

1.1

a.  $M_1: q_1$      $M_2: q_1$

b.  $M_1: F = \{q_2\}$

$M_2: F = \{q_1, q_4\}$

c.  $M_1: q_1 \xrightarrow{a} q_2 \xrightarrow{a} q_3 \xrightarrow{b} q_1 \xrightarrow{b} q_1$

$M_2: q_1 \xrightarrow{a} q_1 \xrightarrow{a} q_1 \xrightarrow{b} q_2 \xrightarrow{b} q_4$

d.  $M_1: \text{No. } q_1 \text{ is not in the } F$

$M_2: \text{Yes. } q_4 \text{ is in the } F$

1.2  $M_1 (Q, \Sigma, \delta, q_0, F)$

$Q = \{q_1, q_2, q_3\}$

$\Sigma = \{a, b\}$

start state =  $q_1$

$F = \{q_2\}$

$\delta(q_1, a) = q_2$

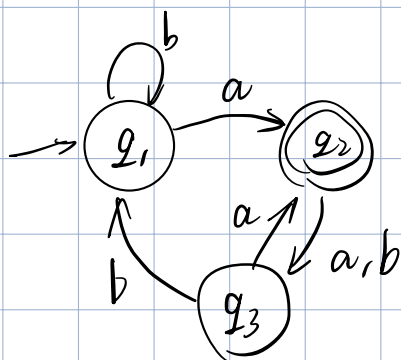
$\delta(q_1, b) = q_1$

$\delta(q_2, a) = q_3$

$\delta(q_2, b) = q_3$

$\delta(q_3, a) = q_2$

$\delta(q_3, b) = q_1$



$M(Q, \Sigma, \delta, q_0, F)$

$Q = \{q_1, q_2, q_3, q_4\}$

$\Sigma = \{a, b\}$

start state =  $q_1$

$F = \{q_1, q_4\}$

$\delta(q_1, a) = q_1$

$\delta(q_1, b) = q_2$

$\delta(q_2, a) = q_3$

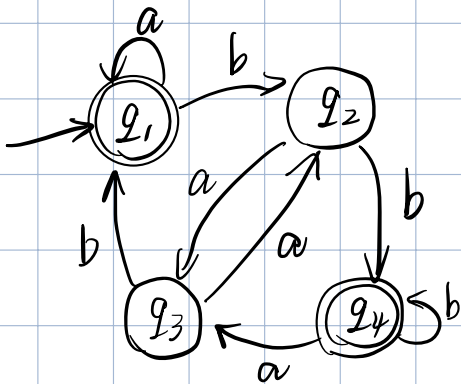
$\delta(q_2, b) = q_4$

$\delta(q_3, a) = q_2$

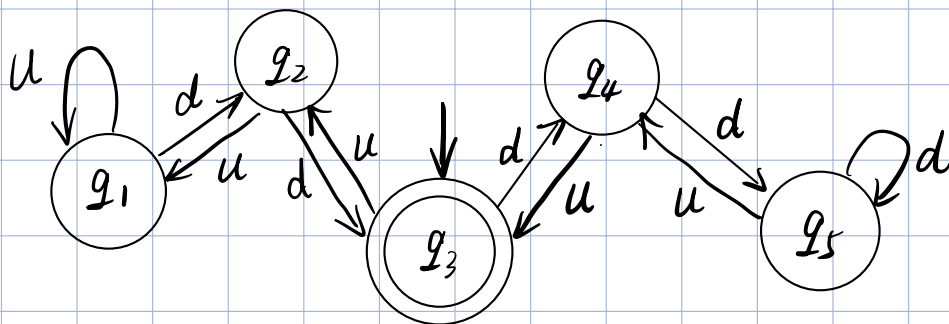
$\delta(q_3, b) = q_1$

$\delta(q_4, a) = q_3$

$\delta(q_4, b) = q_4$

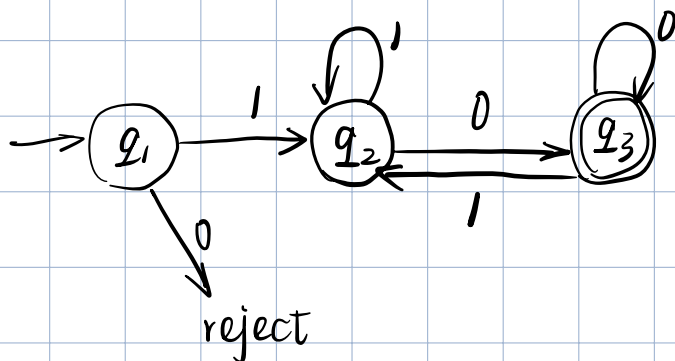


1.3

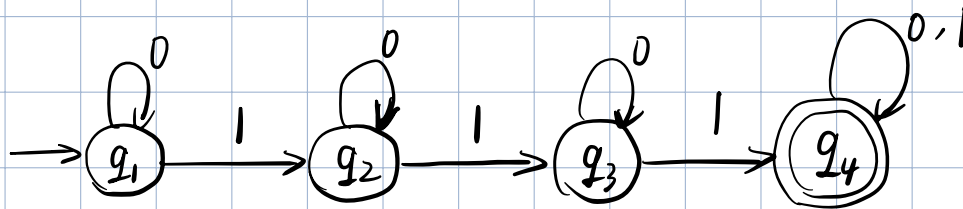


1.6

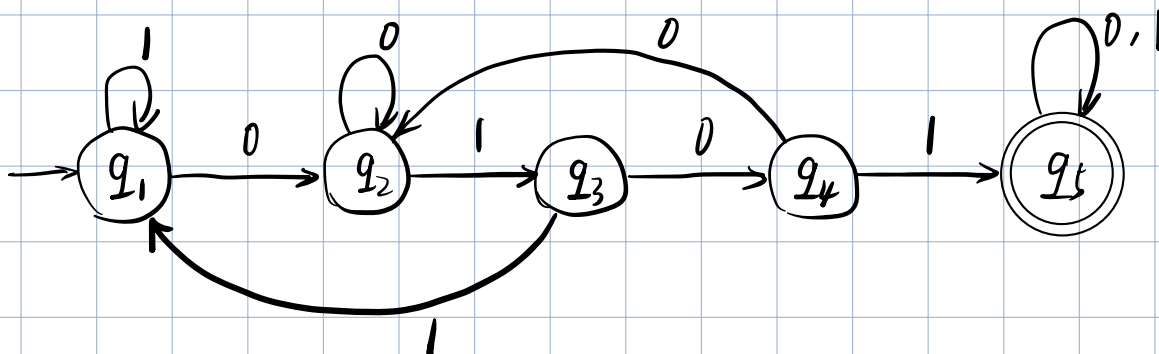
a.



b.



c.



d.

