CMSC 330, Spring 2018 Quiz 3

Name _____

Discussion Time (circle one)   10am   11am   12pm   1pm   2pm   3pm

Discussion TA (circle one)   BT   Daniel   Chris   Alex   Derek   Pei-Jo   Akbar   Justin L.

Tal   Shriraj   Cameron   Eric   Kesha   Kameron   Michael S.   Michael P.

Instructions

- Do not start this quiz until you are told to do so.
- You have 15 minutes for this quiz.
- This is a closed book quiz. No notes or other aids are allowed.
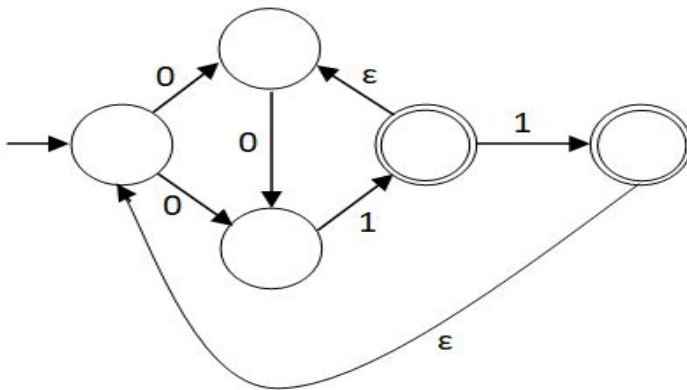- For partial credit, show all your work and clearly indicate your answers.

1a. *(4 points)* Write a grammar for:

$$s^y e^z, \text{ where } z = 2y + 1 \text{ and } y \geq 0$$

1b. *(3 points)* Write a left-most derivation of "(boots and cats) and boots" from the following grammar:

$$S \Rightarrow S \text{ and } S \mid S \text{ xor } S \mid (S) \mid boots \mid cats$$

2. *(3 points)* Circle "Accept" if the NFA accepts the given string. Circle "Reject" otherwise.

"0001"   Accept   Reject

"01011"   Accept   Reject

"01100101"   Accept   Reject

3. *(10 points)* Convert the following NFA to a DFA (make sure to show your work for partial credit):