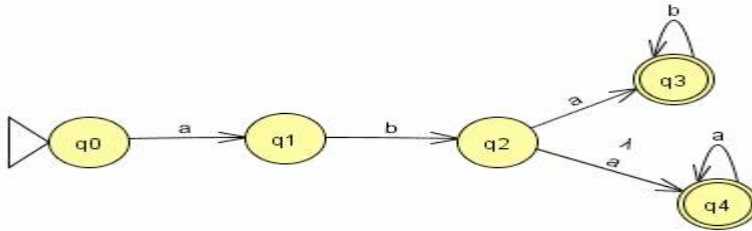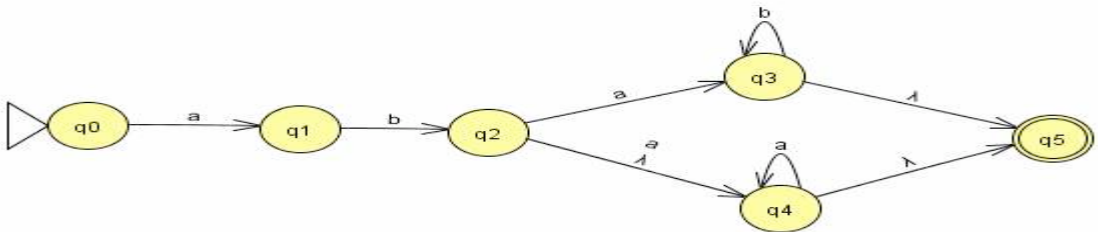3) Converting NFA to Regular expression.

#7[pg 55])
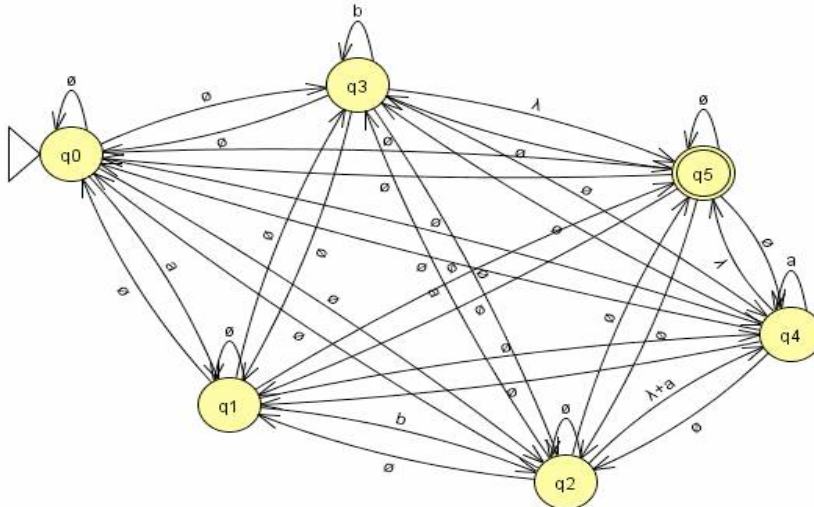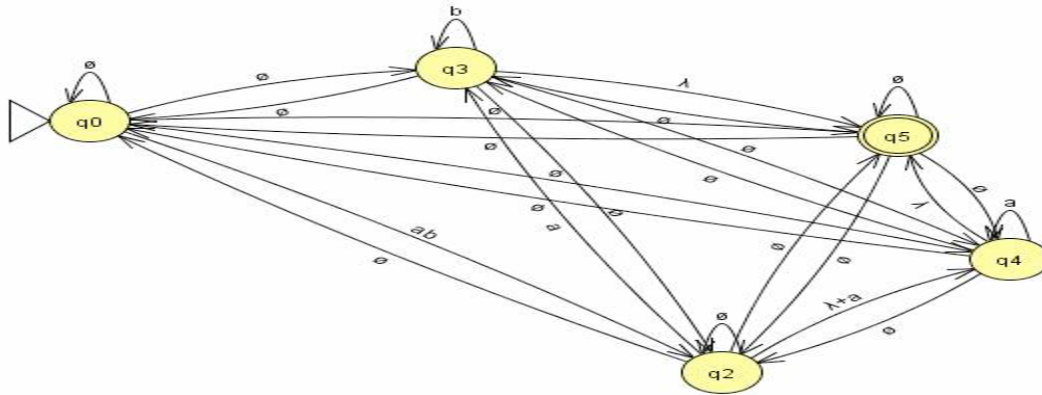1) Initial NFA :

2) Converting initial state such that it has a single final state which is distinct from its initial state.
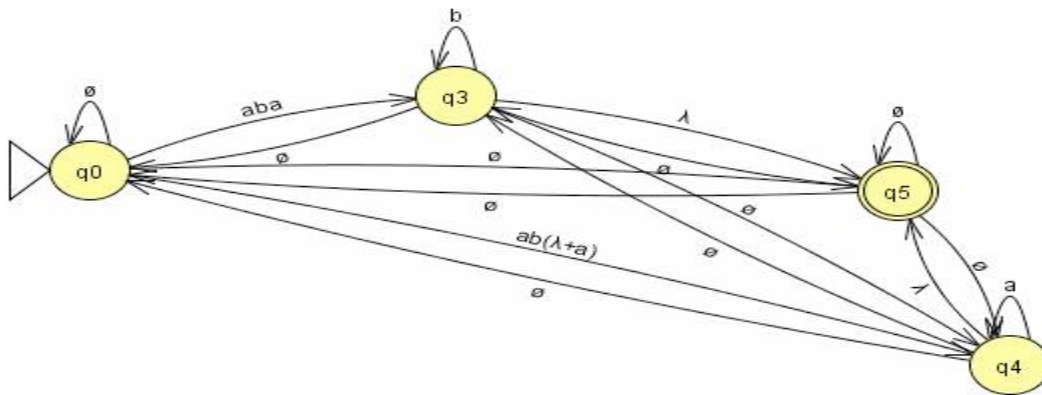

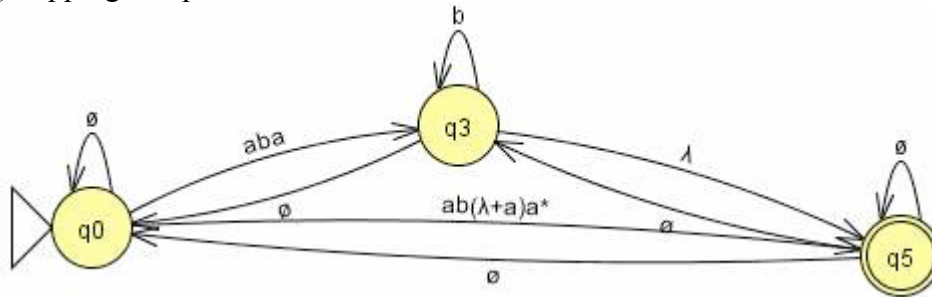3) Converting the nfa into a complete generalized transition graph(GTG).
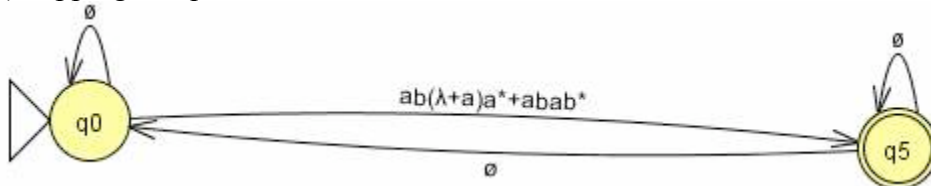

4) Ripping off q1 from the GTG:

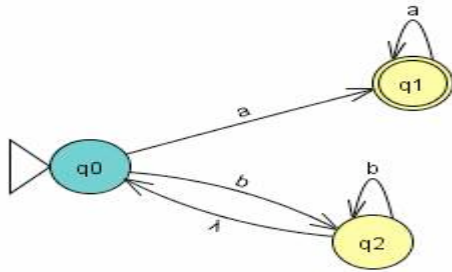5) Ripping off q2 from the GTG:

6) Ripping off q4 from the GTG:

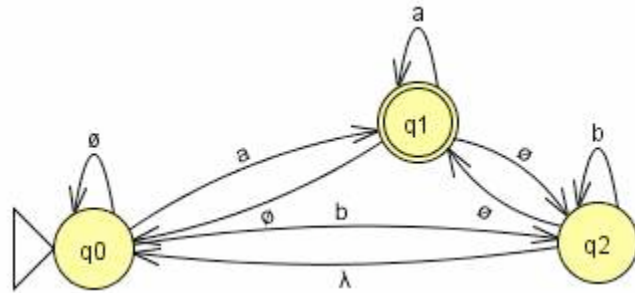7) Ripping off q3 from the GTG:

Therefore the required Regular expression for the initial NFA is
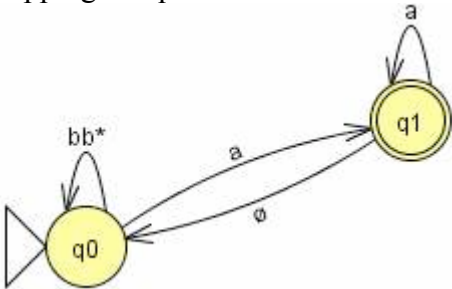$$ab(\lambda+a)a^* + abab^*$$

#10(pg 55)
1) Initial NFA:

2) Converting the nfa into a complete generalized transition graph(GTG).

3) Ripping off q2 from GTG

Therefore, the Regular Expression for the initial NFA is
    (bb*)*aa*