Ma2201/CS2022
Quiz 1011

Foundations of C.S.

Spring, 2019

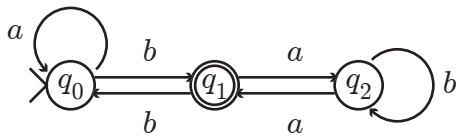
PRINT NAME: _____

$\mathcal{SIGN}$: _____

1. (4 **pts**) Draw the state diagram for a deterministic finite automaton whose language is the set of strings on $\{a, b\}$ which are of odd length, or end in aaa.

♣ Ha ha ha ♣

2. (4 **pts**) Give transition function of the following Deterministic Finite Automaton.
Bonus (2pts) what is $L(M)$.



♣

δ	a	b
q_0	q_0	q_1
q_1	q_2	q_0
q_2	q_1	q_2

For the bonus, it is not hard to discover the language by just studying the machine, but nothing prevents us from using expression graph algorithm.

That will give you $a^*b(ab^*a \cup ba^*b)$ ♣

3. (2 **pts**) Draw the state diagram of a deterministic finite automaton whose language is $L(M)^c$, the complement of the language in problem 2.

♣ *Since this is a deterministic machine all you have to do is redraw the exact same diagram and flip the accepting and unaccepting states.* ♣