Ma2201/CS2022
Quiz 1010

Foundations of C.S.

Spring, 2022

PRINT NAME: _____

SIGN: _____

1. Consider the three languages

$$\begin{aligned} L_1 &= \{w \in \{a,b\}^* \mid w = aaabbbw' \text{ or } w = aaaaaaw' \text{ or } w = aabbaaw'\} \\ L_2 &= \{w \in \{a,b\}^* \mid n_a(w) = 2j; n_b(w) = 3k; j \geq 0; k \geq 0\} \\ L_3 &= \{w \in \{a,b\}^* \mid w = aaaaaaw' \text{ or } w = aaabbbw' \text{ or } n_a(w) = 2j; j \geq 0;\} \end{aligned}$$

Design one automaton for each Language. (Just draw in the state diagram.) At least one Machine must be deterministic. At most one machine can have λ-rules.