Birla Institute of Technology and Science, Pilani, Pilani Campus, Rajasthan
CS F351 (Theory of Computation)
Tutorial #3

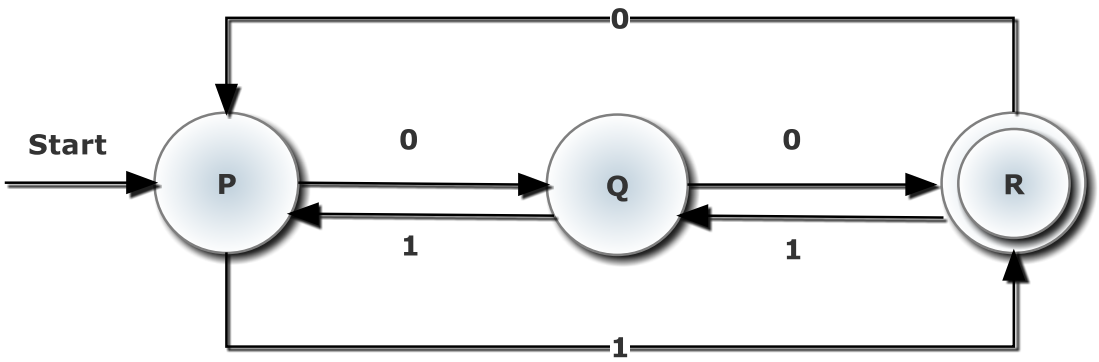
Topic: Regular Expressions

Q1. Construct a regular expression over $\Sigma = \{0,1\}$ for the following languages where

a) Each string starts with 0 and has odd length or starts with 1 and has even length.
b) $L = \{0^n1^m \mid n+m \text{ is even}$
c) Each string contains atmost two 0's
d) The length of the string is atmost n.
e) Every 0 in the language must be followed by atleast a single 1.

Q2. Design the $\in$-NFA for the regular expression $R = (aa^* + bb^*)^*$

Q3. Generate the regular expression for the following DFA over $\Sigma = \{0,1\}$.



Q4. Construct the Finite Automata for the following regular expressions

a) b.a + (a+b.b).a*.b
b) (111 + 11111)*