## Topic: Non-Deterministic Finite Automata (NFA)

Q1. Design a Non-Deterministic Finite Automata over $\Sigma = \{0,1,2\}$ for the following languages where

a) Any number of 0's can be followed by any number of 1's and any number of 1's can be followed by any number of 2's.
b) The length of the string is atmost 3. .
c) The number of 0's and 1's are even.

Q2. Design the $\in$-NFA for the following language 'L'

$$L = \{w \in \{0,1\} \mid \#_0(w) = 1 \text{ or } \#_1(w) \text{ is odd}\}$$

Q3. Convert the following $\in$-NFA over $\Sigma_\in = \{a, b\}$ into NFA.
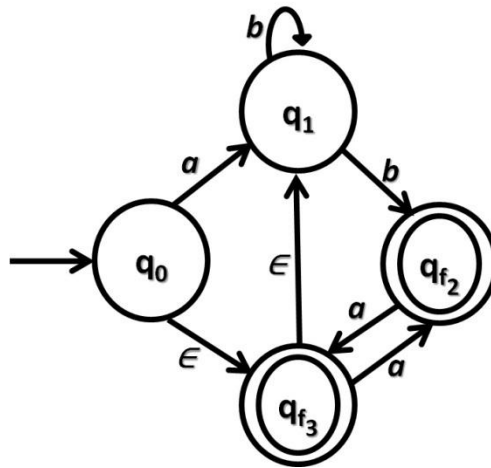
Q4. Consider the following FA over $\Sigma = \{a,b\}$. Complement this automata and identify the language generated by this complemented DFA