CMSC330 Spring 2011 Quiz #2 - SOLUTIONS

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.
• This is a closed book exam. No notes or other aids are allowed.
• For partial credit, show all of your work and clearly indicate your answers.
• Write neatly. Credit cannot be given for illegible answers.

1. (3 pts) Compute trans(r), where r = a*(ba | ab)*.

\{"a, a*(ba | ab)*\}, \{"a, b(ab | ba)*\}, \{"b, a(ab | ba)*\}\  (Can also have leading \(\varepsilon\)s.)

2. (2 pts) In determinizing the following NFA, what would be the target state in the DFA of the a-transition from state \{S1,S2,S3\}?

![Diagram]

\{S0, S2\}

3. (2 pt) Give a derivation for the string 0111 in the grammar S \(\rightarrow\) 1 | 0S1 | S1

\[S \Rightarrow 0S1 \Rightarrow 0S11 \Rightarrow 0111\]

4. (3 pts) Give a grammar for the following language: strings of form \(0^m1^n\) where \(m > n \geq 0\) (i.e. 0s are before 1s and number of 0s is strictly greater than number of 1s.).

\[S \rightarrow 0 | 0S | 0S1\]