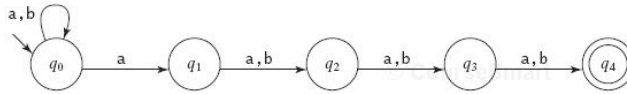
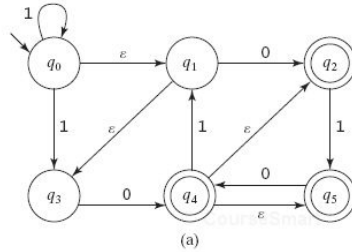


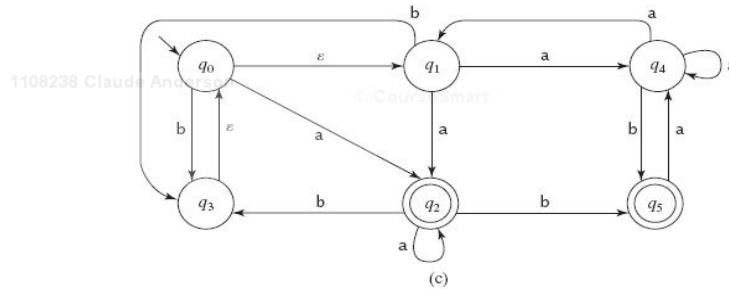
474 HW 4 problems (highlighted problems are the ones to turn in)

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

5.9a

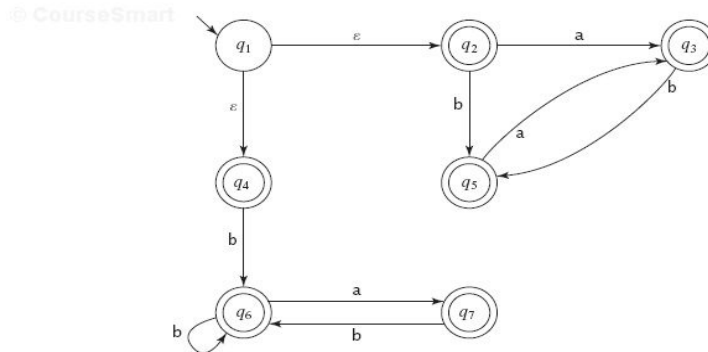


5.9c



5.10

10. Let  $M$  be the following NDFSM. Construct (using *ndfsmtod fsm*), a DFSM that accepts  $\neg L(M)$ .



5.11 a,

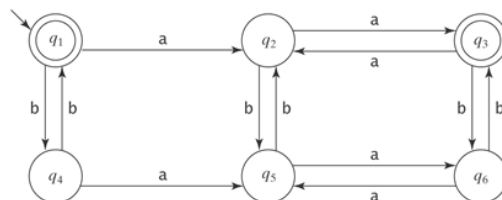
11. For each of the following languages  $L$ :

- Describe the equivalence classes of  $\approx_L$ .
- If the number of equivalence classes of  $\approx_L$  is finite, construct the minimal DFSM that accepts  $L$ .
  - $\{w \in \{0, 1\}^* : \text{every } 0 \text{ in } w \text{ is immediately followed by the string } 11\}$ .
  - $\{w \in \{0, 1\}^* : w \text{ has either an odd number of } 1\text{'s and an odd number of } 0\text{'s or it has an even number of } 1\text{'s and an even number of } 0\text{'s}\}$ .
  - $\{w \in \{a, b\}^* : w \text{ contains at least one occurrence of the string } aababa\}$ .
  - $\{ww^R : w \in \{a, b\}^*\}$ .
  - $\{w \in \{a, b\}^* : w \text{ contains at least one } a \text{ and ends in at least two } b\text{'s}\}$ .
  - $\{w \in \{0, 1\}^* : \text{there is no occurrence of the substring } 000 \text{ in } w\}$ .

5.11d

5.11 (b)  
(e)

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



5.12

The last problem from this assignment is not from the textbook, so I did not include it on this page. It is on the HW4 assignment page. Before summer 2020, it was problem 1 from assignment 5.

It involves finding the canonical form of a DFSM.