

BLG231 Digital Circuits HW5**Yunus Güngör-No:150150701-CRN:11918**

$$FQ2 = ((A'B' + AB + Q_1Q_0) \cdot Q_2) + (AB \cdot Q_1Q_0')$$

$$FQ1 = (((A'B + AB') \cdot Q_2) + Q_1Q_0) + Q_0Q_2 + ((Q_1Q_2) + (Q_1Q_0) \cdot AB)$$

$$FQ0 = ((A'B + AB') \cdot Q_2 + Q_1Q_0) + (AB \cdot Q_1Q_0) + (Q_1Q_0') \cdot A \cdot Q_2 + Q_1Q_0A'Q_2$$

$$G_S = Q_0Q_1Q_2$$

$$G_E = Q_0Q_1Q_2'$$

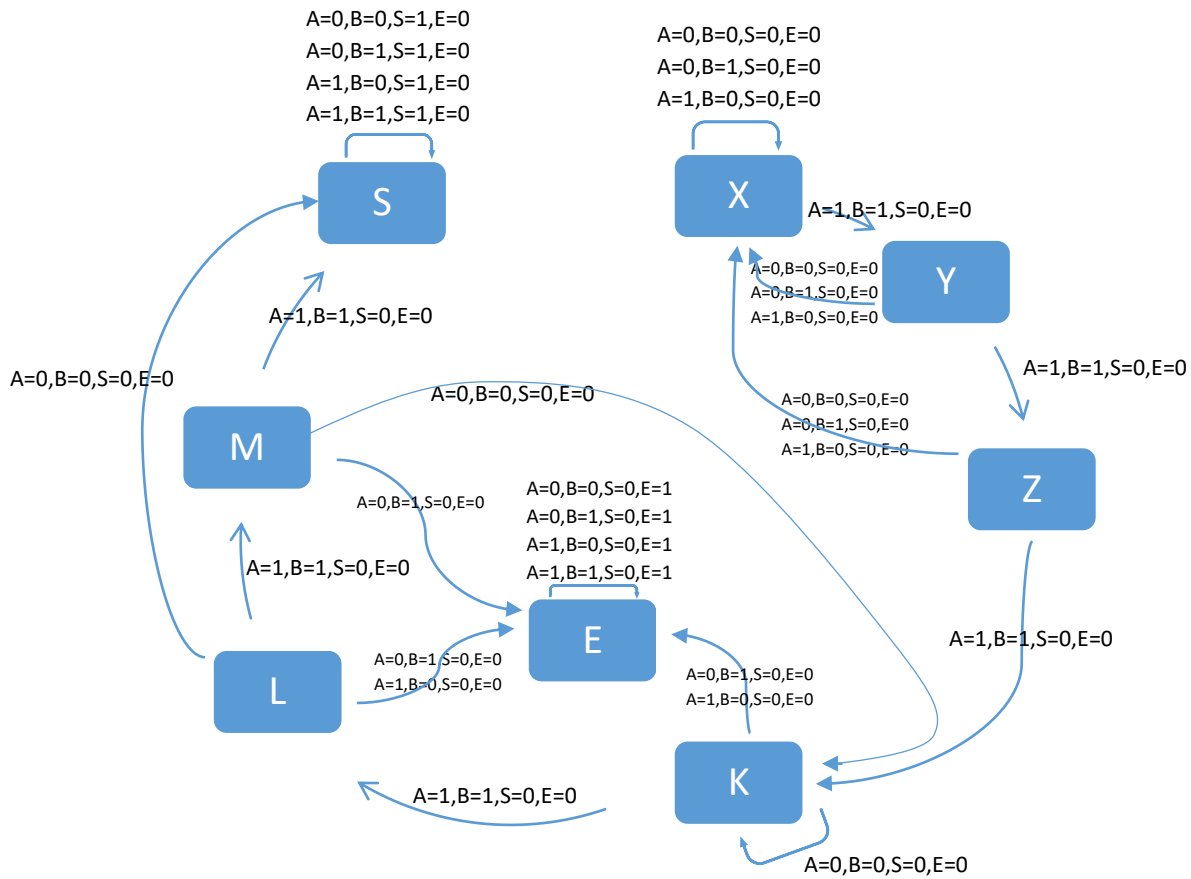
State Transition Table

State\AB	00	01	10	11
X	X	X	X	Y
Y	X	X	X	Z
Z	X	X	X	K
E	E	E	E	E
K	K	E	E	L
L	S	E	E	M
M	K	E	E	S
S	S	S	S	S

State, Output Table

State\AB	00	01	10	11
X	X,0,0	X,0,0	X,0,0	Y,0,0
Y	X,0,0	X,0,0	X,0,0	Z,0,0
Z	X,0,0	X,0,0	X,0,0	K,0,0
E	E,0,1	E,0,1	E,0,1	E,0,1
K	K,0,0	E,0,0	E,0,0	L,0,0
L	S,0,0	E,0,0	E,0,0	M,0,0
M	K,0,0	E,0,0	E,0,0	S,0,0
S	S,1,0	S,1,0	S,1,0	S,1,0

State Transition Diagram



b)i)

A	0	0	1	1	1	1	0	1	1	0	0	1	1	1	0
B	0	1	0	1	1	1	0	1	1	0	0	1	1	1	0
State	X	X	X	Y	Z	K	K	L	M	K	K	L	M	S	S
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Output: S=1 E=0

ii)

A	0	1	1	1	1	1	0	0	1	0	1	1	1	1	0
B	0	1	0	1	1	1	0	1	1	0	1	1	0	1	0
State	X	Y	X	Y	Z	K	K	E	E	E	E	E	E	E	E
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Outout: S=0 E=1