TOC Assignment no. 3

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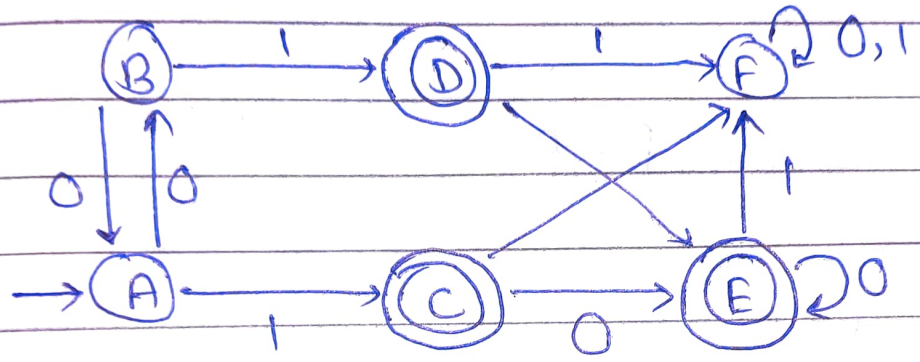
Roll no: A-58

1.

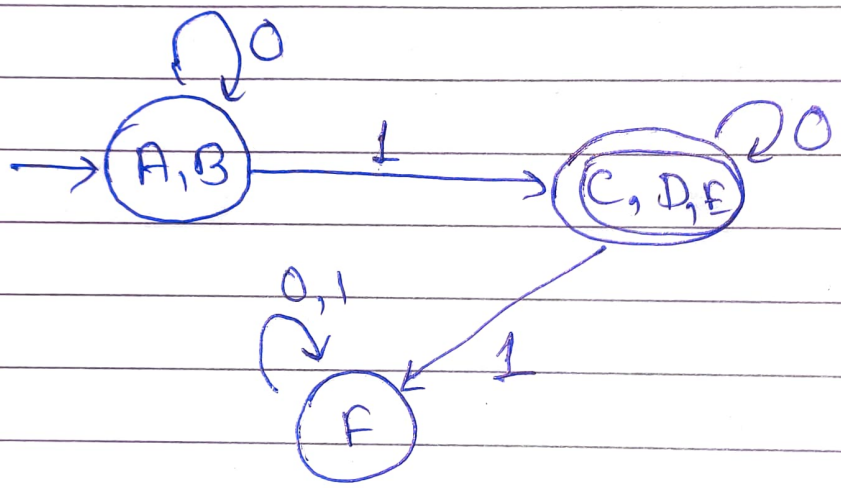


	0	1
→ A	B	C
B	A	D
(C)	F	F
(D)	E	F
(E)	E	F
F	F	F

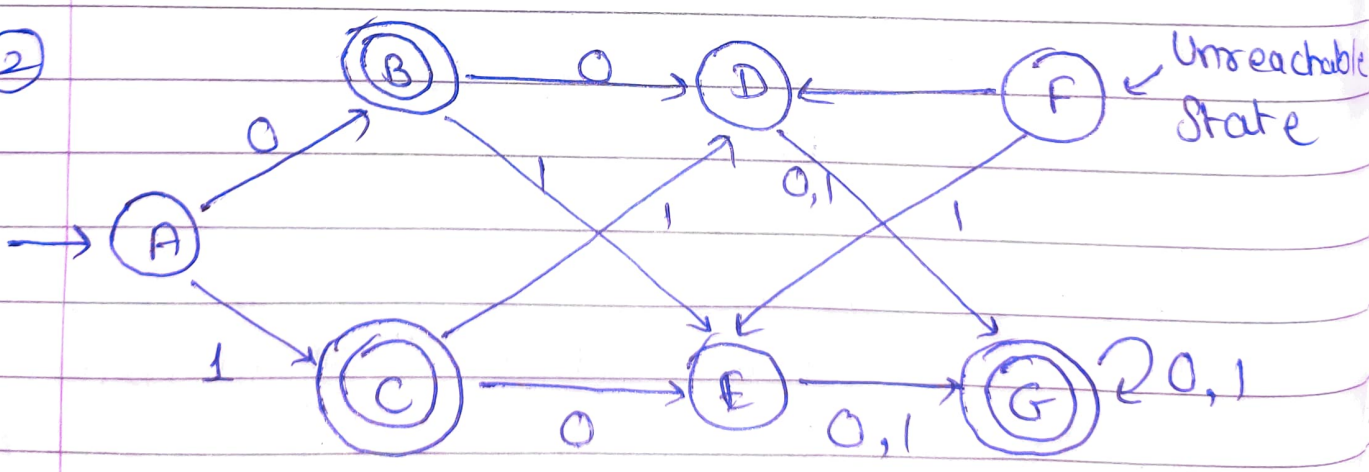
0- Equivalence - {A, B, F} {C, D, E}
1- Equivalence - {A, B} {F} {C, D, E}
2- Equivalence - {A, B} {F} {C, D, E}

	0	1
→ {A, B}	{A, B}	{C, D, E}
{F}	{F}	{F}
{C, D, E}	{C, D, E}	{F}

Minimized DFA:



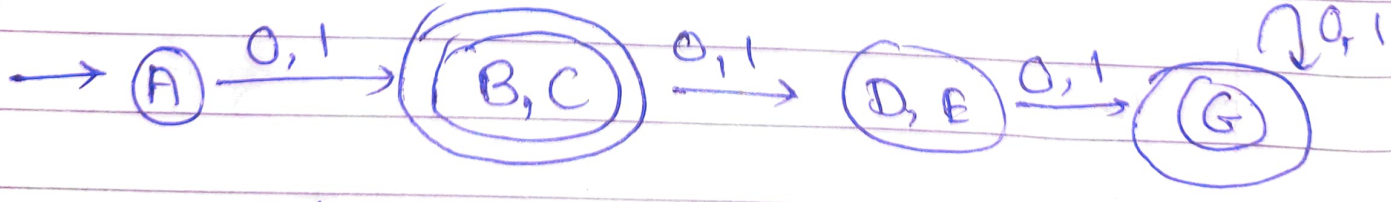
(2)



	0	1
→ A	B	C
(B)	D	E
(C)	E	D
D	G	G
E	G	G
(G)	G	G

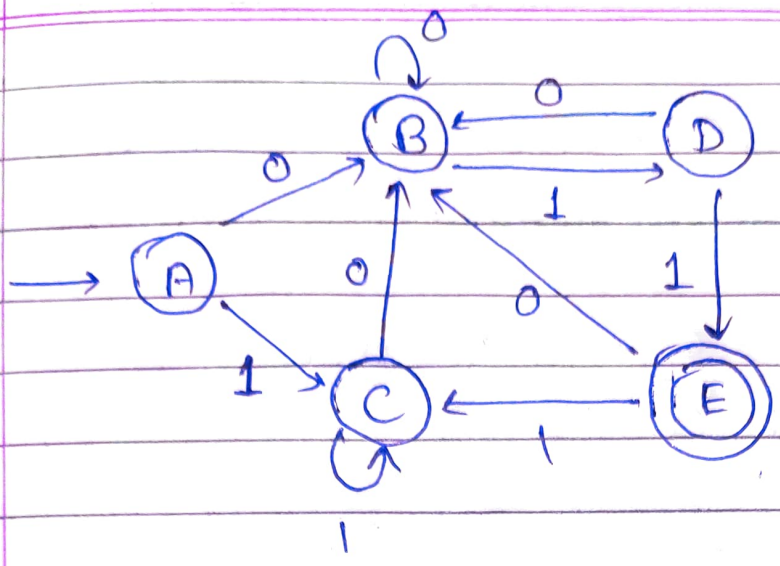
0-Equivalence : {A, D, E} {B, C, G}
1-Equivalence : {A, D, E} {B, C} {G}
2-Equivalence : {A} {D, E} {B, C} {G}
3-Equivalence : {A} {D, E} {B, C} {G}

	0	1
{A}	{B, C}	{B, C}
{D, E}	{G}	{G}
({B, C})	{D, E}	{D, E}
({G})	{G}	{G}



Minimized DFA.

(3)



Myhill Nerode Theorem:

	A	B	C	D	E
A					
B	✓				
C		✓			
D	✓	✓	✓		
E	✓	✓	✓	✓	

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$(B, A) - \delta(B,1) = D \;\; \delta(B,0) = B$
$\quad\quad - \delta(A,1) = C \;\; \delta(A,0) = B$

$(C, A) - \delta(C,0) = B \;\; \delta(C,1) = C$
$\quad\quad \delta(A,0) = B \;\; \delta(A,1) = C$

$(D, C) - \delta(D,0) = B \;\; \delta(D,1) = E$
$\quad\quad \delta(C,0) = B \;\; \delta(C,1) = C$

(C, B) - $\delta(C,0)=B$, $\delta(B,0)=B$ } $\delta(C,1)=C$, $\delta(B,1)=D$ }

(D, A) - $\delta(D,0)=B$, $\delta(A,0)=B$ } $\delta(D,1)=E$, $\delta(A,1)=C$ }

(D, B) - $\delta(D,0)=B$, $\delta(B,0)=B$ } $\delta(D,1)=E$, $\delta(B,1)=D$ }

(B, A) - $\delta(B,0)=B$, $\delta(A,0)=B$ } $\delta(B,1)=D$, $\delta(A,1)=C$ }

(C, A) - $\delta(C,0)=B$, $\delta(A,0)=B$ } $\delta(C,1)=C$, $\delta(A,1)=C$ }

(C, B) - $\delta(C,0)=B$, $\delta(B,0)=B$ } $\delta(C,1)=C$, $\delta(B,1)=D$ }

(C, A) - $\delta(C,0)=B$, $\delta(A,0)=B$ } $\delta(C,1)=C$, $\delta(A,1)=C$ }

Minimized DFA: