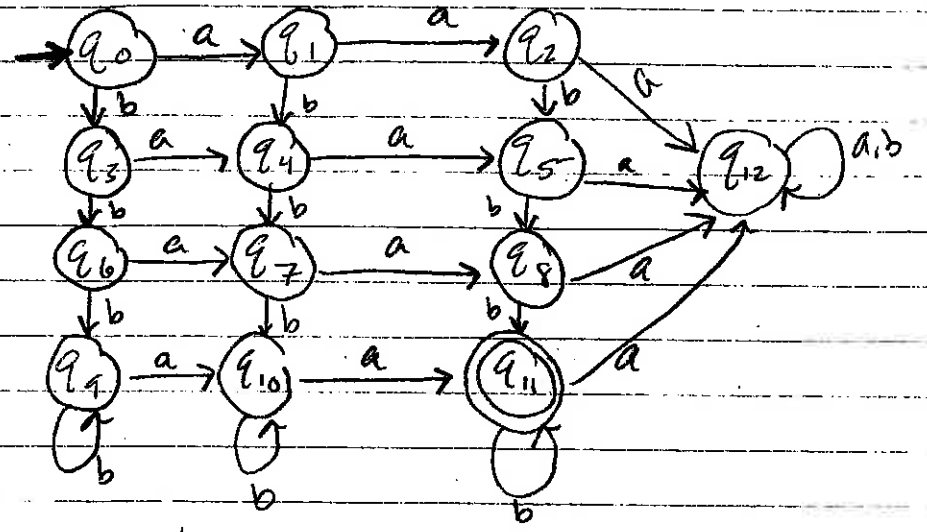
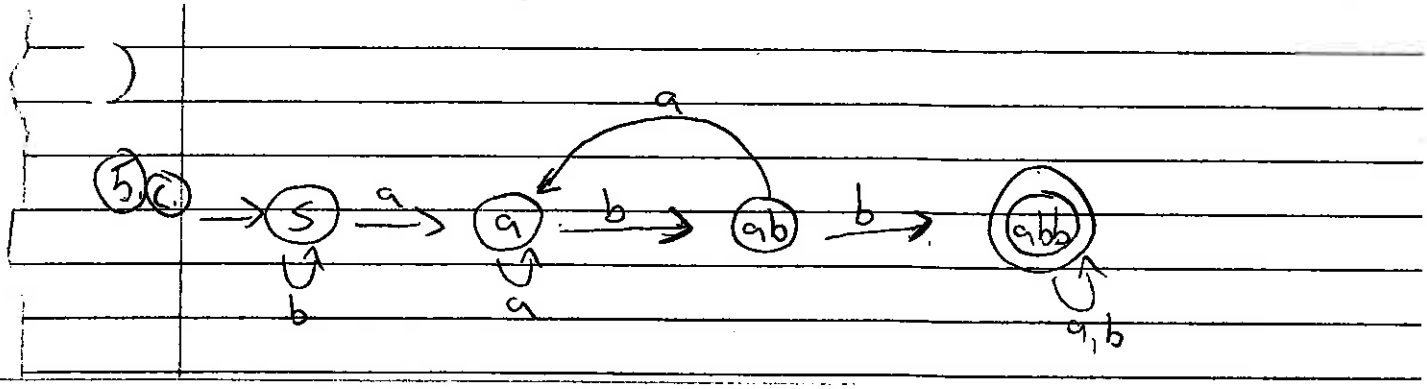
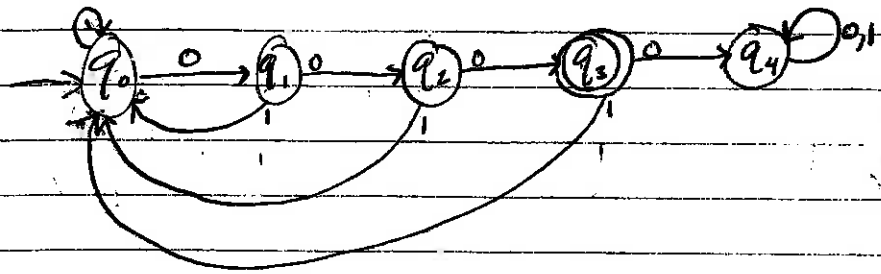
4.) e.) $\Sigma = \{a, b\}$, construct dfa's that accept all strings with exactly two a's and more than two b's.



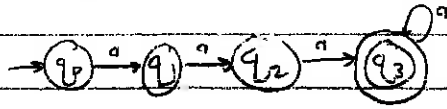


11.) b) $\{0,1\}$ DFA for all strings that contain 000, but not 0000.



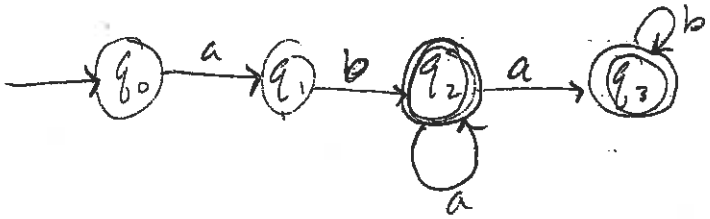
14. Show that $L = \{a^n : n \geq 3\}$ is regular.

L is regular iff $\exists M : L = L(M)$



← produces $L = \{a^n : n \geq 3\}$

8) Design NFA with no more than 5 states for set $\{abab^n : n \geq 0\} \cup \{aba^n : n \geq 0\}$.



13

00	NO
01001	YES
10010	NO
000	YES
0000	NO

DFA

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

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

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

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

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

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