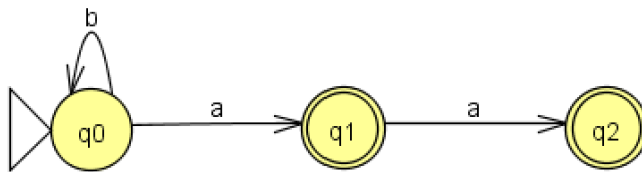


Section 3.1 (Question 1):



Input	Result
a	Accept
aa	Accept
aaa	Reject
b	Reject
bb	Reject
bbb	Reject
ab	Reject
ba	Accept
aab	Reject
bba	Accept
aaab	Reject
bbba	Accept

States: {q0, q1, q2}

Input Alphabet: {a, b}

Initial State: q0

Final States: {q1, q2}

Transitions:

$$\delta(q0, a) = q1$$

$$\delta(q1, a) = q2$$

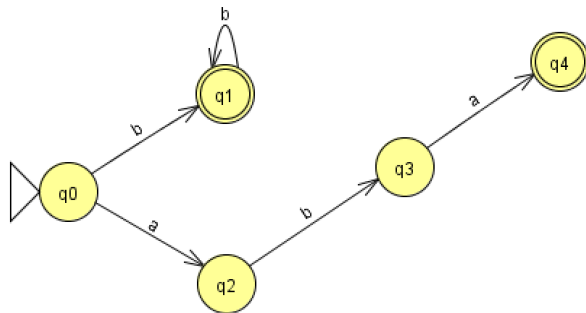
$$\delta(q0, b) = q0$$

Section 3.1 (Question 2):

The regular expression can be defined by the following.

$$R = (aa)^*a + bb$$

Section 3.2 (Question 3):



Input	Result
a	Reject
aa	Reject
aaa	Reject
b	Accept
bb	Accept
bbb	Accept
ab	Reject
ba	Reject
aab	Reject
bba	Reject
aaab	Reject
bbba	Reject
aba	Accept

States: {q0, q1, q2, q3, q4}

Input Alphabet: {a, b}

Initial State: q0

Final States: {q1, q4}

Transitions:

$$\delta(q0, a) = q2$$

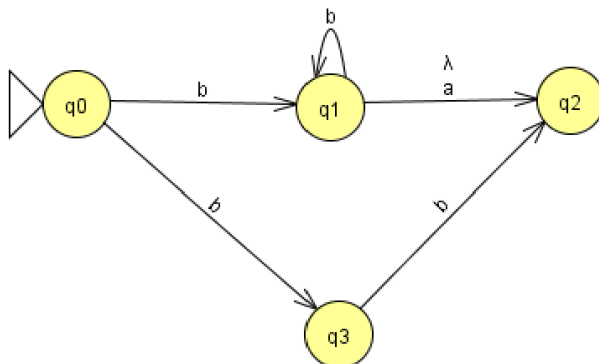
$$\delta(q3, a) = q4$$

$$\delta(q0, b) = q1$$

$$\delta(q1, b) = q1$$

$$\delta(q2, b) = q3$$

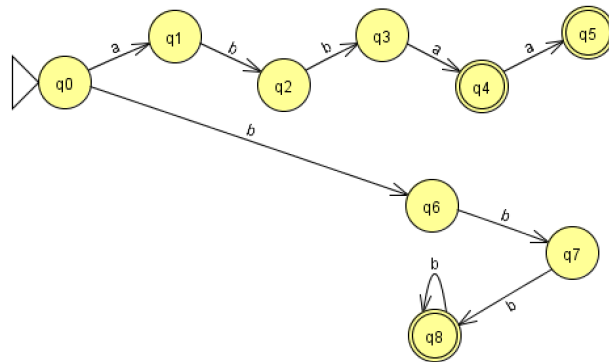
Section 3.2 (Question 4):



The regular expression can be defined by the following.

$$R = bb^*(a + \lambda) + bb$$

Section 3.3 (Question 5):



Input	Result
aaa	Reject
bbb	Accept
abba	Accept
abbaa	Accept
baab	Reject
baabb	Reject
bbbb	Accept
bbbbb	Accept
bbbbbb	Accept

States: {q0, q1, q2, q3, q4, q5, q6, q7, q8}

Input Alphabet: {a, b}

Initial State: q0

Final States: {q4, q5, q8}

Transitions:

$\delta(q0, a) = q1$

$\delta(q3, a) = q4$

$\delta(q4, a) = q5$

$\delta(q0, b) = q6$

$\delta(q1, b) = q2$

$\delta(q2, b) = q3$

$\delta(q6, b) = q7$

$\delta(q7, b) = q8$

$\delta(q8, b) = q8$

Section 3.3 (Question 6):

The right-linear grammar for the language can be defined by the following.

$S \rightarrow aS$

$S \rightarrow bS$

$S \rightarrow \epsilon$