**Tutorial -3**

Q1: Convert the following regular expressions to NFAs using the procedure to prove that NFAs are equivalent to Res. In all parts E = {a, b}.

1. a(abb) \* U b
2. a+ U (ab)+
3. (a U b+)a+b+

Q2: Use the pumping lemma to show that the following languages are not regular.

1. A= {www | w in {a,b}\*}
2. A={| n >0}

Q3:

Describe the error in the following "proof" that 0\* 1\* is not a regular language. The proof is by contradiction. Assume that 0\* 1\* is regular. Let p be the pumping length for 0\* 1\* given by the pumping lemma. Choose s to be the string OP1P, which cannot be pumped. Thus you have a contradiction. So 0\* 1\* is not regular.

Q5: Show that the follwing is not regular : L = {aK | k is a prime number}

Q6: Show that the follwing is not regular : L = {an bn+1, n>0 }

Q7: Show that the follwing is not regular : L = {an b2n, n>0 }

Q8: Show that the follwing is not regular : TRAILING-COUNT as any string s followed by a number of a’s equal to the length of s.

Q9: Show that the follwing is not regular EVENPALINDROME = { all words in PALINDROME that have even length}

Q10: L = { w wR | w is {a, b}\* }; R implies reverse