1. Propose a class of protection systems for which the safety problem is of polynomial time.

2. The BLP model is a confidentiality model. By an example show that it cannot be used as an integrity model. Can you extend it to cover integrity? (Specify in a formal manner)

3. What is the difference between safety and liveness properties (state or define formally)? Which one of Simple and Star properties in BLP regards liveness? Discuss.

4. Consider the system $Z$ which is a system with a secure initial state and of only one type of rule defined as follows:

   When a subject $S$ requests any type of access to an object $O$, every subject and object are downgraded to the lowest security level and access is granted.

State the system $Z$ in BLP’s notation and prove that it is BLP secure.

5. Under what conditions two concurrent BLP secure systems $\Sigma(R, D, W, z_0)$ and $\Sigma(R', D', W', z'_0)$ preserve security.