6.1 **What is the purpose of database administration?**
The purpose of this function is to manage a database so that its value to an organization is maximized.

6.2 **What is the goal of a database security system?**
The goal of a database security system is to ensure that only authorized users can take authorized actions at appropriate times.

6.3 **Explain the relationships of users, groups, permission, and objects for a generic database security system.**
Permissions give roles to users and database objects themselves the ability to interact with database objects. [NOTE: Although permissions can be granted to users, a basic principle of systems administration is that, unless absolutely necessary, no users should have permissions granted directly to them. Instead, users should be placed in roles (which will hold groups of users), and the roles should be granted permissions to the database objects].

Each user can be in many roles, and each role can have many users. Each user, role or object may have many permissions. Each permission gives one user, role or object to one database object.

6.4 **Describe the advantages and disadvantages of DBMS-provided security.**
Advantages:
- Easier to implement
- Done regardless of the source of data changes and activities
- Probably more consistent

Disadvantages:
- May not suffice for particular needs
- Works best for vertical security

6.5 **Describe the advantages and disadvantages of application-provided security.**
Advantages:
- Easier to implement
- Done regardless of the source of data changes and activities
- Probably more consistent

Disadvantages:
• May not suffice for particular needs
• Works best for vertical security

6.6  *Explain how a database could be recovered via reprocessing. Why is this generally not feasible?*

Reprocessing means reapplying all transactions since the latest database save to that saved copy of the database. Because reprocessing takes as much time as original processing, reprocessing is usually infeasible. Additionally, initially asynchronous events may occur in a different order.

6.7  *Define the terms rollback and rollforward.*

Rollback means applying before images (before changes were made) to the current database. This takes the database backwards in time.

Rollforward means loading the latest database backup then applying all after images (after changes were made) to it. This brings the database forward in time.

6.8  *Summarize the DBA’s responsibilities for documentation.*

The DBA’s responsibilities for documentation include ensuring that proper documentation is maintained on:

• Database structure
• Concurrency control
• Security
• Backup and recovery
• What applications use that database, and how they use it