SOWMYA.D.V.

SURYA Gold

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TFCS

1. Draw the following DFA using table filling algorithm where A is the start state. The states C, F and I are the final states.

δ	0	1
A	B	E
B	C	F
*C	D	H
D	E	H
E	F	I
*F	G	B
G	H	B
H	I	C
*I	A	E

CF F F
H B NF NF
CF F F
I C F F
E H NF NF
I C F F

B	X							
*C	X	X						
D		X	X					
E	X		X	X				
*F	X	X		X	X			
G		X	X		X	X		
H	X		X	X		X	X	
*I	X	X		X	X		X	X
	A	B	*C	D	E	*F	G	H

STEP1 :. Cross combination of final and non-final states.

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combination of A & B

	0	1	
A	B	E	(NF, NF)
B	C	F	(F, F)

A & D

	0	1	
A	B	E	(NF, NF)
D	E	H	(NF, NF)

A & E

	0	1	
A	B	E	(NF, NF)
E	F	I	(F, F)

A & G

	0	1	
A	B	G	(NF, NF)
G	H	B	(F, F)

A & H

	0	1	
A	B	E	(NF, NF)
H	I	C	(F, F)

	0	1
B	C	F
D	E	H

F F

NF NF

	0	1
B	C	F
E		

	0	1
B		
G		

	0	1		
A	B	E	NF	NF
D	E	H	NF	NF

	0	1		
A	B	E	NF	NF
G	H	B	NF	NF

	0	1		
A	B	E	NF	NF
H	J	C	F	F

.	0	1		
B	C	F	F	F
D	E	H	NF	NF

	0	1		
B	C	F	F	F
E	F	I	F	F

	0	1		
B	B	E	NF	NF
G	H	B	NF	NF

	0	1		
B	B	E	NF	NF
H	J	C	F	F

	0	1		
C	D	H	NF	NF
F	G	B	NF	NF

	0	1		
C	D	H	NF	NF
J	A	E	NF	NF

	0	1		
D	E	H	NF	NF
E	F	I	F	F

	0	1		
D	E	H	NF	NF
G	H	B	NF	NF

	0	1		
D	E	H	NF	NF
H	I	C	F	F

	0	1		
E	F	I	F	F
G	H	B	NF	NF

	0	1		
E	F	I	F	F
H	I	C	F	F

	0	1		
G	H	B	NF	NF
H	I	C	F	F

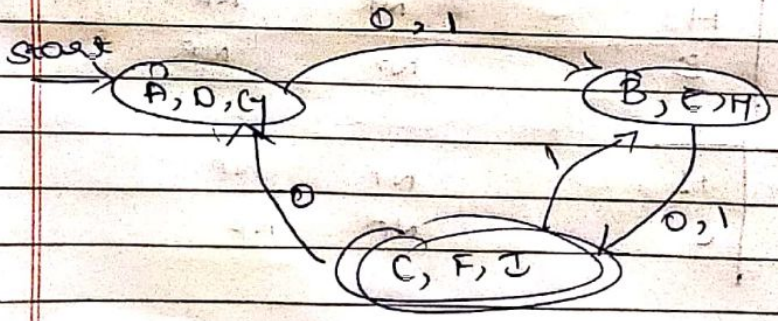
Pairs

(A,D) (A,G) (D,G) => (A,D,G)

(B,H) (B,E) (E,H) => (B,H,E)

(C,F) (C,I) (F,I) => (C,FI)

(D,H) => (D,H)



	0	1
q_1	q_1	q_4
q_2	q_3	q_5
q_3	q_4	q_5
q_4	q_4	q_3
q_5	q_3	q_5

q_2	X			
q_3	X	X		
q_4	X		X	
q_5	X	X		X
	q_1	q_2	q_3	q_4

	0	1		
q_2	q_3	q_5	NF	F
q_4	q_3	q_5	F	F

	0	1		
q_1	q_2	q_3	NF	F
q_2	q_3	q_5	F	F

	0	1		
q_1	q_2	q_3	NF	F
q_4	q_3	q_5	F	F

	0	1		
q_3	q_4	q_3	NF	F
q_5	q_2	q_5	NF	F

(q_2, q_4) is equivalent because they reach same destination.

2. Consider the DFA given by the transition.

δ	0	1
$\rightarrow q_1$	q_2	q_2
q_2	q_3	q_5
$* q_3$	q_4	q_3
q_4	q_3	q_5
$* q_5$	q_2	q_5

q_2	X			
$*q_3$	X	X		
q_4	X		X	
$*q_5$	X	X		X
	q_1	q_2	$*q_3$	q_4

	0	1		
q_2	q_3	q_5	NF	F
q_4	q_3	q_5	F	F

	0	1		
q_1	q_2	q_3	NF	F
q_2	q_3	q_5	F	F

	0	1		
q_1	q_2	q_3	NF	F
q_4	q_3	q_5	F	F

	0	1		
q_3	q_4	q_3	NF	F
q_5	q_2	q_5	NF	F

(q_2, q_4) is equivalent because they reach same destination.