

Draw the following DFA using table filling algorithm where A is the start state. The state 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

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

Step 1: Cross combination of final & non final states

Combination of

A x B

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

A x 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 & H	0	1	
A	B	E	(NF, NF)
H	J	C	(F, F)

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

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

B & D	0	1	
B	C	F	(F, F)
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
I	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)

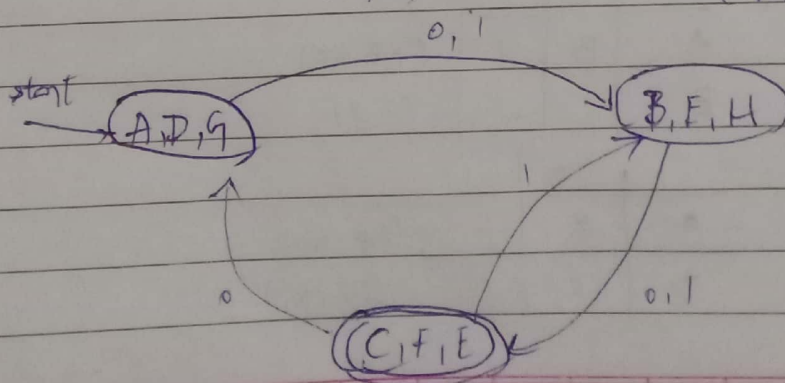
	0	1	
D	E	H	NF NF
H	J	C	F F

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

	0	1	
J	F	I	F F
H	J	C	F F

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

Pairs: (A, D) (A, G) (D, E) \Rightarrow (A, D, G)
 (B, H) (B, E) (E, H) \Rightarrow (B, H, E)
 (C, E) (C, D) (F, J) \Rightarrow (C, F, D)
 (D, H) \Rightarrow (D, H)



Consider the DFA given the transition table.

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

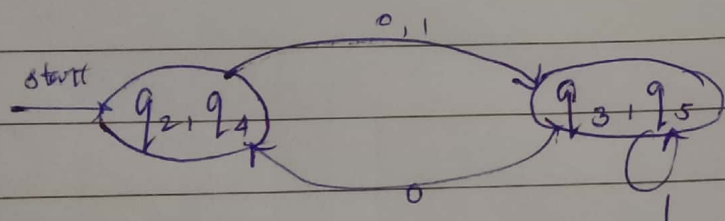
q_2	X			
$* q_3$	X	X		
q_4	X		X	
$* q_5$	X	X		X
	q_1	q_2	q_3	q_4

	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.

Ans: (q_2, q_4)
 (q_3, q_5)