

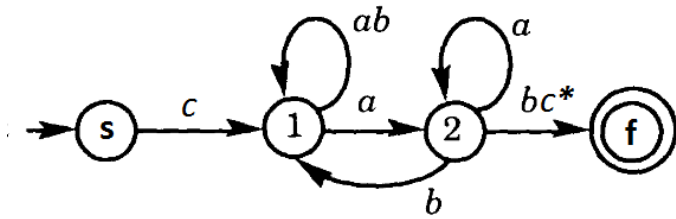
YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Use the top-down algorithm to construct an NFA for the regular language described by the regular expression $a^* + ab^*$ (show one step at a time; so you must execute 4 steps).

2. In the process of obtaining a regular expression for the regular language accepted by an NFA, a colleague of yours has obtained the following diagram:



An emergency has interrupted his work and you are called to continue the process. Execute the remaining two steps by eliminating first State 1 and then State 2 to get the final regular expression (you do not have to simplify after each step).

3. Use the algorithm described in class to get a DFA accepting the same regular language that is accepted by the NFA shown in the following picture. Please carry out one step at a time.

