

# Assignment#3 Sample Practice Problem # 1

Using DFA's (not any equivalent notation) show that the Regular Languages are closed under Min, where  $\text{Min}(L) = \{ w \mid w \in L, \text{ but no proper prefix of } w \text{ is in } L \}$ . This means that  $w \in \text{Min}(L)$  iff  $w \in L$  and for no  $y \neq \lambda$  is  $x$  in  $L$ , where  $w=xy$ . Said a third way,  $w$  is not an extension of any element in  $L$ .

Let  $A = (Q, \Sigma, \delta, q_0, F)$  be a DFA such that  $L = L(A)$ .

Define  $A_{\text{MIN}} =$

# Assignment#3 Sample

## Variation of Practice Prob. # 2

- a.) Present a transition diagram for an NFA for the language associated with the regular expression  $(1001 + 110 + 11)^*$ . Your NFA must have no more than five states.
- b.) Use the standard conversion technique (subsets of states) to convert the NFA from (a) to an equivalent DFA. Be sure to not include unreachable states. Hint: This DFA should have no more than six states.