Homework #2

4c) all strings with no more than two a's $\Sigma = \{a, b\}$
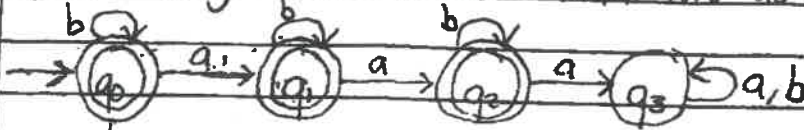
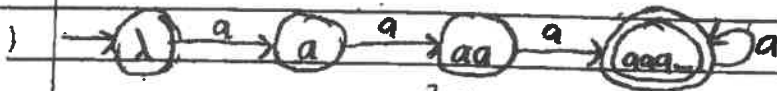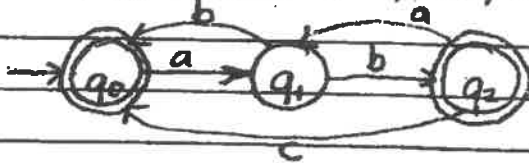7b) $L = \{w : |w| \bmod 5 = 0\}$ (Length of string is multiple of 5) $\Sigma = \{a, b\}$
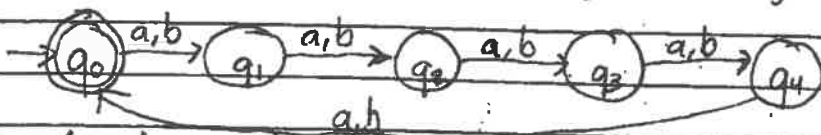
14 $L = \{a^n \mid n \geq 3\} = \{aaa, aaaa, \ldots\} = L(M)$

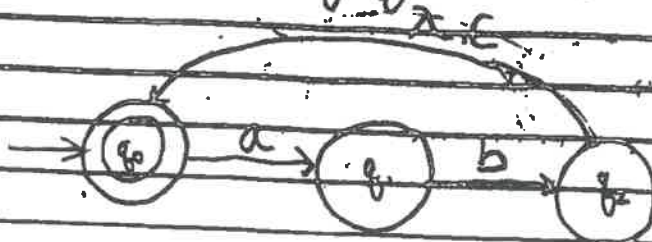9 $L = \{ab, abc\}^* = \{ab, abc, abab, ababc, abcab, abcabc, \ldots\}$
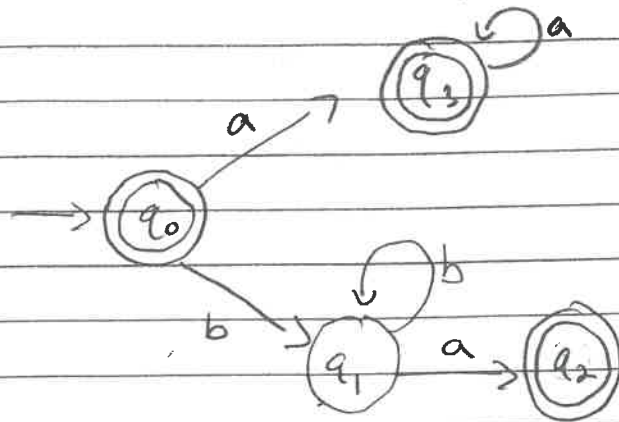

Another solution:

9) Construct an nfa with three states that accepts the language $\{ab, abc\}^*$

12) Find an NFA w/ 4 states for $L = \{a^n : n \geq 0\} \cup \{b^n a : n \geq 1\}$

DFA

$\delta^*(q_0, 0) = \{q_1, q_2\}$

$\delta^*(q_0, 1) = \{q_1, q_2\}$

$\delta^*(q_1, 0) = \{q_0, q_2\}$

$\delta^*(q_1, 1) = \{q_1, q_2\}$

$\delta^*(q_2, 0) = \phi$

$\delta^*(q_2, 1) = \{q_1, q_2\}$

NFA —>DFA
1) Start from the initial state of NFA
2) numbers of alphabets represent the same number of arrows. The example has two alphabets. {a,b}, so each states have two arrows.
3) If q3 is a finial state in NFA, all states contain q3 is finial states in DFA!!
4) We may have empty set in DFA