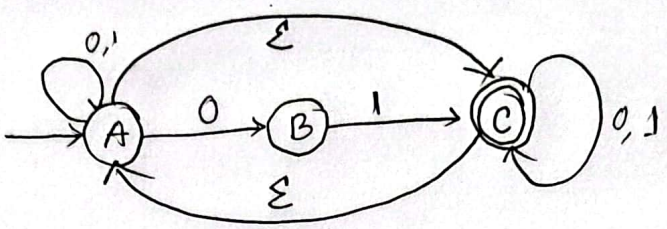
Convert the following NFA into DFA using formal procedure.



SOLUTION:

let the above NFA be $N=(Q', \Sigma', \delta', q_0', F')$, where $Q' = \{A, B, C\}$, $\Sigma' = \{0, 1\}$, δ' is defined as-

	0	1	ε
A	{A, B}	{A}	{C}
B	∅	{C}	∅
C	{C}	{C}	{A}

$q_0' = A$, $F' = \{C\}$.

Now, let the equivalent DFA of N be $M=(Q, \Sigma, \delta, q_0, F)$ where,

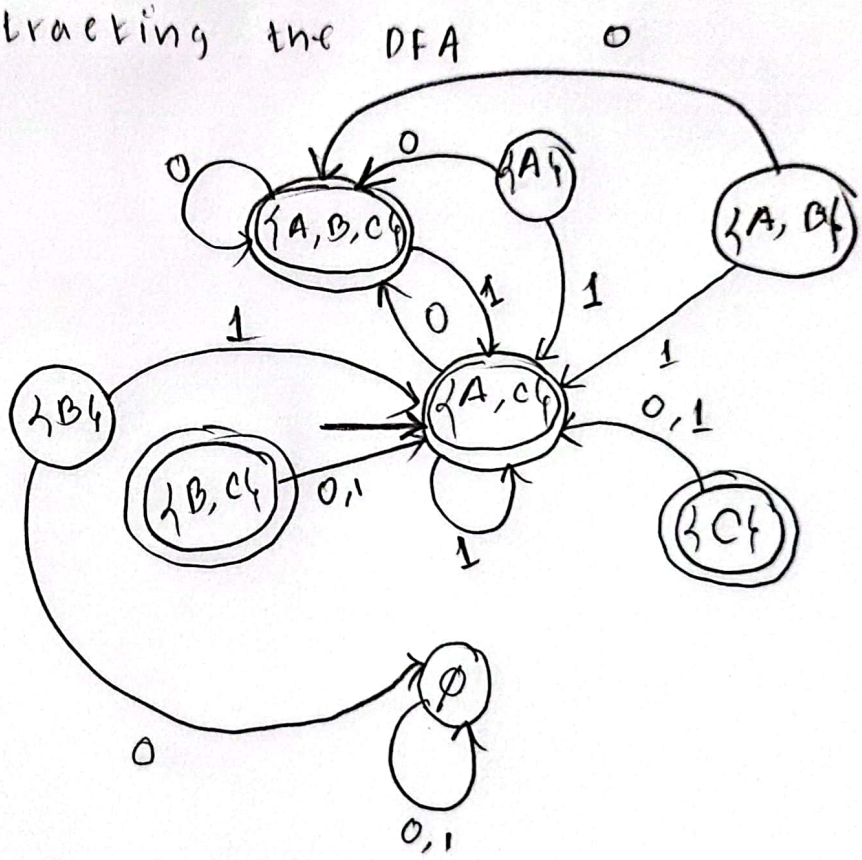
$Q = P(Q') = P(\{A, B, C\}) = \{\emptyset, \{A\}, \{B\}, \{C\}, \{A, B\}, \{A, C\}, \{B, C\}, \{A, B, C\}\}$

δ is given as	0	1
∅	∅	∅
{A}	{A, B, C}	{A, C}
{B}	∅	{A, C}
{C}	{A, C}	{A, C}
{A, B}	{A, B, C}	{A, C}
{A, C}	{A, B, C}	{A, C}
{B, C}	{A, C}	{A, C}
{A, B, C}	{A, B, C}	(A, C)

$q_0 = E(\{A\}) = \{A, C\}$ is the start state,

$F = \{\{C\}, \{A, C\}, \{B, C\}, \{A, B, C\}\}$

Now, constructing the DFA



After removing states with NO incoming edges