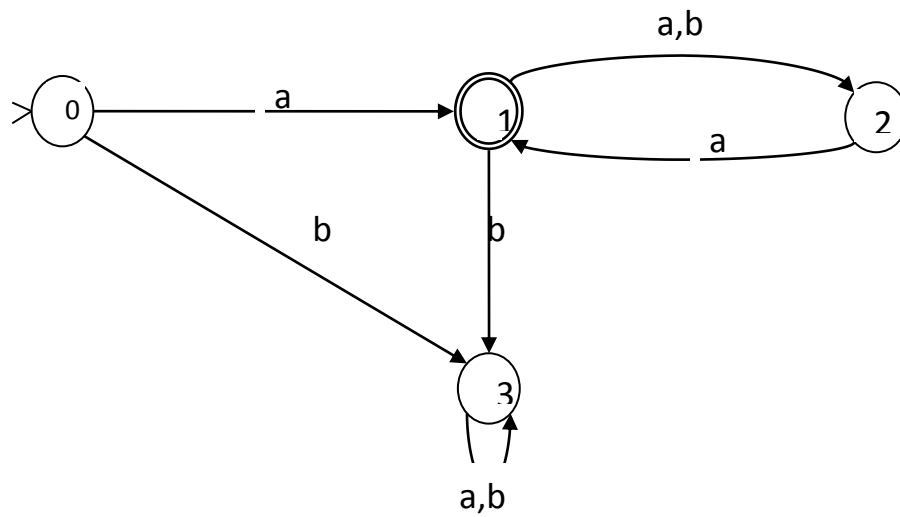


CS-302 Theory of Computation
Assignment 7

Name: _____

1. Construct a regular expression whose language is equivalent to the language of the following DFA.



2. Consider the languages over a fixed alphabet Σ with $|\Sigma| = 2$. Answer true or false to each of the following questions. If a statement is false, give a counterexample.

a. If L_1 is nonregular and $L_1 \subseteq L_2$ then L_2 is nonregular.

b. If $L_1 \subseteq L_2$ and L_2 is nonregular, then L_1 is nonregular.

c. If L is nonregular, then its complement \bar{L} is nonregular.

d. If L_1 is regular, then $L_1 \cup L_2$ is regular for any language L_2 .

e. If L_1 and L_2 are nonregular, then $L_1 \cap L_2$ is nonregular.
