3. Write the sequence of configuration for 11000011.

State transition diagram with states q_0 through q_8:
- q_2: self-loop $1,1,R$
- q_3: self-loop $1,1,L$
- $q_2 \to q_3$: $0,1,L$
- q_6
- $q_1 \to q_2$: $0,0,R$
- $q_4 \to q_3$: $0,0,L$
- $q_4 \to q_6$: $0,1,R$
- $q_6 \to q_7$: $0,1,R$
- q_1: self-loop $1,1,R$
- q_7: self-loop $1,1,R$
- $q_0 \to q_1$: $1,0,R$
- $q_5 \to q_4$: $1,1,L$
- $q_7 \to q_8$: $0,0,L$
- start $\to q_0$
- $q_5 \to q_0$: $0,1,R$
- q_5: self-loop $1,1,L$
- q_8: self-loop $1,0,N$
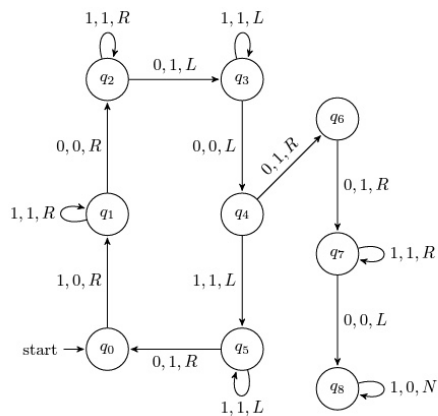
q_0 11000011

$0q_1$1000011

$01q_1$000011

$010q_2$00011

$01q_3$10011

$0q_4$010011

$q_5$01010011

$1q_6$1010011

$10q_1$010011

1.

$100q_2 10011$

$1001q_2 0011$

$100q_3 11011$

$10\ q_3 011011$

$1\ q_4 0011011$

$11q_6 011011$

$111q_7 11011$

$1111q_7 1011$

$11111q_7 011$

$1111q_8 1011$