Theoretical Computer Science
Tutorial III

1) Write regular expressions for the following languages.
   a) L={uvu|u,v = {a,b}* and |u|=2}
   b) Strings containing even number of zeros. ∑={0,1}
   c) String not containing two consecutive b's.
   d) String not containing two consecutive 0's & string ends with 1.
   e) Strings that do not contain two consecutive a's nor b's ∑={a,b}
   f) String starts with abb and ends with bbb.
   g) String not containing three consecutive b's.
   h) String not containing three consecutive a's or b's.
   i) Strings that have almost three a's defined over ∑={a,b,c}
   j) String of length ≠ 2, ∑={0,1}
   k) String contains each symbol at least once ∑={a,b,c}
   l) Strings with almost one occurrence of two consecutive zeros. ∑={0,1}
   m) Intersection of (a+b)*a and b(a+b)*
   n) L={a^n| n is divisible by 2 or 3 or 5}
   o) L={a^n b^m | m>=3, n>=4}

2) Construct minimized DFA for R = (0 + 1)* 10 + ((00)* (11)*)*
3) Construct minimized DFA for R= 10 + (0 + 11) 0* 1
4) Describe language given by DFA

	0	1
→ *q0	q4	q1
q1	q3	q2
q2	q3	q1
q3	q3	q3
q4	q0	q3

5) Describe language given by FA

	0	1
→ *q0	q0,q2	q1
q1	q3	q4
q2	-	q4
q3	q3,q4	q3,q4
q4	-	-