

Homework #3

Due: March 4, 2014

Points: 100

Questions

1. (25 points) Prove Theorem 6–1 for the strict integrity policy of Biba’s model. (*text*, problem 6.1)
Hint: Use induction on the length of the path.
2. (25 points) Suppose a system used the same labels for integrity levels and categories as for subject levels and categories. Under what conditions could one subject read an object? Write to an object? (*text*, problem 6.3)
3. (25 points) In the Clark-Wilson model, must the TPs be executed serially, or can they be executed in parallel? If the former, why; if the latter, what constraints (if any) must be placed on their execution? (*text*, problem 6.8, modified)
4. (25 points) Show that the Clinical Information System Security model’s principles implement each of the Clark-Wilson enforcement and certification rules. (*text*, problem 7.3, modified)
Hint: Go through the Clark-Wilson rules one at a time.

Extra Credit

1. (10 points) Why must sanitized objects be in a single company dataset in their own conflict of interest class, and not in the company dataset corresponding to the institution producing the sanitized object?