

Key 1



Faculty of Engineering and Technology
Electrical and Computer Engineering Department
Quiz#3

Name: _____

#: _____

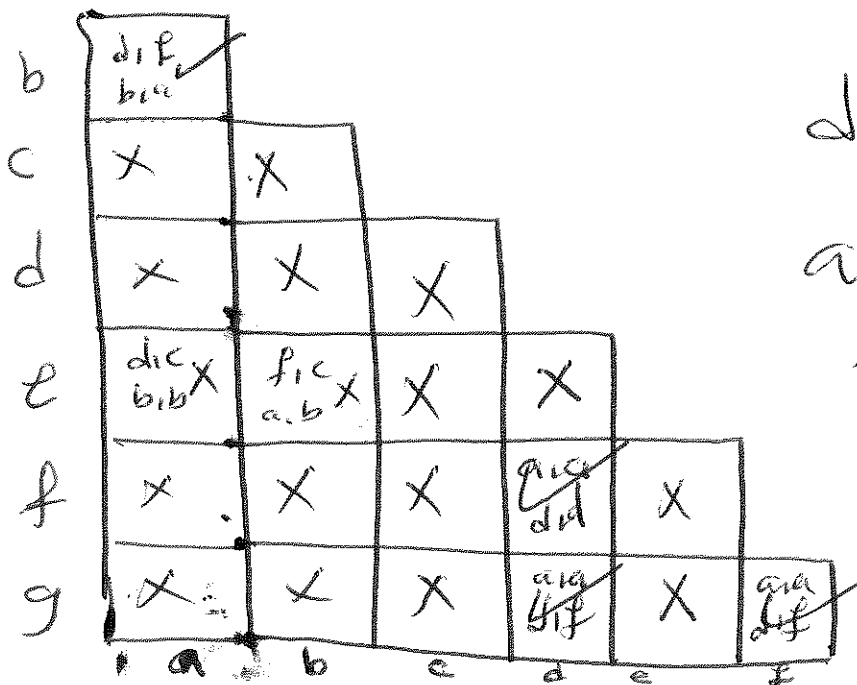
Answer the following questions related to the finite state machine given in the state table

Present State	Next State		Output y	
	x=0	x=1	x=0	x=1
a	d	b	0	0
b	f	a	0	0
c	g	f	0	1
d	a	d	1	0
e	c	b	0	0
f	a	d	1	0
g	a	f	1	0

1. (2 pts) How many Flip Flops are required to implement this circuit (before minimizing the number of states)? Why?

3 Flip Flops, Because $2^2 < 7 \text{ states} < 2^3$

2. (7 pts) Use the Implication chart method to reduce the circuit to minimum number of states and Write down the equivalent states.



$d \equiv f \equiv g \rightarrow d$

$a \equiv b \rightarrow a$

the new states

a, c, d, e

3. (1 pts) How many Flip-flops are required now after minimizing the number of states?

2 Flip Flops required