

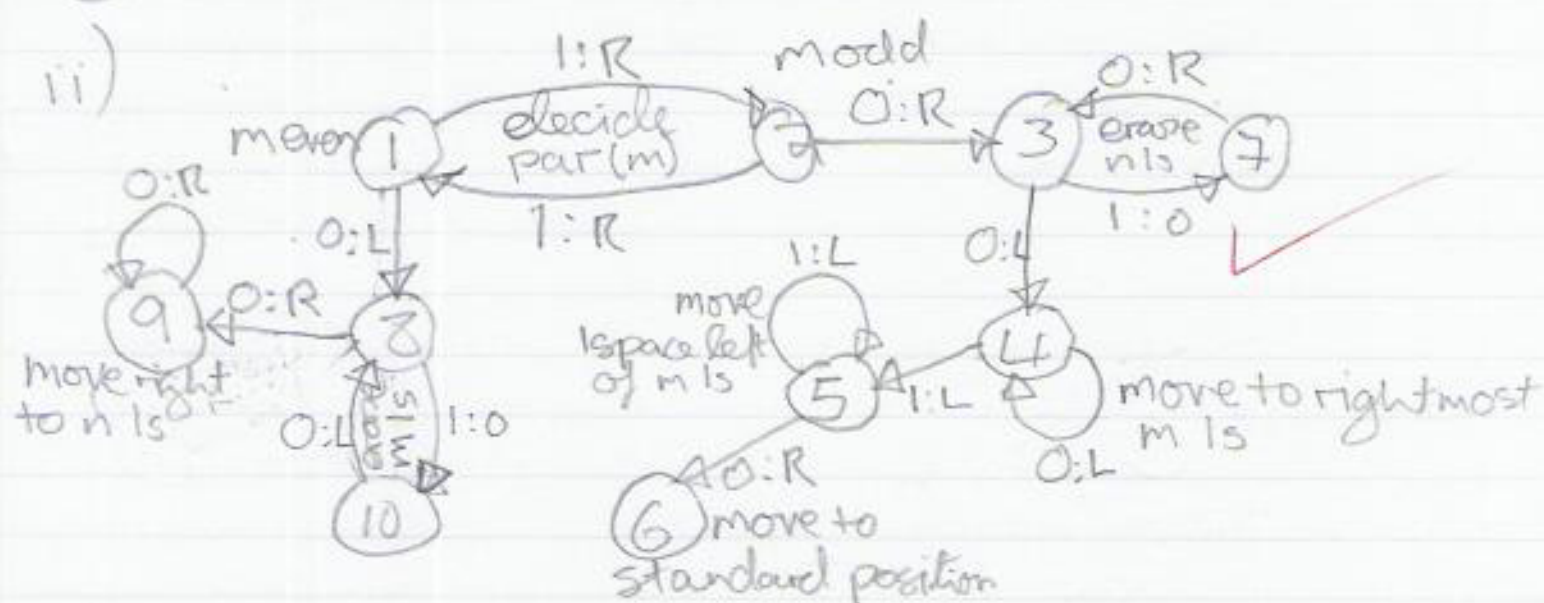
standard position).

The only two possible halting states are 9 (reading leftmost of $n/2$ ones, indicating n even) or 10 (reading leftmost of $(n-1)/2$ ones, indicating n odd).

8) i)



ii)



iii) a) $f(2) = 2$, state 7

0 1 1 0 0 0 1 0 0 0 1 0 0 0 0 0
1 2 3 4

0 0 0 0 0 0 0 1 0 0 0 1 0 0 1 1
1 6 6 7

b) $f(3) = 1$, state 5

0 1 1 1 0 0 0 1 1 0 0 0 1 1 0 0 0 0 1 0
1 2 3 4