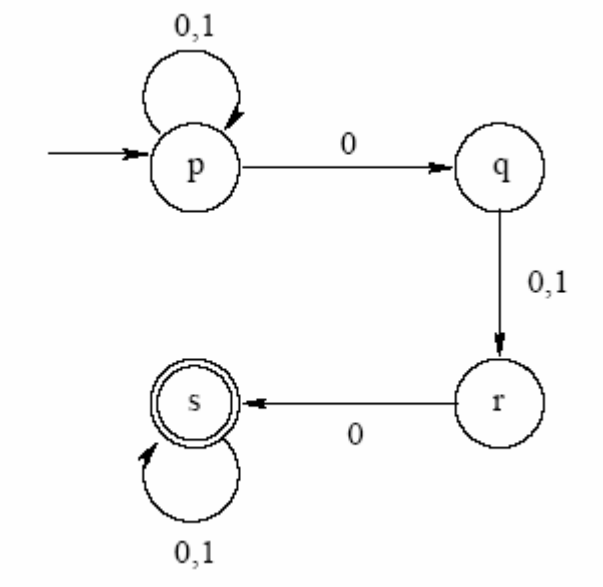
Name_____

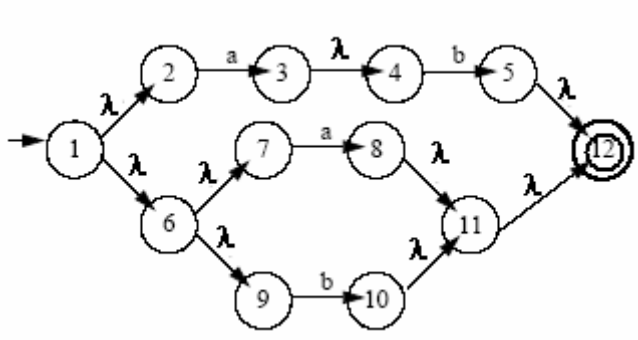
CS3133
Homework #3

People talked to and URL's consulted:

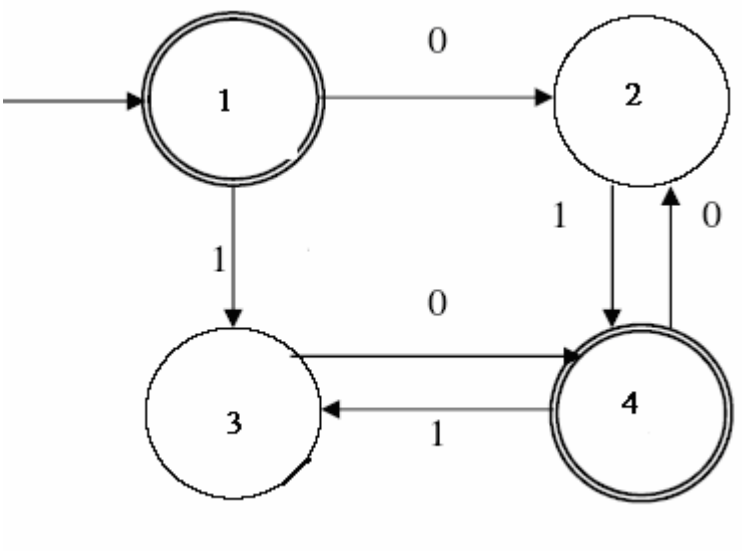
#1. a) Use the subset construction to convert the following NFA to a DFA:



b) Use the subset construction to convert the following nfa to a dfa:



#2. Create the regular expression for the following automaton by eliminating states



#3. a) Show that all finite languages are regular

b) Consider the operation *g* on three languages defined as:

***g* (L1,L2,L3) = L1 ∪ L2 – (L3 ∩ ~L1)**

Show that regular languages are closed under the *g* operation.

#4. Show that it is decidable whether a regular language, L, is empty

#5. Use the pumping lemma to show the following language is not regular:

$\{0^n 1^m\ 0^{n+m} \mid n,m \geq 0\}$