11.04.2013

FORMAL LANGUAGES AND AUTOMATA
Homework-4

1. Consider the regular expression (aVb)*abb(aVb)*.
   a. Construct and draw the NFA accepting the regular expression.
   b. Construct and draw the DFA for this NFA.
   c. Reduce the DFA if necessary.

2. Consider the following state transition diagram of DFA in Moore model.

	a	b	c	Output
q0	q1	q7	q7	1
q1	q2	q3	q4	0
q2	q2	q5	q7	0
q3	q6	q3	q7	0
q4	q3	q2	q7	0
q5	q1	q7	q7	1
q6	q1	q7	q7	1
q7	q7	q7	q7	0

$K = \{q0, q1, q2, q3, q4, q5, q6, q7\}$
$F = \{q0, q5, q6\}$
$s = \{q0\}$
$\sum = \{a, b, c\}$

   a. Reduce the table if necessary. Draw the state transition diagram of the (reduced) DFA.
   b. Which ones of the following regular expressions are accepted by this DFA?
      i. L(M) = {a[(b V ca)b* a V (a V cb)a*b]}*
      ii. L(M) ={a[(b V ca)b* a V (a V cb)a*b]}$^{+}$
      iii. L(M) = {a[(b V c)b a V (a V cb)ab]}*

IMPORTANT: You must do this homework **by hand** and **submit it using the box in the secreteriat**.