Minia University
Faculty of Engineering
Computers and Systems Engineering Department

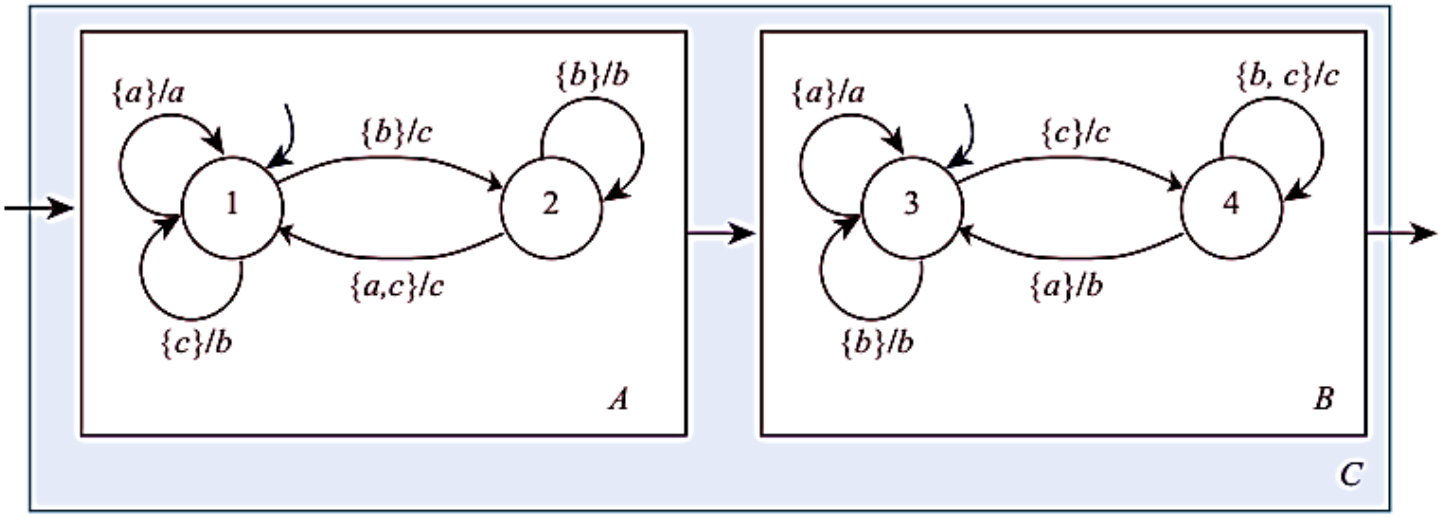
Course: System Analysis (CSE314)

Date: 24/11/2020 **_Midterm Exam 1_** **_Total:_ 10 marks** **_Time:_ 30 min.**

Name: .....

Attempt the following questions. The answers must be in this paper.

Consider the following composite state machine C which consists of cascaded two state machines A and B. The alphabets are $Inputs = Outputs = \{a, b, c, absent\}$, and the intial states are indicated with arrows with no originating state.



1. How many states are there in the composite machine C? *(1 marks)*
2. How many reachable states are there in the composite machine C? Determine the unreachable states (If there are any). *(2 marks)*
3. Determine if any of the state machines A or B have state determined outputs. *(2 marks)*
4. If you feed back the output of machine B to the input of machine A, is the feedback composition well-formed? Justify your answer. *(3 marks)*
5. Determine the reachable states for the feedback composition. *(2 marks)*