BLG311E – FORMAL LANGUAGES AND AUTOMATA

2017 SPRING

RECITEMENT 2 (QUIZ 1 SOLUTIONS)

Simplify the given state transition tables. Show the steps clearly - no partial credits will be given for just stating the results.

a-)

State\Inputs	a	b	Output
Q_0	Q_1	Q_2	0
Q_1	Q_1	Q_3	0
Q_2	Q_5	Q_2	0
Q_3	Q_1	Q_4	0
Q_4	Q_1	Q_2	1
Q_5	Q_5	Q_3	0

b-)

	0	1
a	d/0	b/0
b	-/-	c/0
c	e/0	b/-
d	a/1	-/0
e	a/-	d/-

Note: Use complete cover for **b**.

Duration: 30 mins.

Solution:

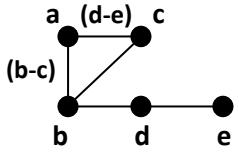
a-)

Q_0				
(Q_2, Q_3) X	**Q_1**			
(Q_1, Q_5) OK	(Q_1, Q_5) (Q_2, Q_3) X	**Q_2**		
(Q_2, Q_4) X	(Q_3, Q_4) X	(Q_1, Q_5) (Q_2, Q_4) X	**Q_3**	
X	X	X	X	**Q_4**
(Q_1, Q_5) (Q_2, Q_3) X	OK	(Q_2, Q_3) X	(Q_1, Q_5) (Q_3, Q_4) X	X **Q_5**

State\inputs	a	b	Output
S_0={Q_0,Q_2}	S_1	S_0	0
S_1={Q_1,Q_5}	S_1	S_2	0
S_2={Q_3}	S_1	S_3	0
S_3={Q_4}	S_1	S_0	1

b-)

a				
b-c OK	**b**			
d-e OK	OK	**c**		
X	OK	X	**d**	
a-d b-d X	c-d X	a-e b-d X	OK	**e**



State\inputs	0	1
S_0={a,b,c}	S_2/0	S_0/0
S_1={b,d}	S_0/1	S_0/0
S_2={d,e}	S_0/1	S_1,S_2/0