

Final Exam
Theory of Computation (CSCI 3500), Spring 2021

Name: _____

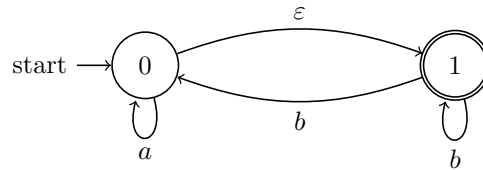
Score: _____

The following are several long answer questions. Please write legibly, and clearly mark your solution.

0. Prove that the following language is regular by constructing a DFA that accepts it:

$$L = \{w \in \{!, \square\}^* \mid w = vw'v \text{ where } v, w' \in \{!, \square\}^*, |w'| = 2, \text{ and } |v| = 3\}$$

1. Convert the following NFA into an equivalent NFA using the NFA-to-DFA algorithm:



2. Convert the regular expression $(a^* + bc^2)^*$ into an equivalent NFA.