IS2150/TEL2810 Introduction to Security

Homework 3

Total Points: 50

Due Date: September 27, 2007

1) Do the exercises 1 and 2 from section 2.6 **[20 Points]**

2) Do exercise 1 from section 3.5 **[10 Points]**

3) Consider a Turing Machine with the following specification **[20 Points]**

1. Set of states: $\{k_0, k_1, k_2, k_3\}$
2. Tape symbols: $\{A, B, C\}$
3. Final (or halting) state is k_3
4. Transition Functions:

$$\delta(k_0, A) = (k_2, C, R);$$

$$\delta(k_1, C) = (k_2, B, R);$$

$$\delta(k_1, A) = (k_3, C, L);$$

$$\delta(k_2, A) = (k_1, C, L);$$

$$\delta(k_2, C) = (k_1, B, R)$$

Assume your TM's initial configuration is as shown below.

1. Show the mapping of the elements of this TM to a protection system.
2. Show all possible transitions, indicating each new TM configuration reached (i.e., state, head position and the symbols in each cell) and its corresponding protection state (the entries in the Access Control Matrix).