CMSC 330, Fall 2018 — Quiz 2 DFA, NFA, CFG

NAME _____

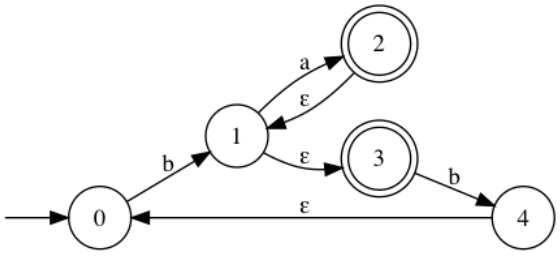
TEACHING ASSISTANT

Kameron Aaron Danny Chris Michael P. Justin Cameron B. Derek Kyle Hasan Shriraj Cameron M. Alex Michael S. Pei-Jo

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.

1. [4 pts] Circle "Accept" if the NFA accepts the given string. Circle "Reject" otherwise.



(i) bbb Accept Reject

(ii) babb Accept Reject

(iii) babbab Accept Reject

(iv) bbbba Accept Reject

Solution.

(i) Accept

(ii) Accept

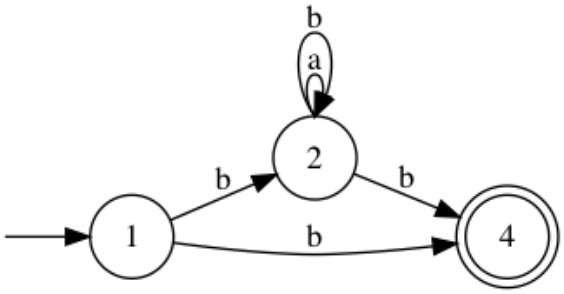
(iii) Reject

(iv) Reject

❑

2. [4 pts] Draw the NFA that accepts all strings over the alphabet $\Sigma = \{a, b\}$ beginning and ending with b.

Solution.



❑

3. [4 pts] Describe the language accepted by the following CFG.

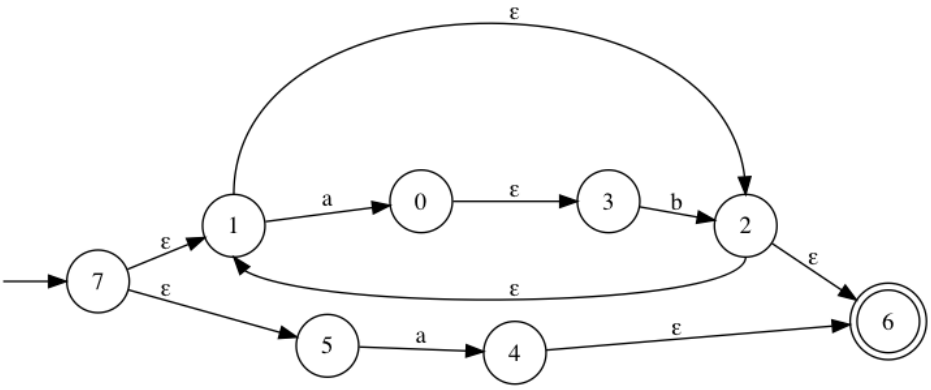
$$S \to batU \mid catL$$
$$U \to man \mid \varepsilon$$
$$L \to woman \mid \varepsilon$$

Solution.

Creates one of the following words: bat, cat, batman, catwoman. ❑

4. [8 pts] Create an NFA equivalent to the regular expression $(ab)^* \mid a$

Solution.



❑