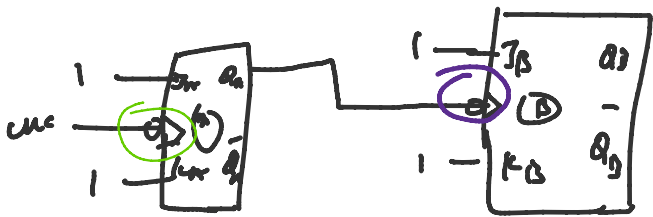
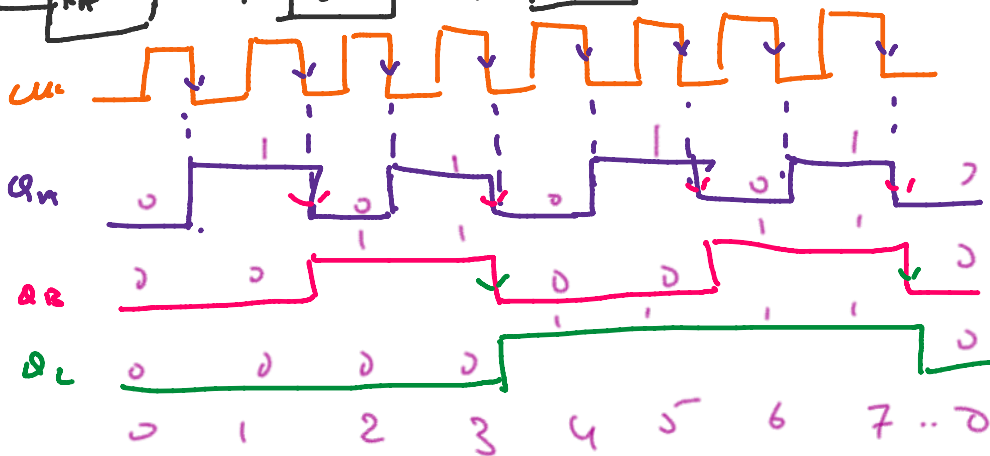
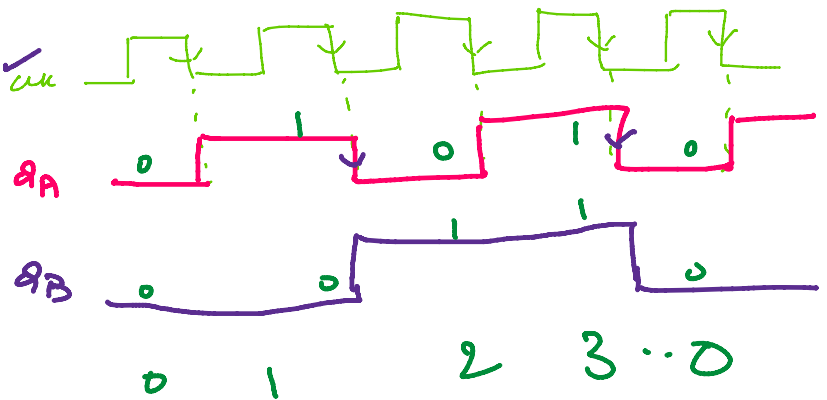
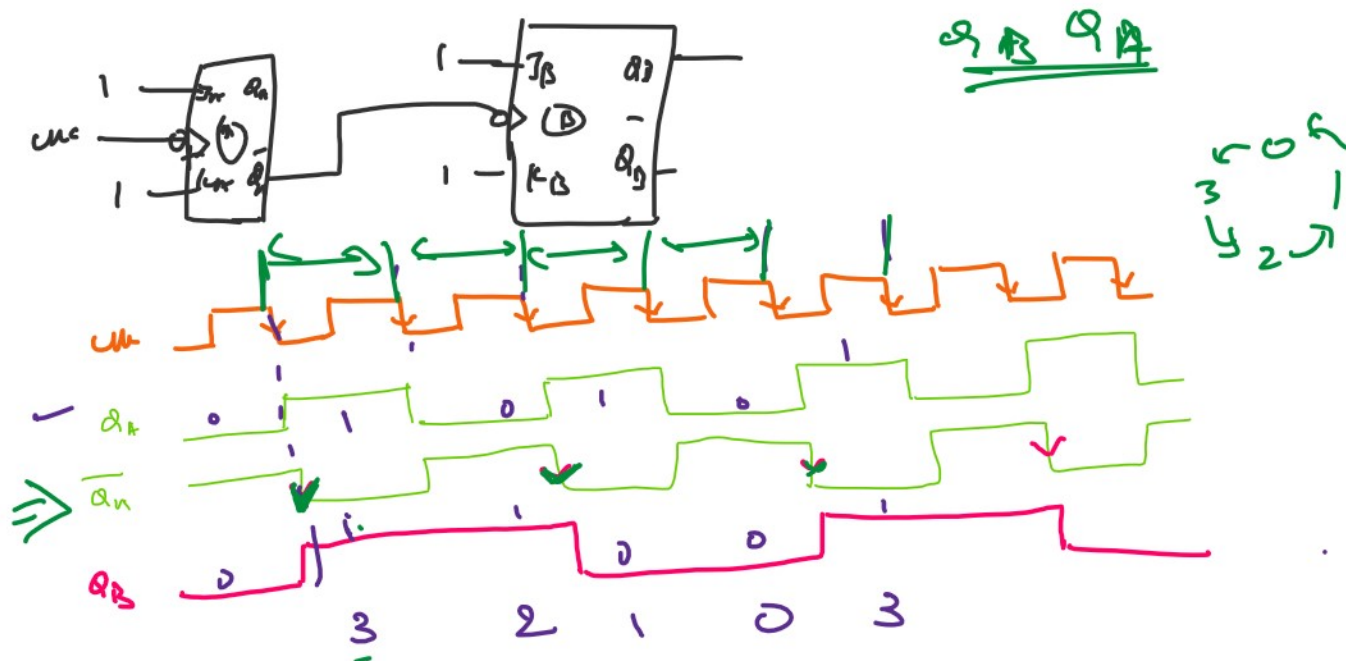


The 1st
complement is
 $J+1 = K$

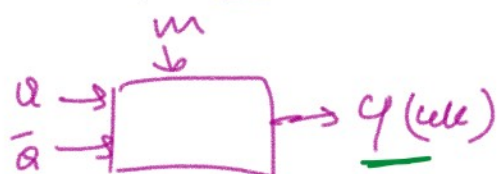


VP



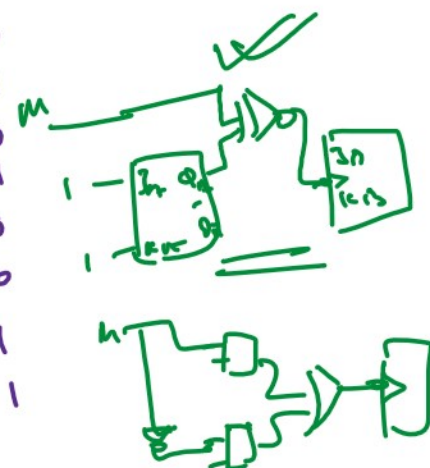


Async up/down counter



m	00	01	11	10
u	0	1	1	0
d	1	0	0	1

m	Q	\bar{Q}	Y
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1



$$y = \underbrace{m}_{\checkmark} \underbrace{\overline{Q}}_{\checkmark} + \underbrace{mQ}_{\checkmark} = m \odot Q$$