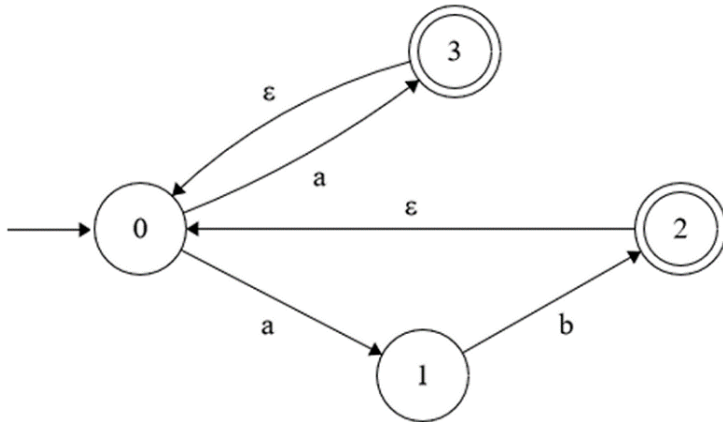# CMSC 330 Quiz 3 Spring 2022

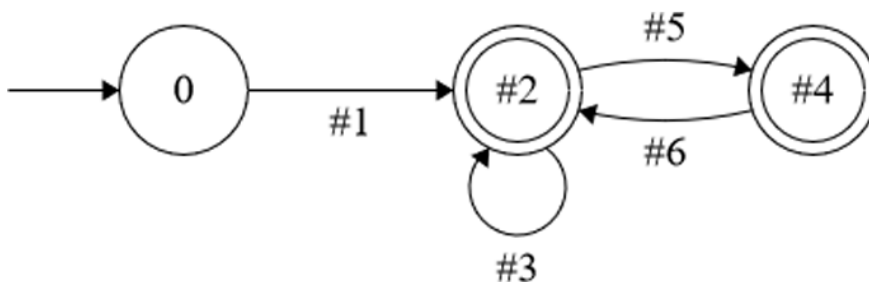## Q1. NFA to DFA

Consider the following NFA:

Note: You can open this image in a new tab to make it easier to reference.

Q1.1. Which of the following strings are accepted by the NFA?

* Empty String
* aab
* baa
* abbab
* abaaab

Q1.2. Write a regular expression for the language accepted by the NFA.

_____

Q1.3. Use subset construction - the NFA to DFA algorithm covered in class - to fill in the blanks on the DFA so that the given NFA and DFA are equivalent.

Note: You can put more than one symbol in each blank to create multiple transitions following the same trajectory. If you do this, separate the symbols in each blank with commas.
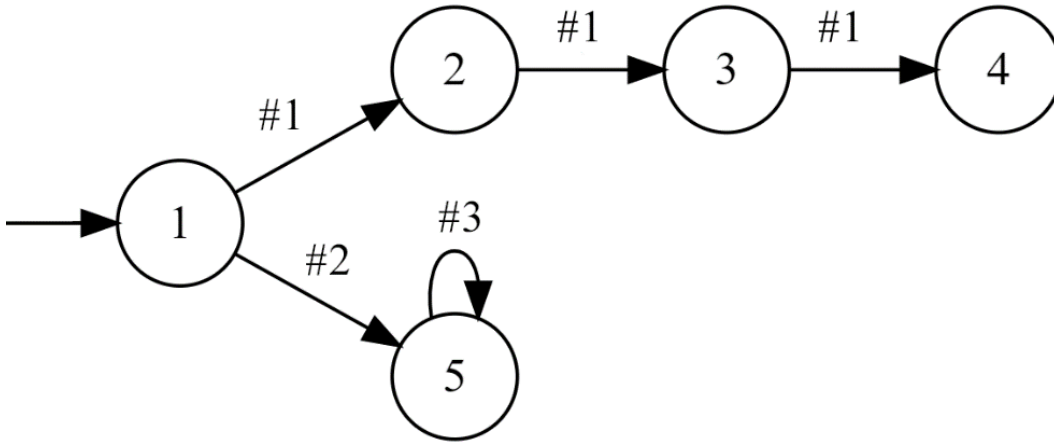
Blank #1:

Blank #2:

Blank #3:

Blank #4:

Blank #5:

Blank #6:

Q2. Regex to DFA

Consider the following DFA which is equivalent to the regex aaa|(b|c)*

Note: You can open this image in a new tab to make it easier to reference.

Q2.1. Select the state(s) which would be final state(s):

- 1
- 2
- 3
- 4
- 5

Q2.2. Fill in the blanks on the DFA so that the given regex and DFA are equivalent.

Note: You can put more than one symbol in each blank to create multiple transitions following the same trajectory. If you do this, separate the symbols in each blank with commas.

Blank #1:

Blank #2:

Blank #3: