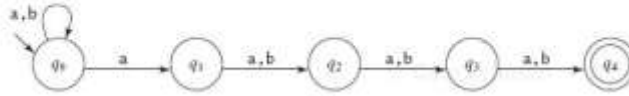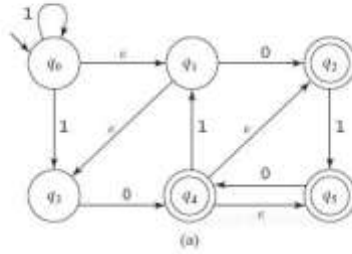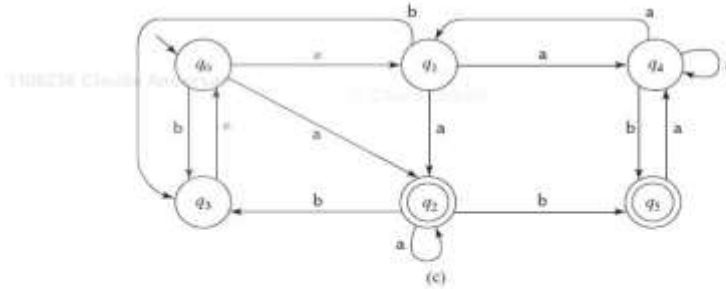**474 HW 4 problems   (highlighted problems are the ones to turn in)**

9. For each of the following NDFSMs, use *ndfsmtodfsm* to construct an equivalent DFSM. Begin by showing the value of *eps(q)* for each state *q*:
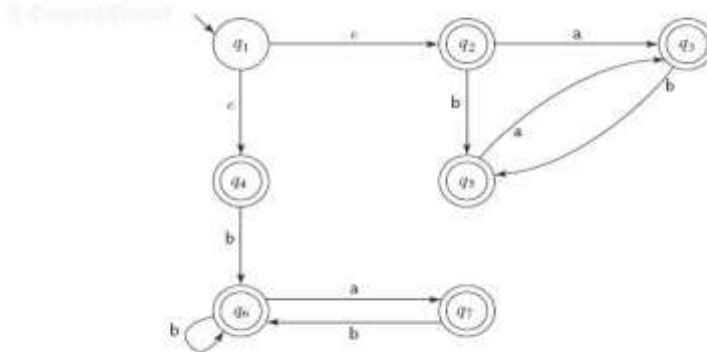

(a)

(c)

5.9a	
5.9c	
5.10	

10. Let *M* be the following NDFSM. Construct (using *ndfsmtodfsm*), a DFSM that accepts ¬*L*(*M*).

5.11 a,

11. For each of the following languages *L*:
   (i) Describe the equivalence classes of $\approx_L$.
   (ii) If the number of equivalence classes of $\approx_L$ is finite, construct the minimal DFSM that accepts *L*.

   a. $\{w \in \{0,1\}^* : \text{every 0 in } w \text{ is immediately followed by the string 11}\}$.

5.11d

   b. $\{w \in \{0,1\}^* : w \text{ has either an odd number of 1's and an odd number of 0's or it has an even number of 1's and an even number of 0's}\}$.
   c. $\{w \in \{a,b\}^* : w \text{ contains at least one occurrence of the string aababa}\}$.
   d. $\{ww^R : w \in \{a,b\}^*\}$.
   e. $\{w \in \{a,b\}^* : w \text{ contains at least one a and ends in at least two b's}\}$.
   f. $\{w \in \{0,1\}^* : \text{there is no occurrence of the substring 000 in } w\}$.

**5.11 (b)
(e)**

12) Let *M* be the following DFSM. Use *minDFSM* to minimize *M*.

5.12