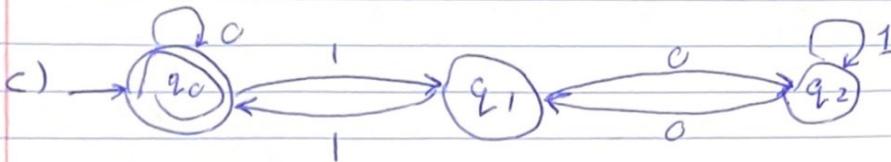
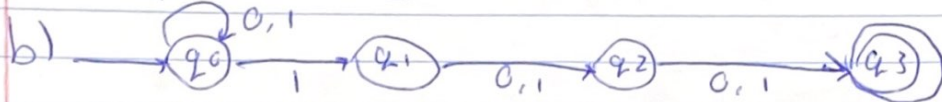
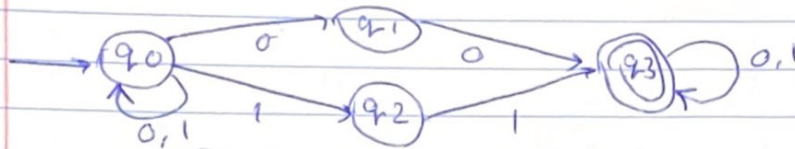


Homework 3

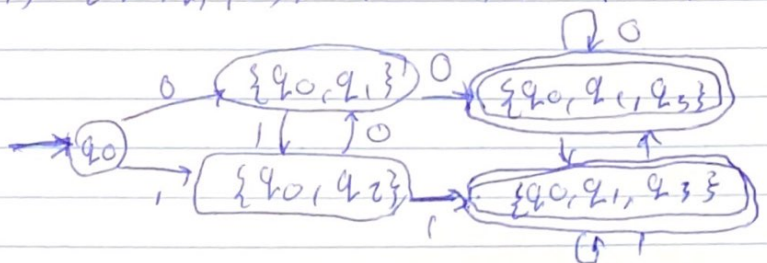
1. a) All binary numbers that contain 0011



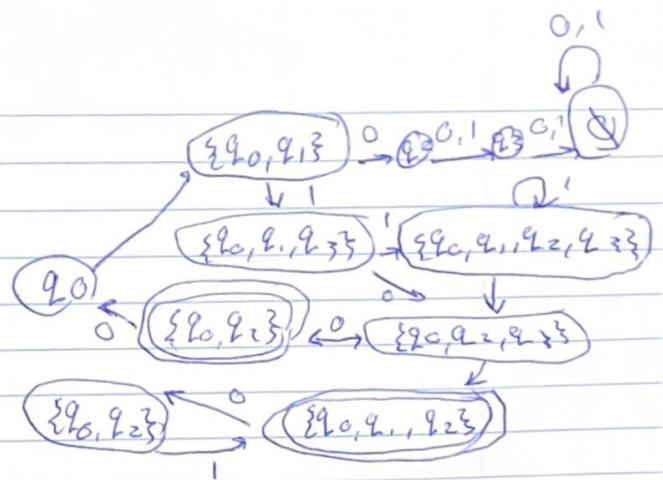
2. $Q = \{q_1, q_2, q_3, q_4\}$, substitution = $\{Q, \{q_0\}, \{q_1\}, \{q_2\}, \dots\}$

	0	1		0	1
A \emptyset	\emptyset	\emptyset	A	A	A
B q_0	$\{q_0, q_1\}$	$\{q_0, q_1\}$	B	F	G
C q_1	q_3	q_3	C	E	A
D q_2	\emptyset	\emptyset	D	A	E
E q_3	q_3	q_3	*E	E	E
F $\{q_0, q_1\}$	$\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	F	M	G
G $\{q_0, q_1\}$	$\{q_0, q_1\}$	$\{q_0, q_1\}$	G	F	N
H $\{q_0, q_1\}$	$\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	*H	M	N
I $\{q_1, q_2\}$	q_3	q_3	I	E	E
J $\{q_1, q_2\}$	q_3	q_3	*J	E	E
K $\{q_2, q_3\}$	q_3	q_3	*K	E	E
L $\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	L	M	N
M $\{q_0, q_2, q_3\}$	$\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	*M	M	N
N $\{q_0, q_2, q_3\}$	$\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	*N	M	N
O $\{q_0, q_2, q_3\}$	q_3	q_3	*O	E	E
P $\{q_0, q_1, q_2, q_3\}$	$\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	P	M	N

	0	1
B	F	G
F	M	G
M	M	N
G	F	N
N	M	N



	0	1		0	1
A	A	A	B	B	F
B	B	F	F	D	L
C	D	D	L	N	P
D	E	E	P	N	P
E	A	A	N	H	M
F	D	L	H	B	F
G	H	M	H	G	L
H	B	F	G	H	M
I	K	K	D	E	E
J	D	D	E	A	A
K	E	E	A	A	A
L	N	P			
M	G	L			
N	H	M			
O	K	K			
P	N	P			



	0	1		0	1
A	A	A	B	B	C
B	B	C	C	D	B
C	D	B	D	C	C
D	C	C			
E	F	E			
F	E	G			
G	G	F			
H	H	H			

