

CSCE 222: Discrete Structures for Computing  
Section 503  
Fall 2016

YOUR NAME HERE

October 20, 2016

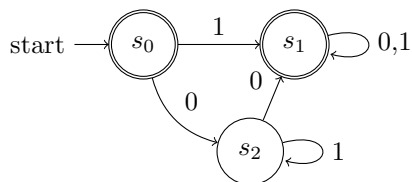
**Problem Set 8**

**Due: 23 October 2016 (Sunday) before 11:59 p.m.** on eCampus (ecampus.tamu.edu).  
You must show your work in order to receive credit.

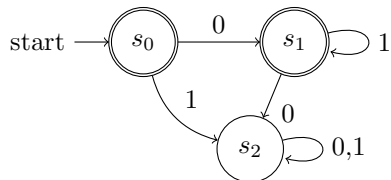
**Problem 1.** (30 points)

Find the language recognized by the given DFA:

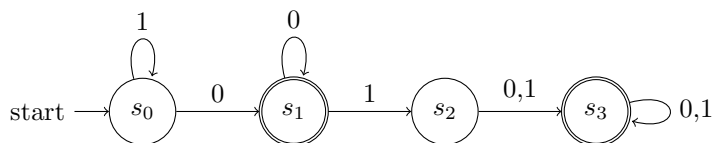
1.



2.



3.



**Problem 2.** (20 points)

Show that the following grammar generates the language  $\{a^n b^n c^n \mid n \geq 0\}$ .

$$\begin{aligned}
 S &::= aST \mid \lambda \\
 T &::= BC \\
 CB &::= BC \\
 aB &::= ab \\
 bB &::= bb \\
 bC &::= bc \\
 cC &::= cc
 \end{aligned}$$

**Aggie Honor Statement:** On my honor as an Aggie, I have neither given nor received any unauthorized aid on any portion of the academic work included in this assignment.

**Checklist:** Did you...

1. abide by the Aggie Honor Code?
2. solve all problems?
3. start a new page for each problem?
4. show your work clearly?
5. type your solution?
6. submit a PDF to eCampus?