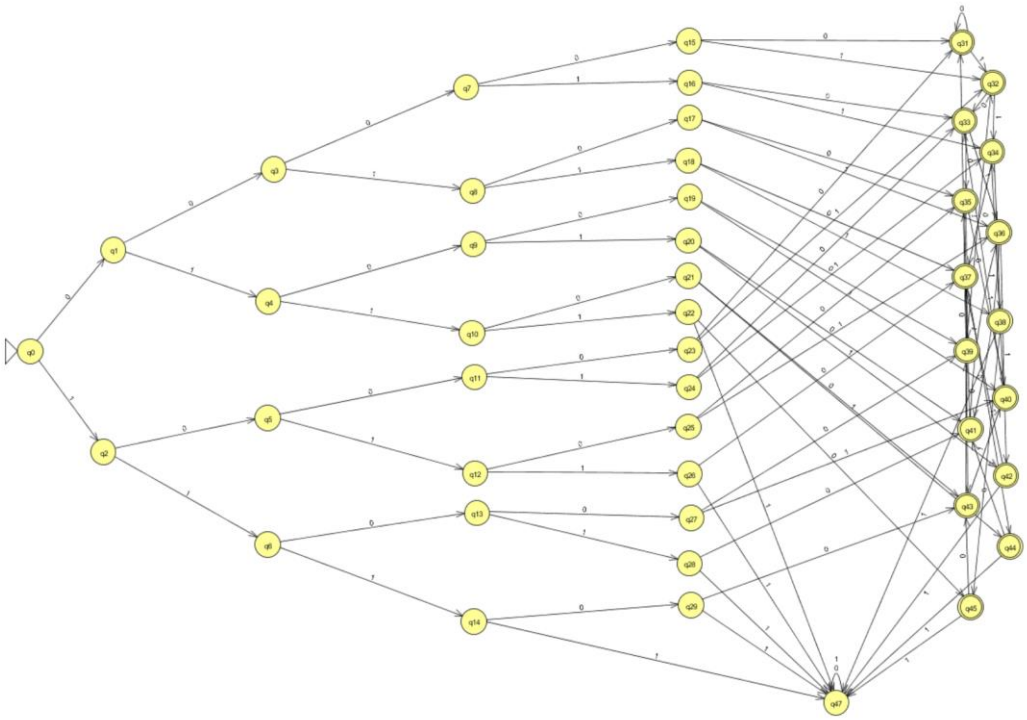
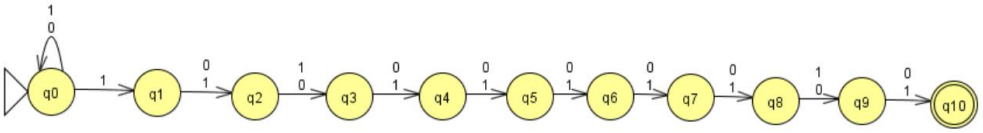
1.

2.2.5:

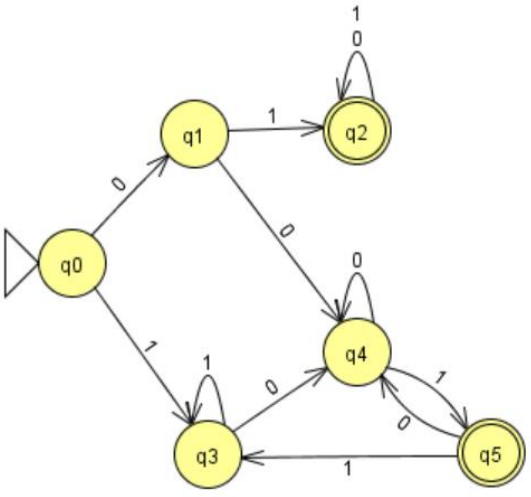
a:



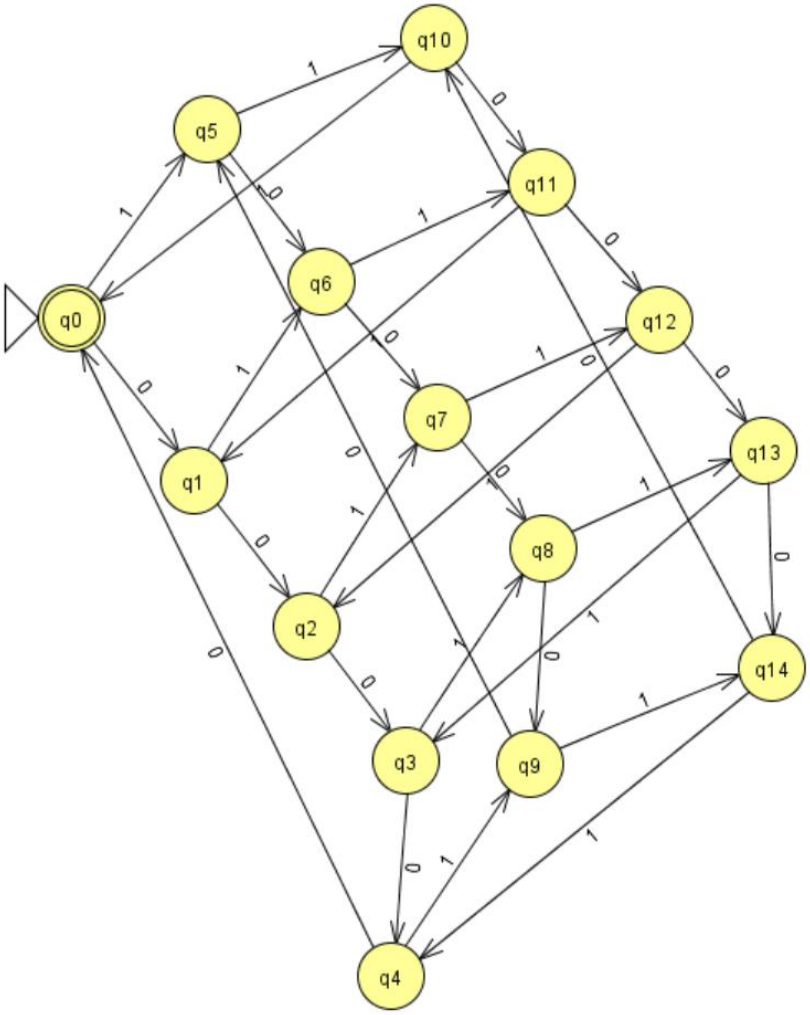
b:



c:

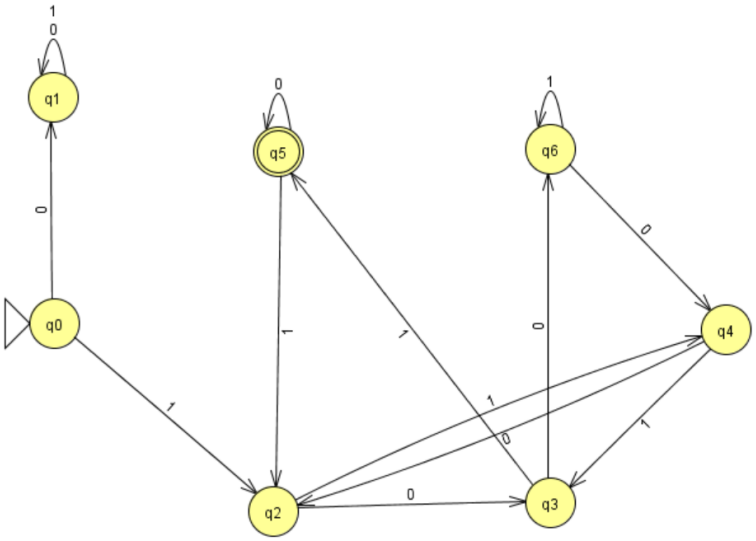


d:

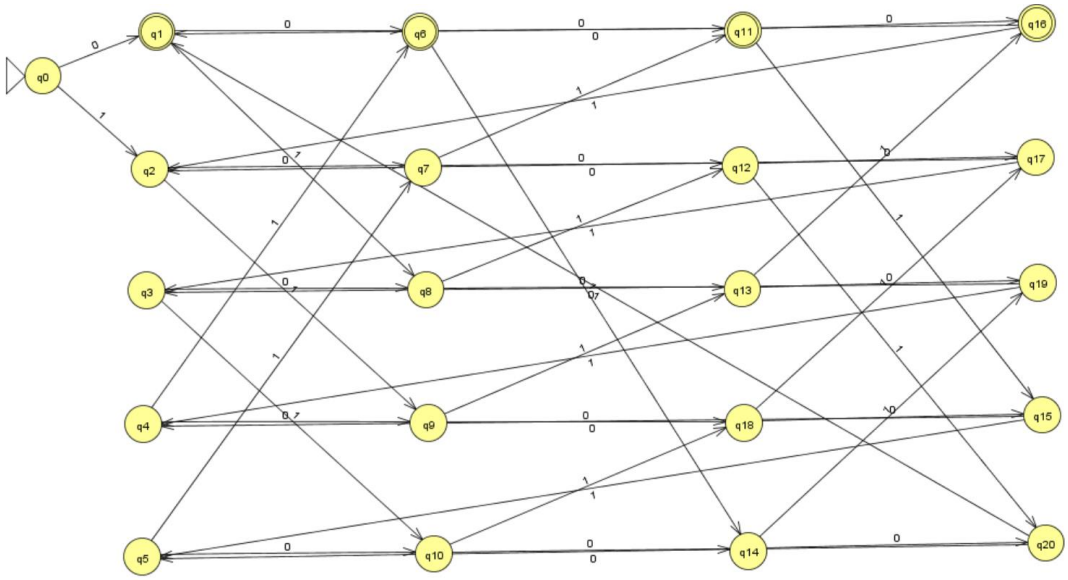


2.2.6:

a:



b:



2.2.9:

2.2.9

a)

$\hat{\delta}(q_0, w) = \delta(\hat{\delta}(q_0, w-a), a)$

$= \delta(\delta(\hat{\delta}(q_0, w-a-b), b), a)$

...

$= \delta(\delta(\cdots(\delta(q_0, z), y), x)\cdots, a)$

同理 $\hat{\delta}(q_f, w)$ 可写成相同形式

$\because \delta(q_0, a) = \delta(q_f, a)$

$\therefore \hat{\delta}(q_0, w) = \hat{\delta}(q_f, w)$

故得证

b) $\because x$ 属于 $L(A)$

$\therefore \hat{\delta}(q_0, x) = q_f$

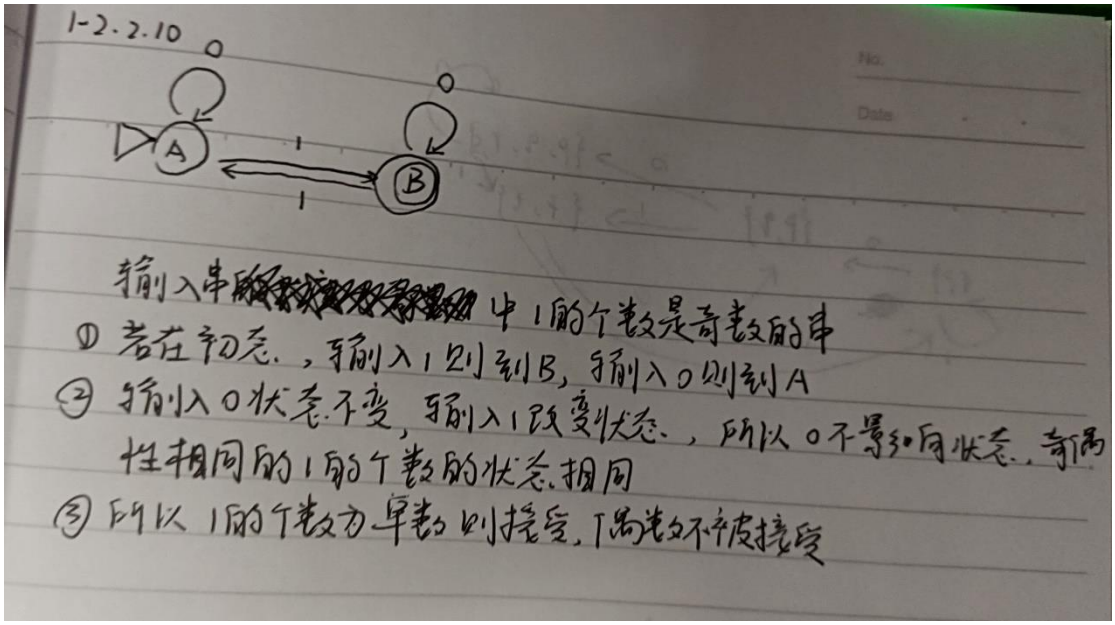
$\therefore \hat{\delta}(q_f, x) = q_f$

$\hat{\delta}(q_f, x^k) = \hat{\delta}(\hat{\delta}(q_f, x^{k-1}), x) = \cdots \hat{\delta}(\hat{\delta}(\cdots\hat{\delta}(q_f, x), x, \cdots x)$

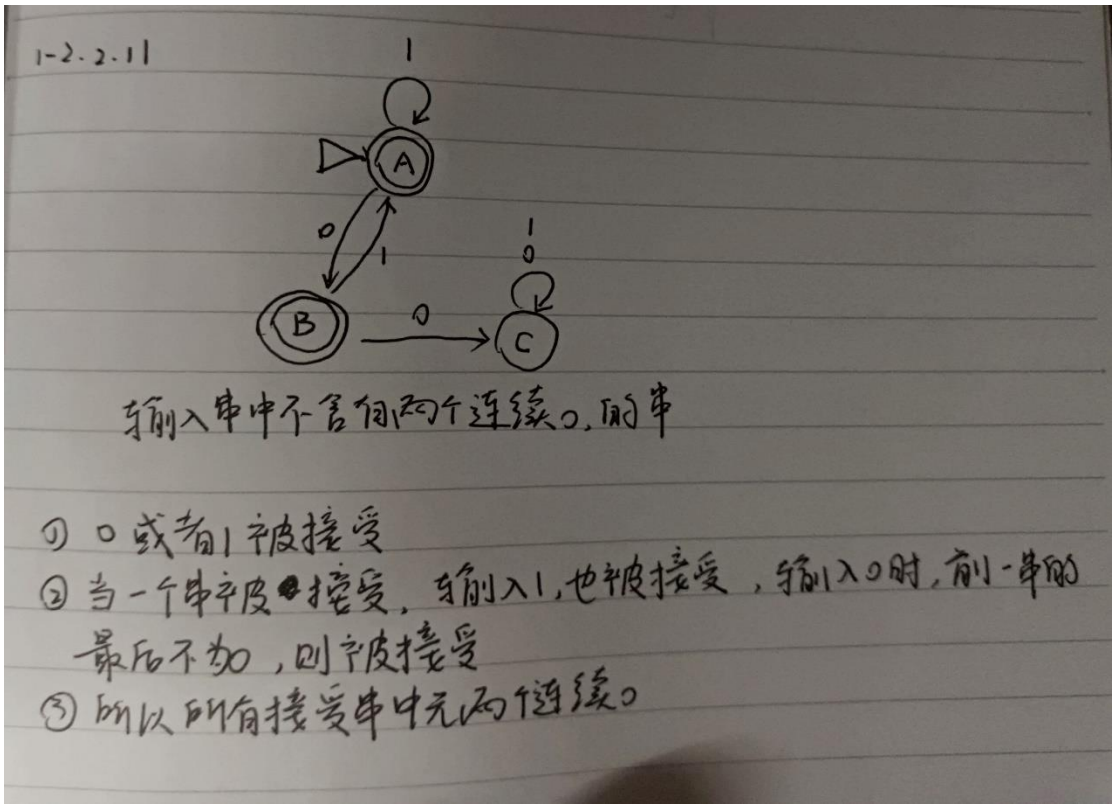
$= q_f$

故得证

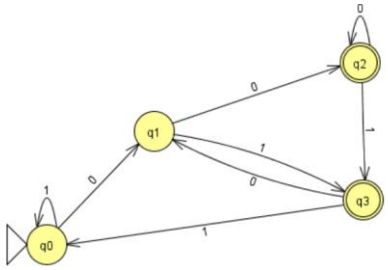
2.2.10:



2.2.11:

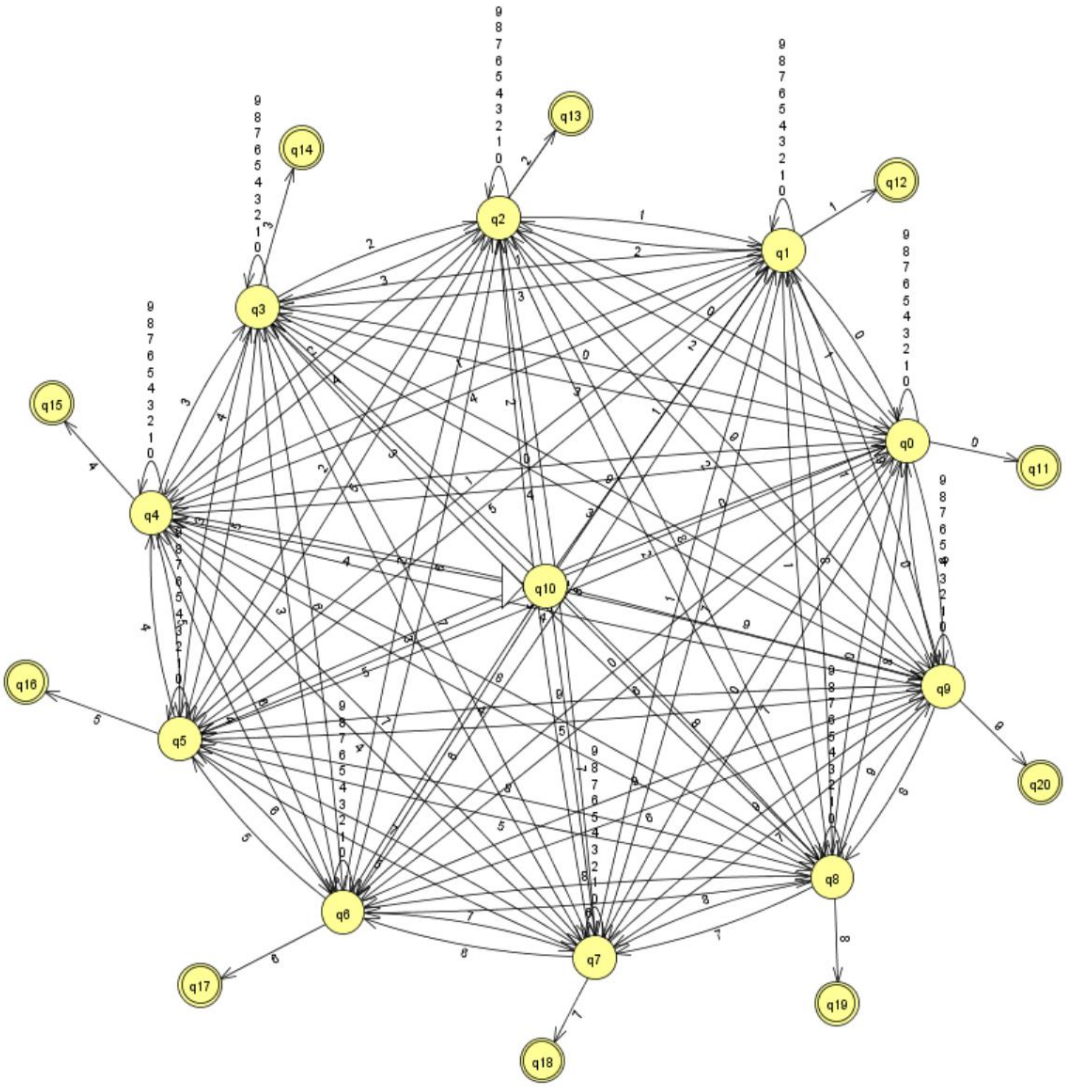


2.3.3:

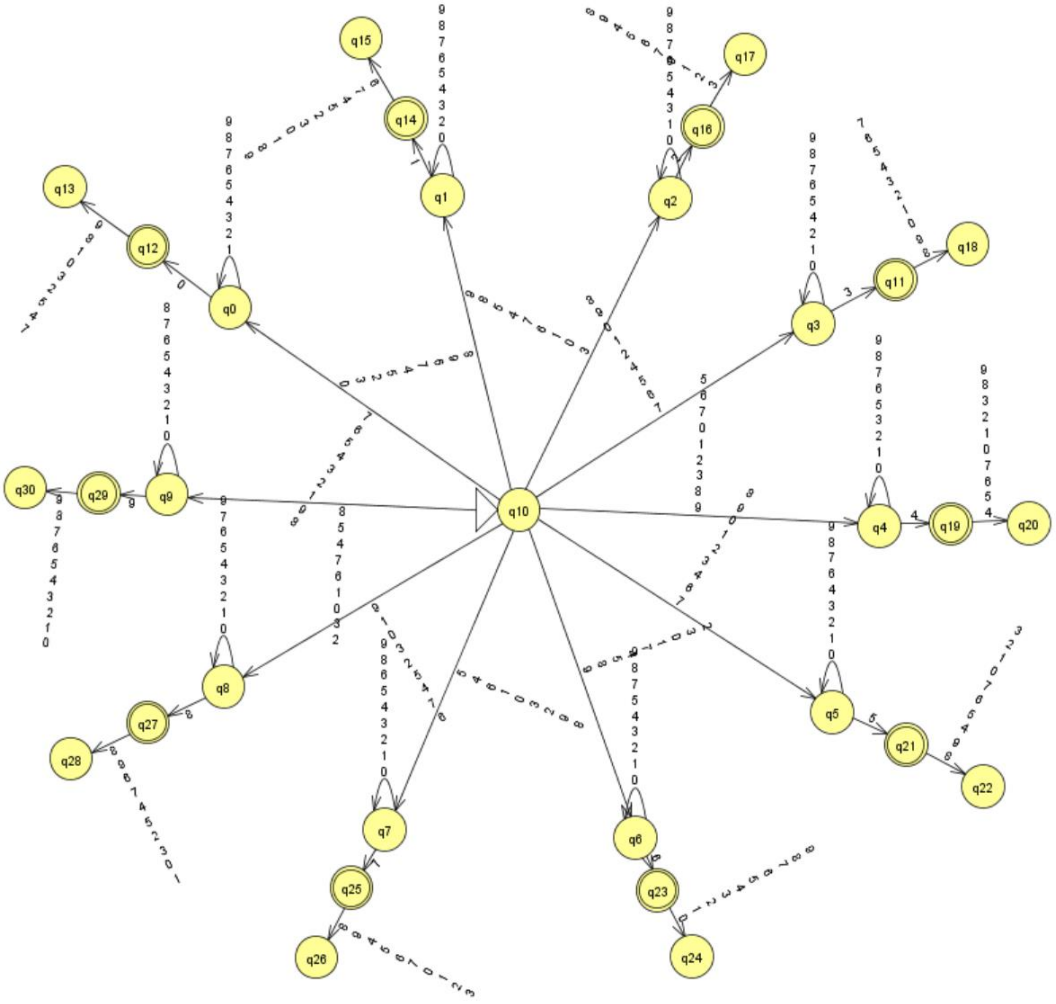


2.3.4:

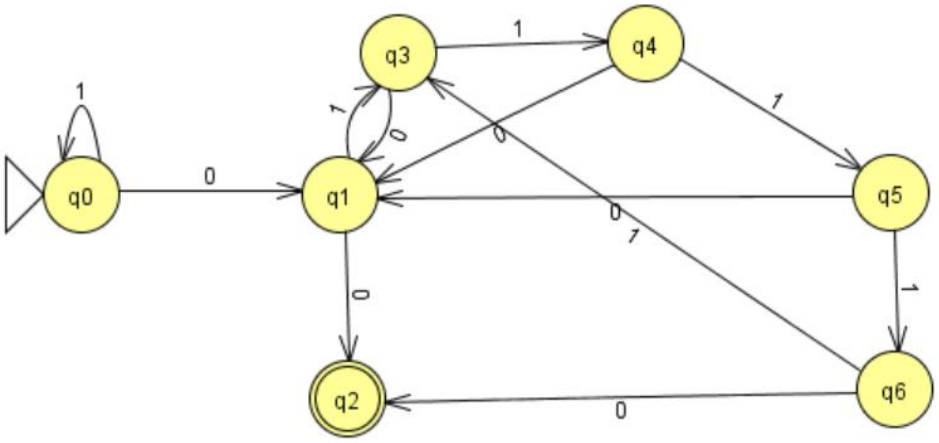
a:


q0
q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
q14
q15
q16
q17
q18
q19
q20

b:

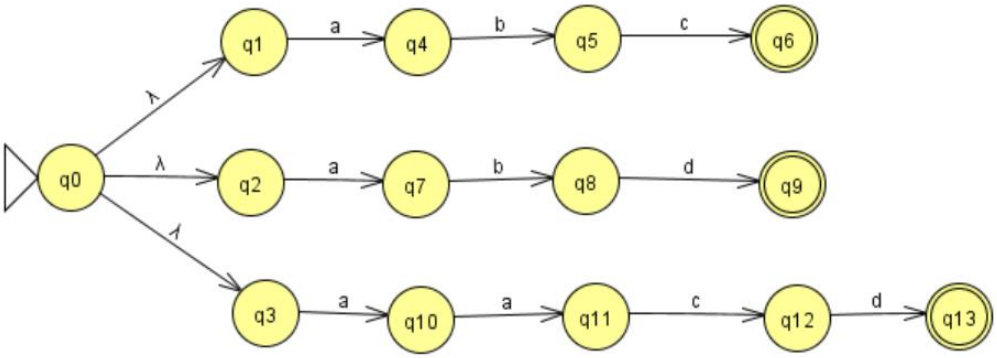

q0
q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
q14
q15
q16
q17
q18
q19
q20
q21
q22
q23
q24
q25
q26
q27
q28
q29
q30

C:

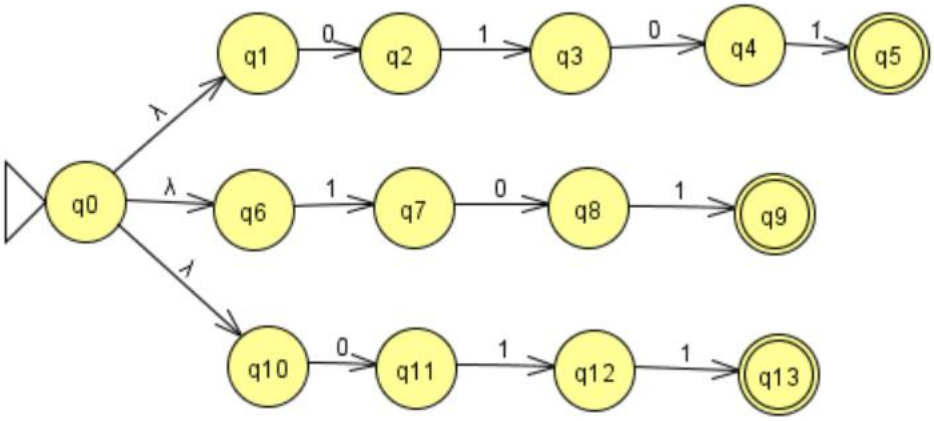

q0
q1
q2
q3
q4
q5
q6
0
1

2.4.1:

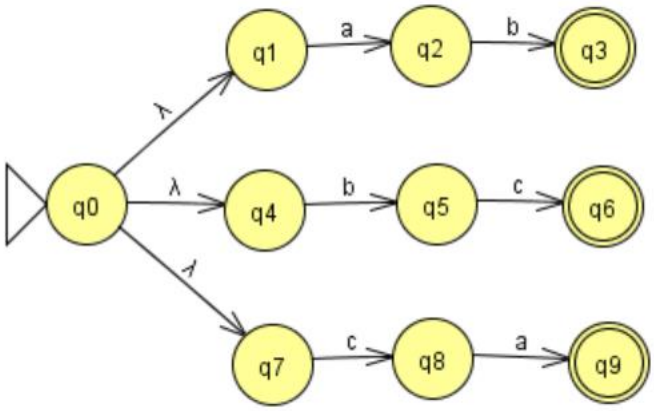
a:


q0
q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
λ
λ
λ
a
b
c
a
b
d
a
a
c
d

b:

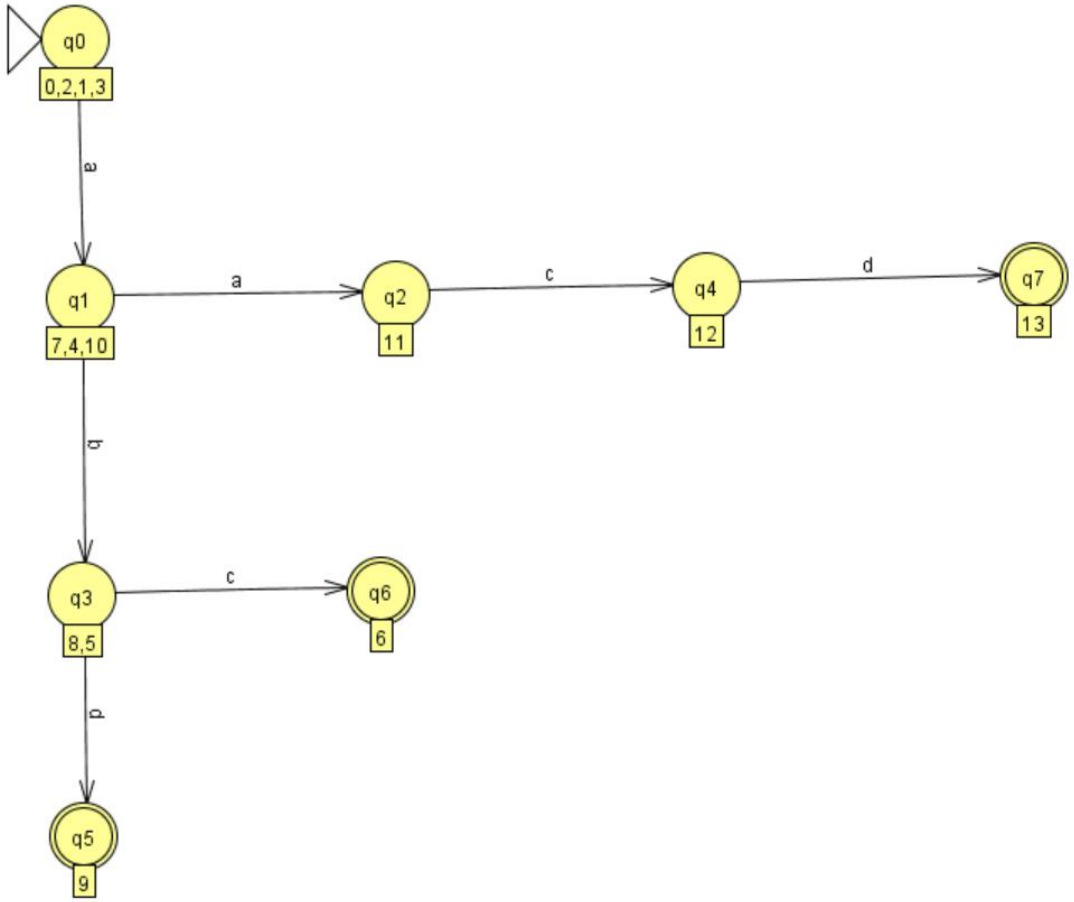

q0
q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
λ
λ
λ
0
1
0
1
1
0
1
0
1
1
1

c:

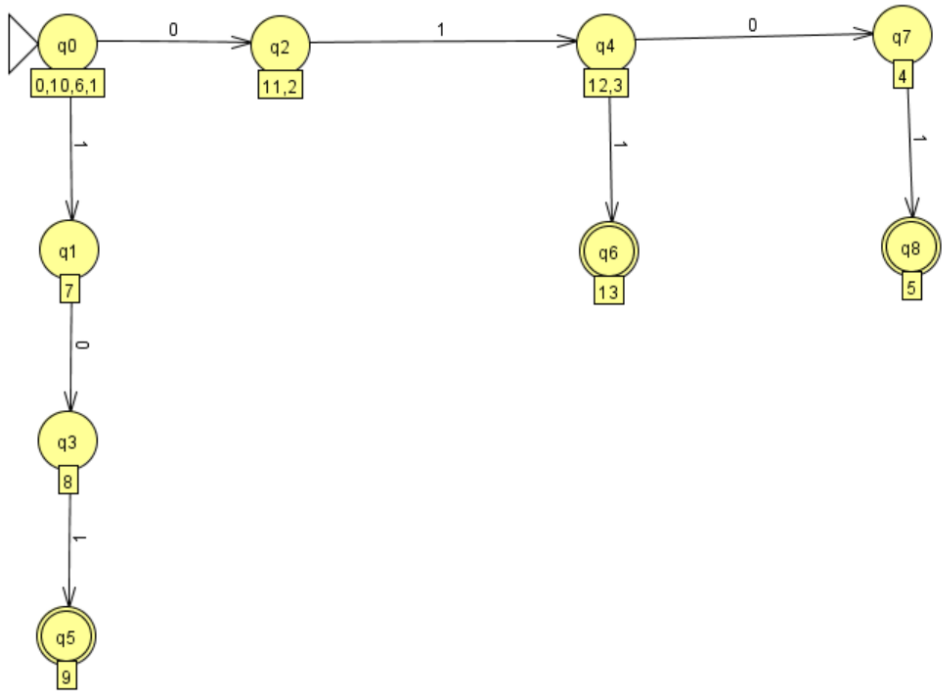

q0
q1
q2
q3
q4
q5
q6
q7
q8
q9
λ
λ
λ
a
b
b
c
c
a

2.4.2:

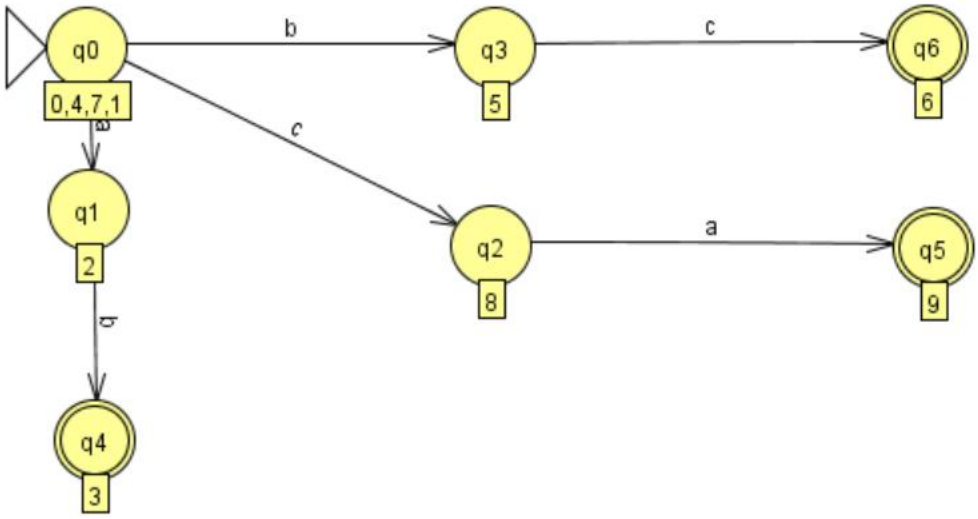
a:


q0
0,2,1,3
a
q1
7,4,10
a
q2
11
c
q4
12
d
q7
13
q
q3
8,5
c
q6
6
p
q5
9

b:

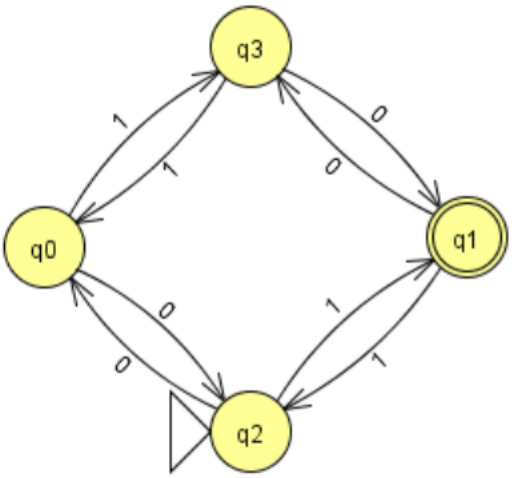

q0
0,10,6,1
0
q2
11,2
1
q4
12,3
0
q7
4
1
q1
7
1
q6
13
1
q8
5
0
q3
8
1
q5
9

c:

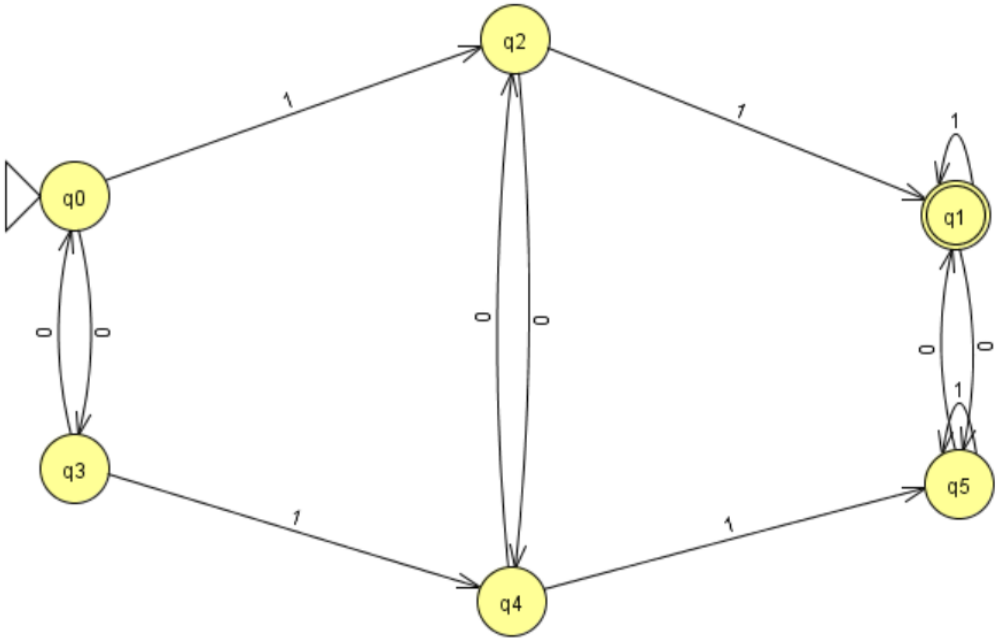


2.

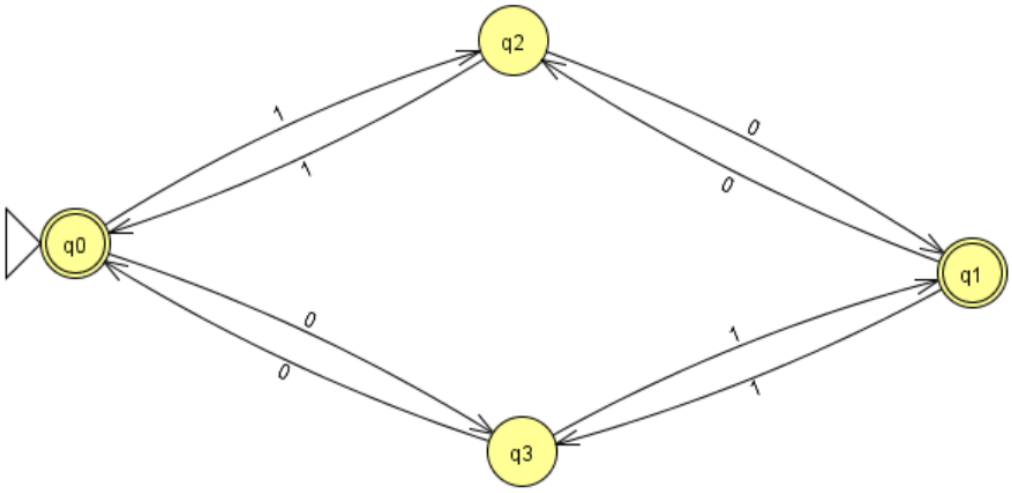
(1)



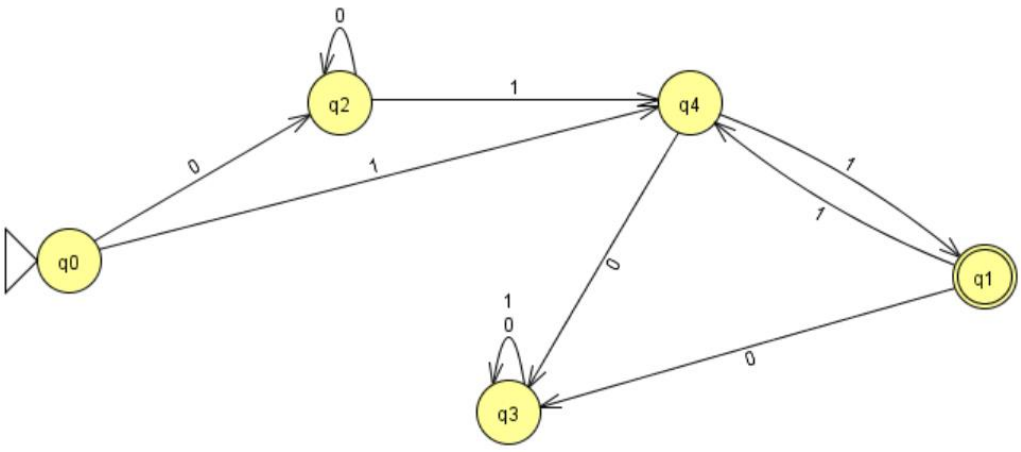
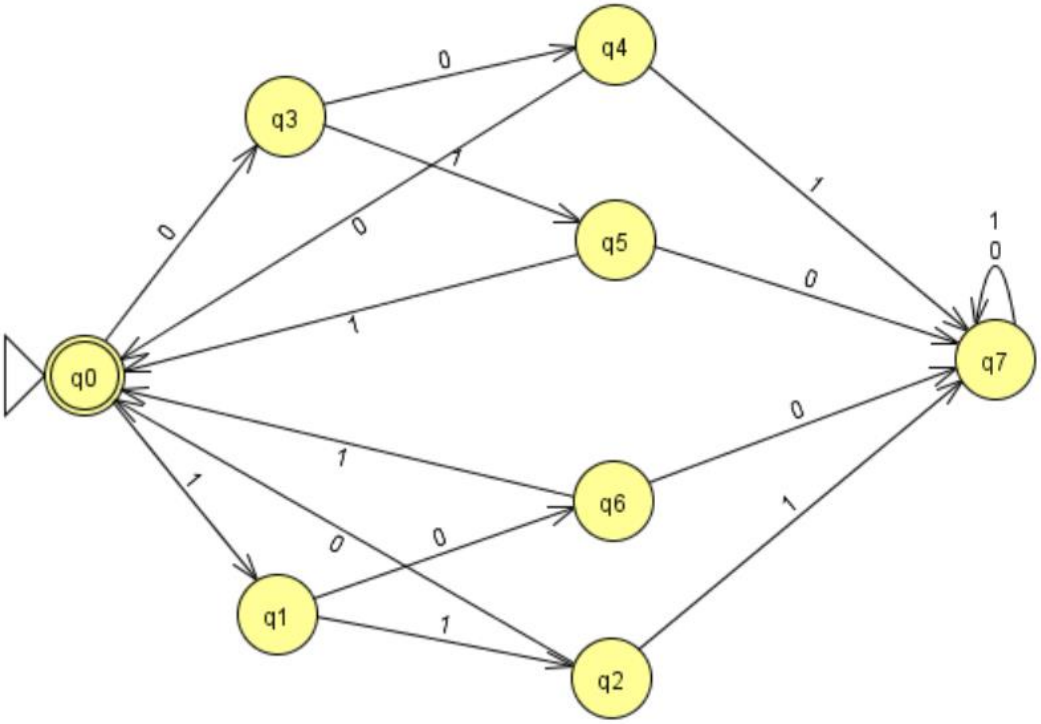
(2)


q2
q0
q1
q3
q5
q4
1
1
1
1
0
0
0
0
0
0
1

(3)


q2
q0
q1
q3
1
1
0
0
0
0
1
1

(4)


q2
q4
q0
q1
q3
0
1
1
1
0
1
0
1
0
0

3.