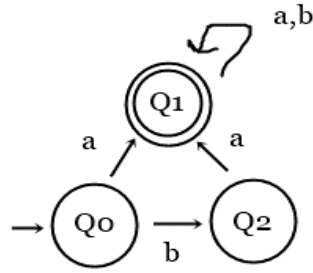


A-

$$\begin{aligned}
 \delta'(<q0>,a) &= \delta(\{q0\},a) = \underline{<q1>} \\
 \delta'(<q0>,b) &= \delta(\{q0\},b) = \underline{<q0q1>} \\
 \delta'(<q1>,a) &= \delta(\{q1\},a) = \underline{<q1>} \\
 \delta'(<q1>,b) &= \delta(\{q1\},b) = \underline{<q1>} \\
 \delta'(<q0q1>,a) &= \delta(\{q0\},a) \cup \delta(\{q1\},a) = \{q1\} \cup \{q1\} = \underline{<q1>} \\
 \delta'(<q0q1>,b) &= \delta(\{q0\},b) \cup \delta(\{q1\},b) = \{q0q1\} \cup \{q1\} = \underline{<q0q1>}
 \end{aligned}$$

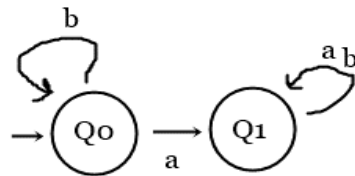
$$\begin{aligned}
 \Sigma &\rightarrow \{a,b\} \\
 Q &\rightarrow \{<q0>, <q1q2>, <q1>\} \\
 \delta &\rightarrow \\
 q_0 &\rightarrow <q0> \\
 F &\rightarrow \{<q1>, <q1q2>\}
 \end{aligned}$$



B-

$$\begin{aligned}
 \delta'(<q0>,a) &= \delta(\{q0\},a) = \underline{<q1q2>} \\
 \delta'(<q0>,b) &= \delta(\{q0\},b) = \underline{<q0>} \\
 \delta'(<q1q2>,a) &= \delta(\{q1\},a) \cup \delta(\{q2\},a) = \{q1\} \cup \{q2\} = \underline{<q1q2>} \\
 \delta'(<q1q2>,b) &= \delta(\{q1\},b) \cup \delta(\{q2\},b) = \{q1\} \cup \{q2\} = \underline{<q1q2>}
 \end{aligned}$$

$$\begin{aligned}
 \Sigma &\rightarrow \{a,b\} \\
 Q &\rightarrow \{<q0>, <q1q2>\} \\
 \delta &\rightarrow \\
 q_0 &\rightarrow \{<q0>\} \\
 F &\rightarrow \{<q1>\}
 \end{aligned}$$

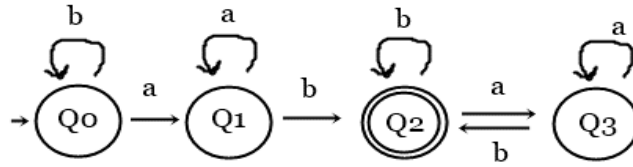


C-

$$\begin{aligned}
 \delta'(<q0>,a) &= \delta(\{q0\},a) = \underline{<q0q1>} \\
 \delta'(<q0>,b) &= \delta(\{q0\},b) = \underline{<q0>} \\
 \delta'(<q0q1>,a) &= \delta(\{q0\},a) \cup \delta(\{q1\},a) = \{q0q1\} \cup \{q1\} = \underline{<q0q1>} \\
 \delta'(<q0q1>,b) &= \delta(\{q0\},b) \cup \delta(\{q1\},b) = \{q0\} \cup \{q1q3\} = \underline{<q0q1q3>} \\
 \delta'(<q0q1q3>,a) &= \delta(\{q0\},a) \cup \delta(\{q1\},a) \cup \delta(\{q3\},a) = \{q0q1\} \cup \{q1\} \cup \{q2\} = \underline{<q0q1q2>} \\
 \delta'(<q0q1q3>,b) &= \delta(\{q0\},b) \cup \delta(\{q1\},b) \cup \delta(\{q3\},b) = \{q0\} \cup \{q1q3\} \cup \{q3\} = \underline{<q0q1q3>} \\
 \delta'(<q0q1q2>,a) &= \delta(\{q0\},a) \cup \delta(\{q1\},a) \cup \delta(\{q2\},a) = \{q0q1\} \cup \{q1\} \cup \{q2\} = \underline{<q0q1q2>} \\
 \delta'(<q0q1q2>,b) &= \delta(\{q0\},b) \cup \delta(\{q1\},b) \cup \delta(\{q2\},b) = \{q0\} \cup \{q1q3\} \cup \{q3\} = \underline{<q0q1q3>}
 \end{aligned}$$

$$\begin{aligned}
 \Sigma &\rightarrow \{a,b\} \\
 Q &\rightarrow \{<q0>, <q0q1>, <q0q1q3>, <q0q1q2>\} \\
 \delta &\rightarrow \\
 q_0 &\rightarrow \{<q0>\}
 \end{aligned}$$

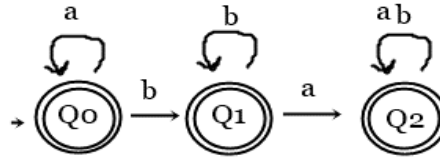
$$F \rightarrow \{<q0q1q3, <q0q1q2>\}$$



D-

$$\begin{aligned} \delta'(<q0>,a) &= \delta(\{q0\},a) = \underline{<q0>} \\ \delta'(<q0>,b) &= \delta(\{q0\},b) = \underline{<q0q1>} \\ \delta'(<q0q1>,a) &= \delta(\{q0\},a) \cup \delta(\{q1\},a) = \{q0\} \cup \{q0q1q2\} = \underline{<q0q1q2>} \\ \delta'(<q0q1>,b) &= \delta(\{q0\},b) \cup \delta(\{q1\},b) = \{q0q1\} \cup \{q1\} = \underline{<q0q1>} \\ \delta'(<q0q1q2>,a) &= \delta(\{q0\},a) \cup \delta(\{q1\},a) \cup \delta(\{q2\},a) = \{q0\} \cup \{q0q1q2\} \cup \{q2\} = \underline{<q0q1q2>} \\ \delta'(<q0q1q2>,b) &= \delta(\{q0\},b) \cup \delta(\{q1\},b) \cup \delta(\{q2\},b) = \{q0q1\} \cup \{q1\} \cup \{q1q2\} = \underline{<q0q1q2>} \end{aligned}$$

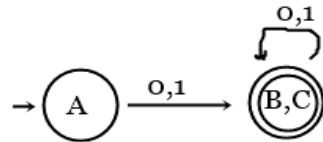
$$\begin{aligned} \Sigma &\rightarrow \{a,b\} \\ Q &\rightarrow \{<q0>, <q0q1>, <q0q1q2>\} \\ \delta &\rightarrow \\ q_0 &\rightarrow \{<q0>\} \\ F &\rightarrow \{<q0>, <q0q1>, <q0q1q2>\} \end{aligned}$$



E-

$$\begin{aligned} \delta'(<A>,0) &= \delta(\{A\},0) = \underline{<BC>} \\ \delta'(<A>,1) &= \delta(\{A\},1) = \underline{<BC>} \\ \delta'(<BC>,0) &= \delta(\{B\},0) \cup \delta(\{C\},0) = \{C\} \cup \emptyset = \underline{<C>} \\ \delta'(<BC>,1) &= \delta(\{B\},1) \cup \delta(\{C\},1) = \{C\} \cup \emptyset = \underline{<C>} \\ \delta'(<C>,0) &= \underline{\emptyset} \\ \delta'(<C>,1) &= \underline{\emptyset} \end{aligned}$$

$$\begin{aligned} \Sigma &\rightarrow \{0,1\} \\ Q &\rightarrow \{<BC>\} \\ \delta &\rightarrow \\ q_0 &\rightarrow \{<A>\} \\ F &\rightarrow \{<BC>\} \end{aligned}$$

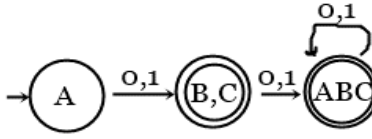


F-

$$\begin{aligned} \delta'(<A>,0) &= \delta(\{A\},0) = \underline{<BC>} \\ \delta'(<A>,1) &= \delta(\{A\},1) = \underline{<BC>} \\ \delta'(<BC>,0) &= \delta(\{B\},0) \cup \delta(\{C\},0) = \{AC\} \cup \{AB\} = \underline{<ABC>} \\ \delta'(<BC>,1) &= \delta(\{B\},1) \cup \delta(\{C\},1) = \{AC\} \cup \{AB\} = \underline{<ABC>} \\ \delta'(<ABC>,0) &= \delta(\{A\},0) \cup \delta(\{B\},0) \cup \delta(\{C\},0) = \{BC\} \cup \{AC\} \cup \{AB\} = \underline{<ABC>} \\ \delta'(<ABC>,1) &= \delta(\{A\},1) \cup \delta(\{B\},1) \cup \delta(\{C\},1) = \{BC\} \cup \{AC\} \cup \{AB\} = \underline{<ABC>} \end{aligned}$$

$$\Sigma \rightarrow \{0,1\}$$

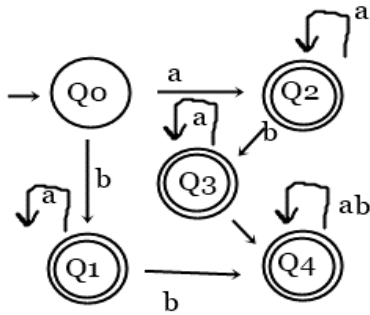
$Q \rightarrow \{<BC>\}$
 $\delta \rightarrow$
 $q_0 \rightarrow \{<A>\}$
 $F \rightarrow \{<BC>, <ABC>\}$



G-

$\delta'(<q0>,a)$	$= \delta(\{0\},a)$	$= \underline{<q0q1q2>}$		
$\delta'(<q0>,b)$	$= \delta(\{0\},b)$	$= \underline{<q1q2>}$		
$\delta'(<q1q2>,a)$	$= \delta(\{q1\},a) \cup \delta(\{q2\},a)$	$= \{q1\} \cup \{q2\}$	$= \underline{<q1q2>}$	
$\delta'(<q1q2>,b)$	$= \delta(\{q1\},b) \cup \delta(\{q2\},b)$	$= \{q1\} \cup \{q3\}$	$= \underline{<q1q3>}$	
$\delta'(<q1q3>,a)$	$= \delta(\{q1\},a) \cup \delta(\{q3\},a)$	$= \{q1\} \cup \{q1q3\}$	$= \underline{<q1q3>}$	
$\delta'(<q1q3>,b)$	$= \delta(\{q1\},b) \cup \delta(\{q3\},b)$	$= \{q1\} \cup \{q3\}$	$= \underline{<q1q3>}$	
$\delta'(<q0q1q2>,a)$	$= \delta(\{q0\},a) \cup \delta(\{q1\},a) \cup \delta(\{q2\},a)$	$= \{q0q1q2\} \cup \{q1\} \cup \{q2\}$	$= \underline{<q0q1q2>}$	
$\delta'(<q0q1q2>,b)$	$= \delta(\{q0\},b) \cup \delta(\{q1\},b) \cup \delta(\{q2\},b)$	$= \{q1q2\} \cup \{q1\} \cup \{q3\}$	$= \underline{<q1q2q3>}$	
$\delta'(<q1q2q3>,a)$	$= \delta(\{q1\},a) \cup \delta(\{q2\},a) \cup \delta(\{q3\},a)$	$= \{q1\} \cup \{q2\} \cup \{q1q3\}$	$= \underline{<q1q2q3>}$	
$\delta'(<q1q2q3>,b)$	$= \delta(\{q1\},b) \cup \delta(\{q2\},b) \cup \delta(\{q3\},b)$	$= \{q1\} \cup \{q3\} \cup \{q3\}$	$= \underline{<q1q3>}$	

$\Sigma \rightarrow \{a,b\}$
 $Q \rightarrow \{<q0>, <q1q2>, <q1q3>, <q0q1q2>, <q1q2q3>\}$
 $\delta \rightarrow$
 $q_0 \rightarrow \{<q0>\}$
 $F \rightarrow \{<q1q2>, <q1q3>, <q0q1q2>, <q1q2q3>\}$

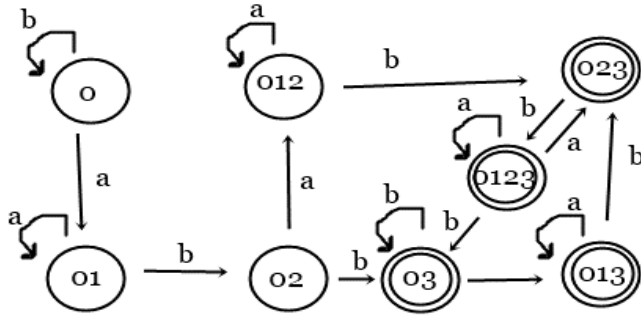


H-

$\delta'(<0>,a)$	$= \delta(\{0\},a)$	$= \underline{<01>}$		
$\delta'(<0>,b)$	$= \delta(\{0\},b)$	$= \underline{<0>}$		
$\delta'(<01>,a)$	$= \delta(\{0\},a) \cup \delta(\{1\},a)$	$= \{01\} \cup \{1\}$	$= \underline{<01>}$	
$\delta'(<01>,b)$	$= \delta(\{0\},b) \cup \delta(\{1\},b)$	$= \{0\} \cup \{2\}$	$= \underline{<02>}$	
$\delta'(<02>,a)$	$= \delta(\{0\},a) \cup \delta(\{2\},a)$	$= \{01\} \cup \{2\}$	$= \underline{<012>}$	
$\delta'(<02>,b)$	$= \delta(\{0\},b) \cup \delta(\{2\},b)$	$= \{0\} \cup \{3\}$	$= \underline{<03>}$	
$\delta'(<03>,a)$	$= \delta(\{0\},a) \cup \delta(\{3\},a)$	$= \{01\} \cup \{3\}$	$= \underline{<013>}$	
$\delta'(<03>,b)$	$= \delta(\{0\},b) \cup \delta(\{3\},b)$	$= \{0\} \cup \{3\}$	$= \underline{<03>}$	
$\delta'(<012>,a)$	$= \delta(\{0\},a) \cup \delta(\{1\},a) \cup \delta(\{2\},a)$	$= \{01\} \cup \{1\} \cup \{2\}$	$= \underline{<012>}$	
$\delta'(<012>,b)$	$= \delta(\{0\},b) \cup \delta(\{1\},b) \cup \delta(\{2\},b)$	$= \{0\} \cup \{2\} \cup \{3\}$	$= \underline{<023>}$	
$\delta'(<013>,a)$	$= \delta(\{0\},a) \cup \delta(\{1\},a) \cup \delta(\{3\},a)$	$= \{01\} \cup \{1\} \cup \{3\}$	$= \underline{<013>}$	
$\delta'(<013>,b)$	$= \delta(\{0\},b) \cup \delta(\{1\},b) \cup \delta(\{3\},b)$	$= \{0\} \cup \{2\} \cup \{3\}$	$= \underline{<023>}$	
$\delta'(<023>,a)$	$= \delta(\{0\},a) \cup \delta(\{2\},a) \cup \delta(\{3\},a)$	$= \{01\} \cup \{2\} \cup \{3\}$	$= \underline{<0123>}$	
$\delta'(<023>,b)$	$= \delta(\{0\},b) \cup \delta(\{2\},b) \cup \delta(\{3\},b)$	$= \{0\} \cup \{3\} \cup \{3\}$	$= \underline{<03>}$	
$\delta'(<0123>,a)$	$= \delta(\{0\},a) \cup \delta(\{1\},a) \cup \delta(\{2\},a) \cup \delta(\{3\},a)$	$= \{01\} \cup \{1\} \cup \{2\} \cup \{3\}$	$= \underline{<0123>}$	
$\delta'(<0123>,b)$	$= \delta(\{0\},b) \cup \delta(\{1\},b) \cup \delta(\{2\},b) \cup \delta(\{3\},b)$	$= \{0\} \cup \{2\} \cup \{3\} \cup \{3\}$	$= \underline{<023>}$	

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

$Q \rightarrow \{ \langle 0 \rangle, \langle 01 \rangle, \langle 02 \rangle, \langle 03 \rangle, \langle 012 \rangle, \langle 013 \rangle, \langle 023 \rangle, \langle 0123 \rangle \}$
 $\delta \rightarrow$
 $q_0 \rightarrow \{ \langle q0 \rangle \}$
 $F \rightarrow \{ \langle 03 \rangle, \langle 012 \rangle, \langle 013 \rangle, \langle 023 \rangle \}$



I-

$\delta'(\langle q0 \rangle, a)$	$= \delta(\{q0\}, a)$	$= \langle q0 \rangle$	
$\delta'(\langle q0 \rangle, b)$	$= \delta(\{q0\}, b)$	$= \langle q1q4 \rangle$	
$\delta'(\langle q1q4 \rangle, a)$	$= \delta(\{q1\}, a) \cup \delta(\{q4\}, a)$	$= \{q1\} \cup \{q4\}$	$= \langle q1q4 \rangle$
$\delta'(\langle q1q4 \rangle, b)$	$= \delta(\{q1\}, b) \cup \delta(\{q4\}, b)$	$= \{q2\} \cup \{q4\}$	$= \langle q2q4 \rangle$
$\delta'(\langle q2q4 \rangle, a)$	$= \delta(\{q2\}, a) \cup \delta(\{q4\}, a)$	$= \{q2\} \cup \{q4\}$	$= \langle q2q4 \rangle$
$\delta'(\langle q2q4 \rangle, b)$	$= \delta(\{q2\}, b) \cup \delta(\{q4\}, b)$	$= \{q3\} \cup \{q4\}$	$= \langle q3q4 \rangle$
$\delta'(\langle q3q4 \rangle, a)$	$= \delta(\{q3\}, a) \cup \delta(\{q4\}, a)$	$= \{q3\} \cup \{q4\}$	$= \langle q3q4 \rangle$
$\delta'(\langle q3q4 \rangle, b)$	$= \delta(\{q3\}, b) \cup \delta(\{q4\}, b)$	$= \{q5\} \cup \{q4\}$	$= \langle q4q5 \rangle$
$\delta'(\langle q4q5 \rangle, a)$	$= \delta(\{q4\}, a) \cup \delta(\{q5\}, a)$	$= \{q4\} \cup \{q5\}$	$= \langle q4q5 \rangle$
$\delta'(\langle q4q5 \rangle, b)$	$= \delta(\{q4\}, b) \cup \delta(\{q5\}, b)$	$= \{q4\} \cup \{q4q5\}$	$= \langle q4q5 \rangle$

$\Sigma \rightarrow \{a, b\}$
 $Q \rightarrow \{ \langle q0 \rangle, \langle q1q4 \rangle, \langle q2q4 \rangle, \langle q3q4 \rangle, \langle q4q5 \rangle \}$
 $\delta \rightarrow$
 $q_0 \rightarrow \{ \langle q0 \rangle \}$
 $F \rightarrow \{ \langle q1q4 \rangle, \langle q2q4 \rangle, \langle q3q4 \rangle, \langle q4q5 \rangle \}$

