

B501 Assignment 4

Due Date: Friday, March 9, 2012

Due Time: 11:00pm

For the following questions, please give detailed state transition diagrams of the Turing Machines.

1. (10 points) Construct a Turing Machine which given input string w ($w \in \{a, b\}^*$), outputs $w\#w$.
2. (15 points) Construct a Turing Machine which decides the language $\{w\#w^R \mid w \in \{a, b\}^*\}$. (w^R means the reverse of the string w)
3. (15 points) Construct a multi-tape Turing Machine which decides the language $\{w\#x \mid w, x \in \{a, b\}^* \text{ and } |w| > |x|\}$. ($|w|$ means the length of string w)