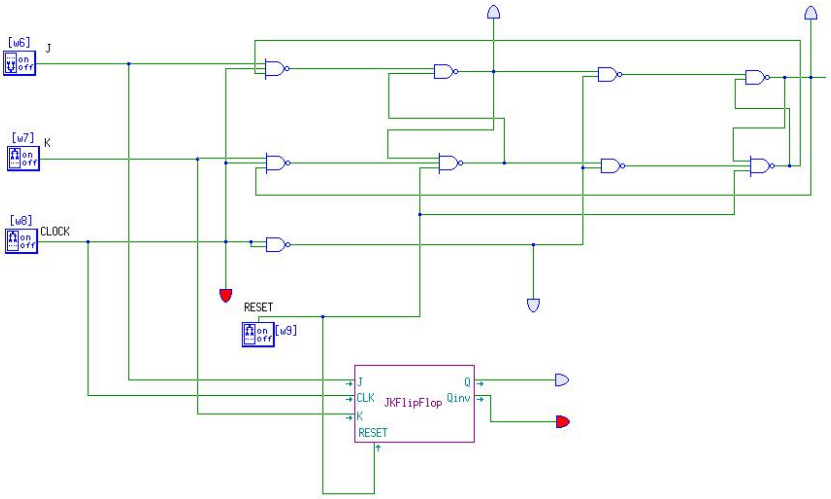

[w0]
J
[w1]
K
[w2]
[w6]

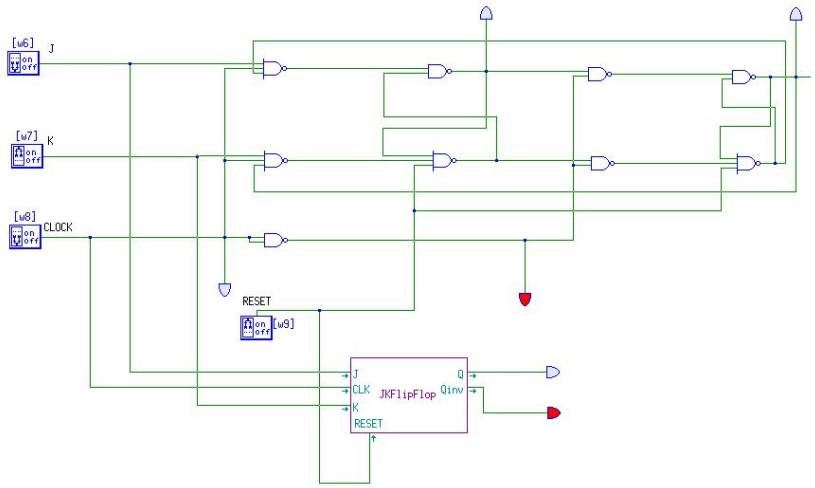
Part B

$J = 0 \quad K = 0 \quad Q_{n+1} = Q_n$

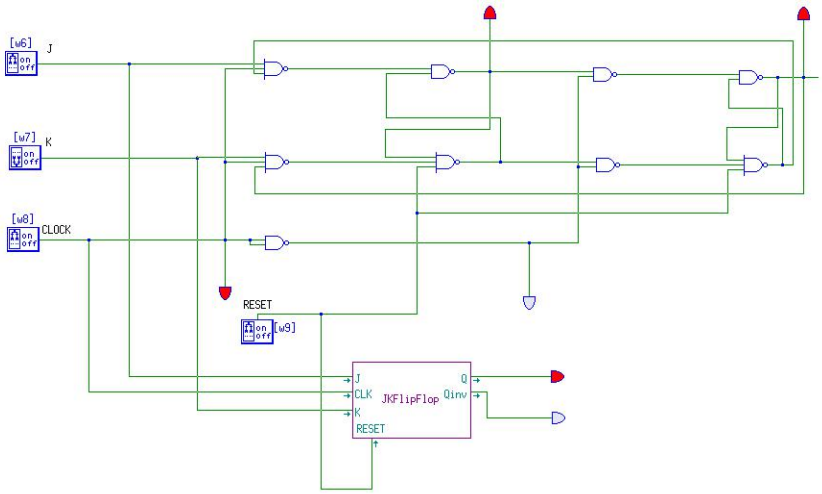


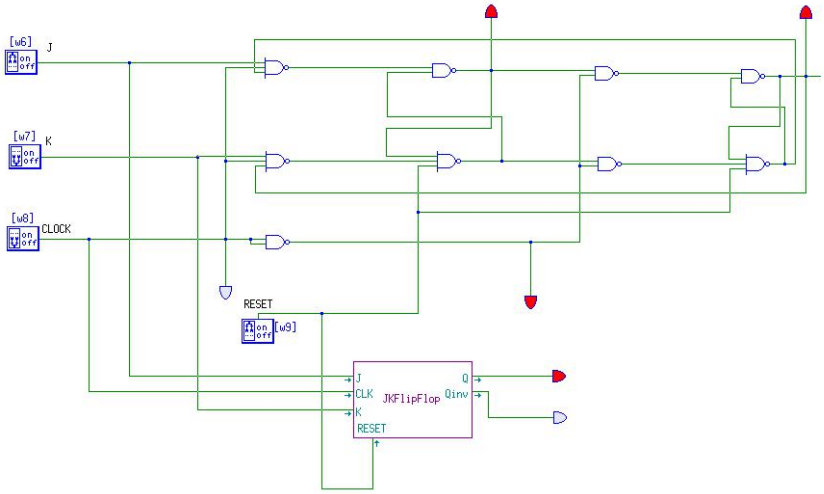
$J = 0 \quad K = 1 \quad Q_{n+1} = 0$



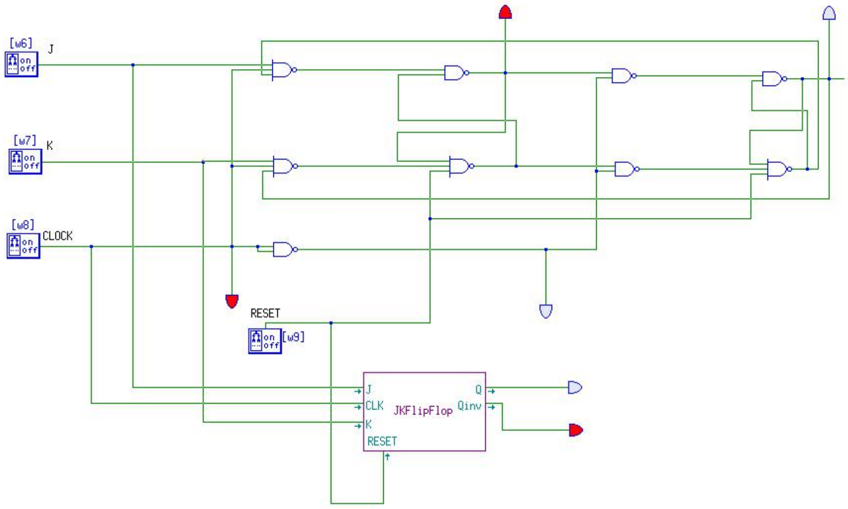


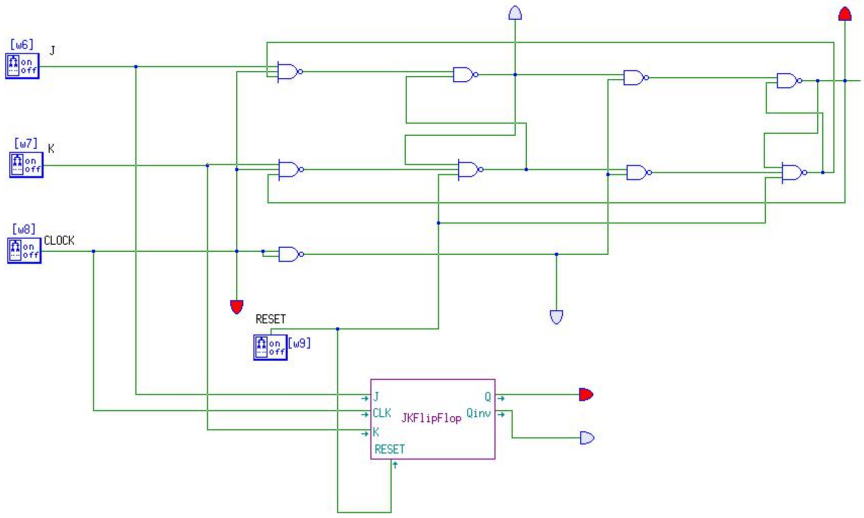
$J=1 \quad K=0 \quad Q_{n+1}=1$

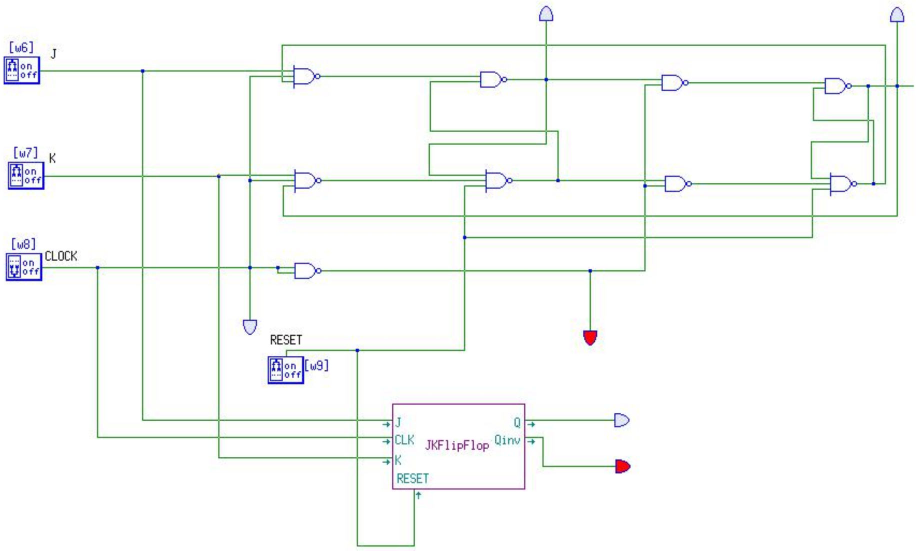




$J = 1 \quad K = 1 \quad Q_{n+1} = \overline{Q_n}$



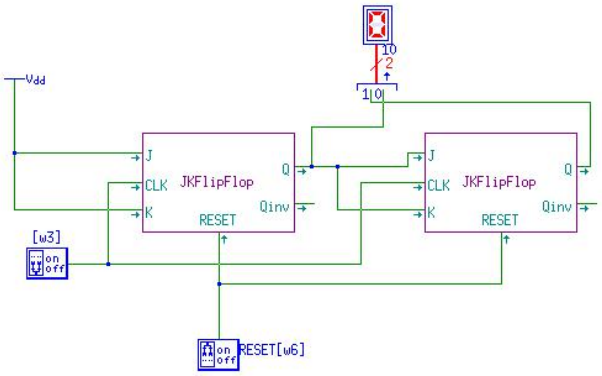




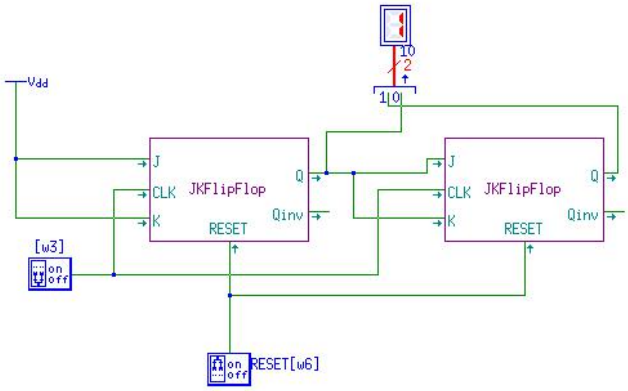
Part C

A	B	Number
0	0	0
0	1	1
1	0	2
1	1	3

Number 0:



Number 1:



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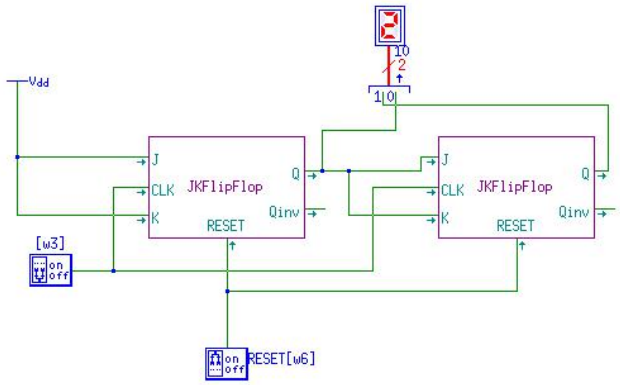

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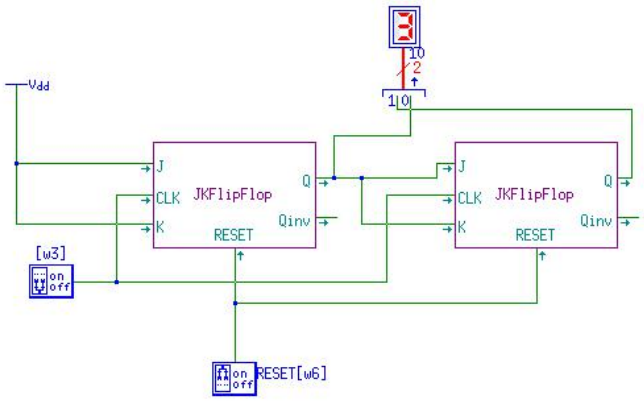
Vdd
J
CLK
K
JKFlipFlop
RESET
Q
Qinv
J
CLK
K
JKFlipFlop
RESET
Q
Qinv
10
2
1|0
[w3]
on
off
on
off
RESET[w6]