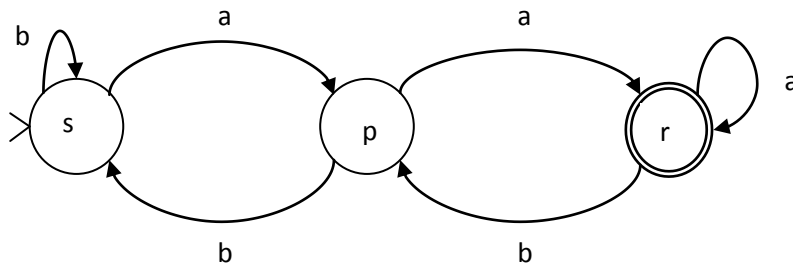


**CS-302 Theory of Computation
Assignment 3**

Name: _____

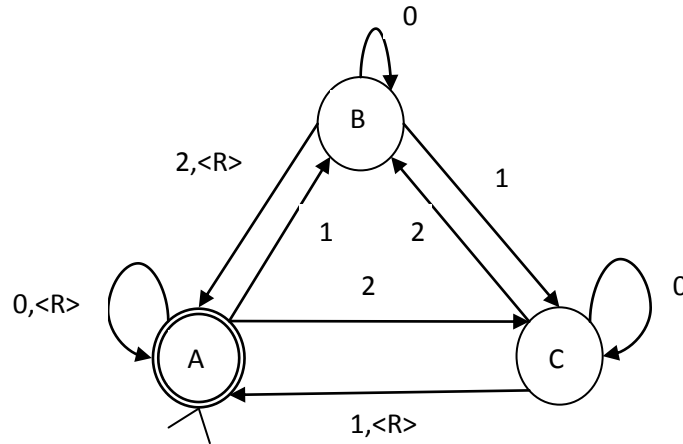
1. **(2 points)** Consider the following deterministic finite state automaton, $M_1 = (Q, \Sigma, \delta, s, F)$.



- a) Find the sequences of configurations of the automaton on the strings *aababa* and *aabaab* and determine if the strings are accepted by M_1 .

- b) Describe the language accepted by M_1 .

2. **(10 points)** The following is the state diagram of a deterministic finite state automaton, $M_2 = (Q, \Sigma, \delta, s, F)$. Answer the following questions about this machine. Note that $\langle R \rangle$ (for RESET) is treated as a single symbol and is used to reset the working of the machine. That is, the $\langle R \rangle$ symbol is used to reset a “count” to 0.



- a) Find the sequences of configurations of the automaton on the strings 21, 2112, 111, 2211 and determine if the strings are accepted by M_2 .

- b) What does M_2 do?

- c) Describe the language accepted by M_2 ?
