CSc 4222/6222 – Assignment #6

Deadline: Tuesday, December 5th @ noon – NO late deadline
We will drop your lowest homework assignment. (This does not include the programming assignments.)

Make sure to justify all of your answers clearly – show all of your work
No handwritten submissions

1. We covered a variety of access control models. Provide a unique advantage for each of the following models:

      a) Bell-La Padula Access Control Model

      b) Biba Access Control Model

      c) Role Based Access Control Model

2. Describe some risks involved with penetration testing.

3. When considering posets over a defined universe, will there necessarily be a single greatest element? If yes, explain why. If no, provide an example.

4. Consider the following scenario at a small company called SuppliesRUs. In one division there are 5 employees: Alice, Bob, Cindy, David and Eve. Each user has authorization for the following actions:

      Alice: Browse vendors, Add vendors, Edit vendors, Delete vendors

      Bob: Browse vendors, Add vendors, Edit vendor

      Cindy: Browse vendors, Add vendors, Browse payments, Add payments

      David: Browse vendors, Browse payments, Add payments, Cancel payments

      Eve: Browse vendors, Browse payments

Draw a graph matching users to actions. Then define possible roles to create a RBAC model and show the corresponding diagram to map users to roles and then roles to actions.

5. For the Kerberos protocol, would it be possible to modify it to use public key encryption rather than symmetric keys? Explain why or why not.