

CMSC330 Fall 2011 Quiz #2

Name _____

Discussion Time (circle one): 9am 10am 11am 12pm 1pm 2pm

Instructions

- Do not start this test until you are told to do so!
- You have 15 minutes for this quiz. There are 30 points for this quiz (30 sec/point).
- This is a closed book exam. No notes or other aids are allowed.

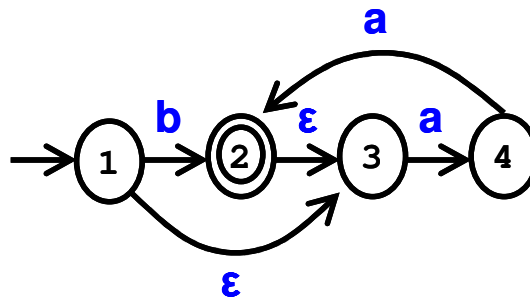
1. (4 pts) What is the output (if any) of the following Ruby program? Write FAIL if code does not execute.

a. (2 pts)
 if "Teach the Terrapin" =~ /[a-z]+/ # **Output =**
 puts \$1
 end

b. (2 pts)
 if "Drill the Diamondback" =~ /^[^aeiou]+/ # **Output =**
 puts \$1
 puts \$2
 end

2. (8 pts) Create a NFA for a^*a , using the algorithm discussed in class.

3. (18 pts) Consider the following NFA.



- a. (3 pts) Does it accept the string “aa”? List a possible sequence of state transitions (e.g., 1,2,3) leading to acceptance / rejection of “aa”.

- b. (15 pts) Convert the NFA to a DFA using the subset construction algorithm discussed in class. Be sure to label each state in the DFA with the corresponding state(s) in the NFA.