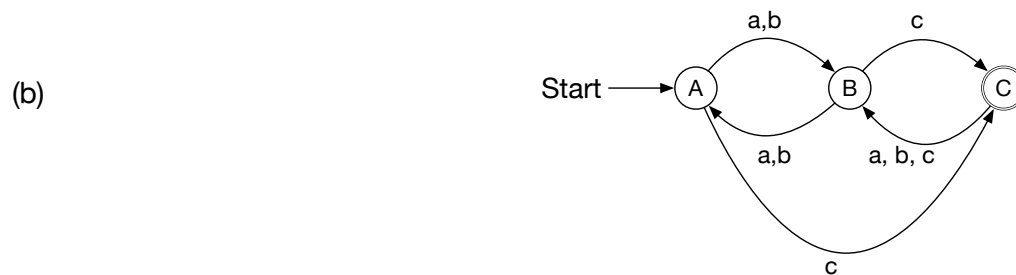
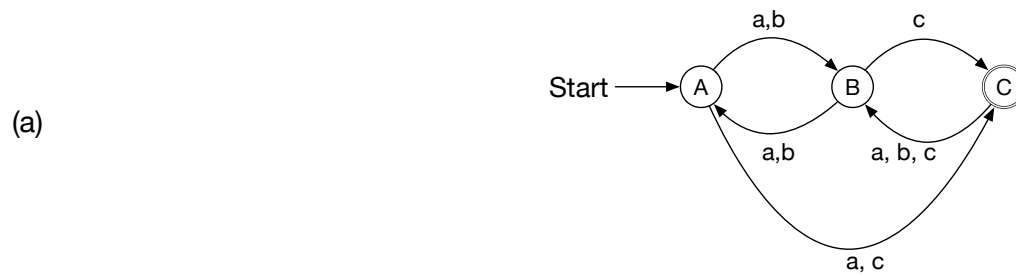


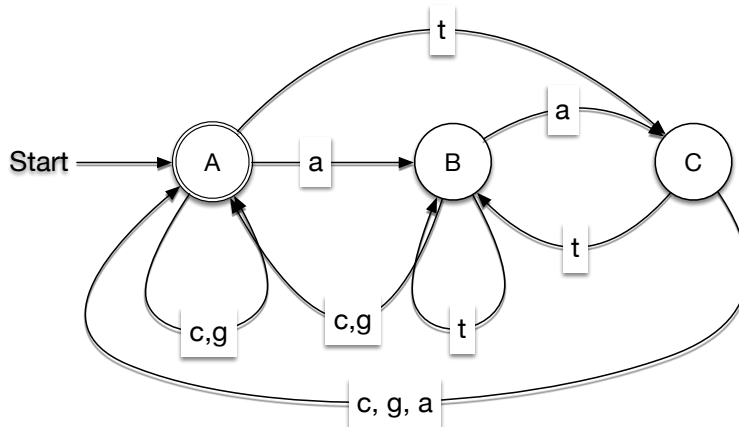
# Worksheet Module 1:

## Finite State Machines:

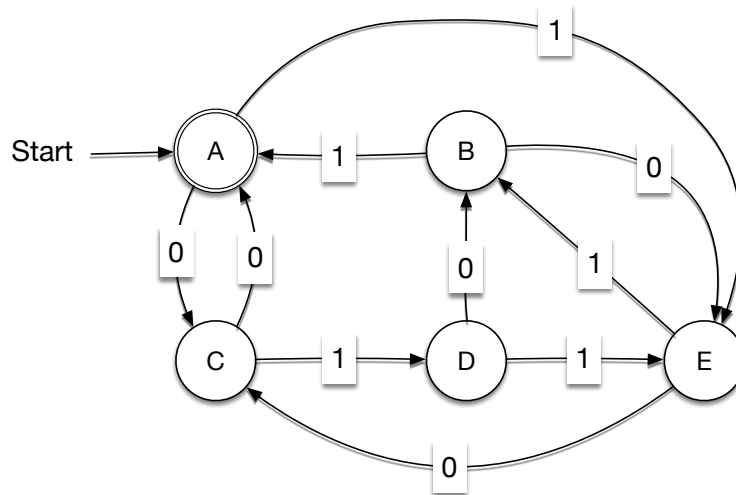
(1) Does the following diagrams define a deterministic finite state machine with input alphabet  $\Sigma = \{a, b, c\}$ ?



(2) Given the following finite state machine, determine the input alphabet  $\Sigma$ , the transition table, the value of  $\hat{\delta}(C, ccat)$ , and determine whether the strings  $aattttgttg$  and  $aattttt$  are accepted.



(3) Given the following finite state automaton, use the definition to calculate  $\hat{\delta}(C, 110110)$ .



(4) Find the transitions out of states  $\{A\}$ ,  $\{B\}$ ,  $\{C\}$  of the deterministic automata constructed from the following NDA.

