

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

	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	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.

Comb of A & B

	0	1
A	B	E
B	C	F

(NF, NF)  
(F, F)

A &amp; D

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

O	I	
C	D	H
I	A	E

A &amp; E

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

D	E	H
E	F	I

A &amp; G

(NF, NF)	A	B	E
(NF, NF)	G	H	B

D	E	H
G	H	B
D	E	H
H	I	C

A &amp; H

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

E	F	I
G	H	B

(F, F)	B	C	F
(NF, NF)	D	E	H

E	F	I
H	I	C

(F, F)	B	C	F
(F, F)	E	F	I

G	H	B
H	I	C

(F, F)	B	C	F
(NF, NF)	G	H	B

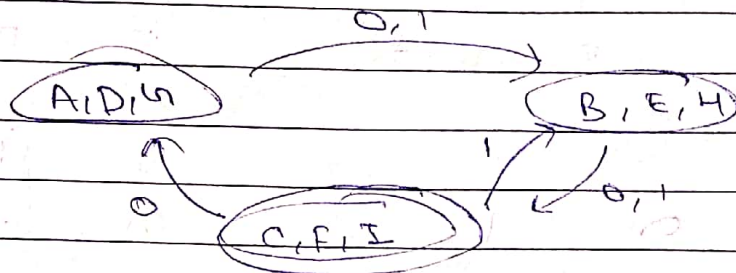
E	G	B
I	A	E

(F, F)	B	C	F
(F, F)	H	I	C

(NF, NF)	C	D	H
(NF, NF)	F	G	B



$(A, D) \quad (A, G) \quad (D, F) \Rightarrow (A, D, G)$   
 $(B, H) \quad (B, E) \quad (E, H) \Rightarrow (B, H, E)$   
 $(C, F) \quad (C, I) \quad (F, I) \Rightarrow (C, F, I)$   
 $(D, H) \Rightarrow (D, H)$



	8	5	1
→	$q_1$	$q_2$	$q_3$
	$q_2$	$q_3$	$q_5$
*	$q_3$	$q_4$	$q_3$
	$q_4$	$q_3$	$q_5$
*	$q_5$	$q_2$	$q_5$

$q_2$	$x$			
$q_3$	$x$	$x$		
$q_4$	$x$		$x$	
$q_5$	$x$	$x$		$x$
	$q_1$	$q_2$	$q_3$	$q_4$

8	0	1	
$q_2$	$a_3$	$a_5$	$(f, f)$
$q_4$	$a_3$	$a_5$	$(f, f)$

8	0	1	
q <sub>1</sub>	q <sub>2</sub>	q <sub>3</sub>	NF ↑
q <sub>2</sub>	q <sub>3</sub>	q <sub>5</sub>	r ↑

	0	1	
$a_1$	$a_2$	$a_3$	(NF, F)
$a_4$	$a_3$	$a_5$	(F, F)

DATE:

PAGE:

	0	1	
$q_3$	$q_4$	$q_3$	$(NF, F)$
$q_5$	$q_2$	$q_5$	$(NF, F)$

$(q_3, q_5)$   
 $(q_2, q_4)$

- are equivalent, as reaching same destination

