

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

	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

A>

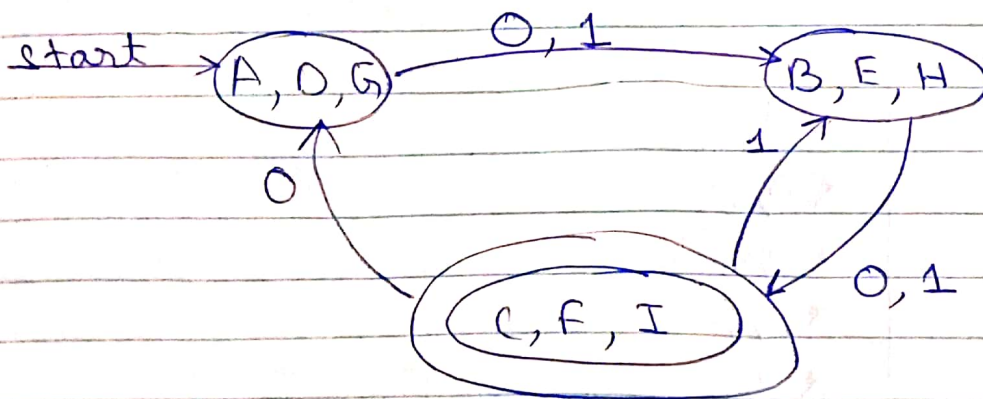
B	X							
C	X	X						
D		X	X					
E	X		X	X				
F	X	X		X	X			
G		X	X		X	X		
H	X		X	X		X	X	
I	X	X		X	X		X	X
	A	B	C	D	E	F	G	H

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

		0	1
✓	I	A	E
	<u>F</u>	<u>G</u>	<u>B</u>
X	G	H	B
	H	I*	C*

Hence remaining pairs are

(A, D) ; (A, G) ; (B, E) ; (B, H) ; (C, F) ;
 (C, I) ; (D, G) ; (F, H) ; (I, F)
 $\rightarrow (A, D, G)$; (B, E, H) ; (C, F, I)

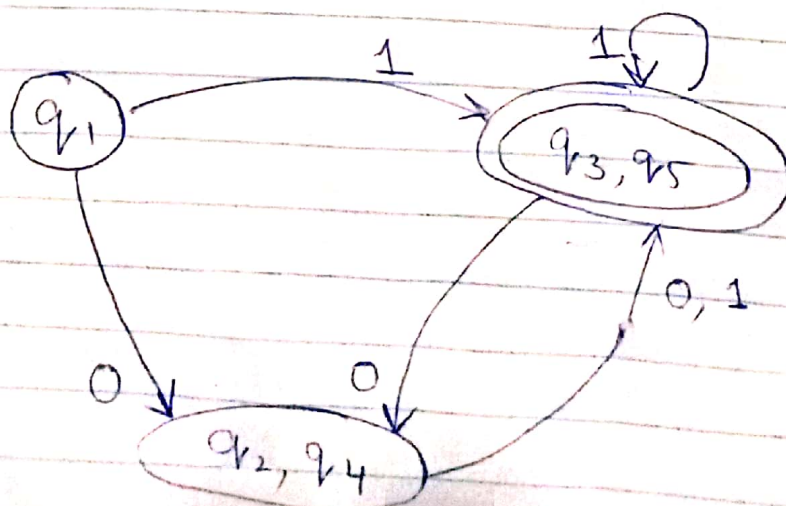


2.

	S	0	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

	0	1
X q_1	q_2	* q_3
q_2	* q_3	* q_5
X q_1	q_2	* q_3
q_4	* q_3	* q_5
✓ q_2	* q_3	* q_5
q_4	* q_3	* q_5
✓ q_3	q_4	* q_3
q_5	q_2	* q_5



3.

	S	0	1
→	q ₁	q ₂	q ₆ *
	q ₂	q ₁	q ₃ *
*	q ₃	q ₂	q ₄
	q ₄	q ₄	q ₂
	q ₅	q ₄	q ₅
*	q ₆	q ₅	q ₄

q ₂					
* q ₃	X	X			
q ₄	X	X	X		
q ₅	X	X	X		
* q ₆	X	X		X	X
	q ₁	q ₂	q ₃	q ₄	q ₅

		0	1
✓	q ₁	q ₂	q ₆ *
	q ₂	q ₁	q ₃ *
X	q ₁	q ₂	q ₆ *
	q ₄	q ₄	q ₂
X	q ₁	q ₂	q ₆ *
	q ₅	q ₄	q ₅
X	q ₂	q ₁	q ₃ *
	q ₄	q ₄	q ₂
X	q ₂	q ₁	q ₃ *
	q ₅	q ₄	q ₅
✓	* q ₃	q ₂	q ₄
	* q ₆	q ₅	q ₄
✓	q ₄	q ₄	q ₂
	q ₅	q ₄	q ₅

Hence remaining pairs are

(q_1, q_2)

(q_4, q_5)

(q_3, q_6)

