Chapter 1 Review Questions

1. At a high level, discuss the primary job resposibilities required of a DBA.

A: The DBA is responsible for managing the overall database environment. This can include installing the DBMS and setting up the IT infrastructure to allow applications to access databases. These tasks need to be completed before any application programs can be developed. Furthermore, ad hoc databse access is a requirement for many orgranizations. A good DBA is integral to the entire application development life cycle.

2. What is the single biggest problem faced by organizations using relational databases?

A: Ensuring quality database administration. (refer back to survey referenced in the section titled "Why Learn Database Administration?")

3. What is the difference between a data administrator and a database administrator?

A: DBA is responsible for managing the physical database environment – that is, the technology. Data administration (DA) separates the business aspects of data resource management from the technology used to manage data. Referring to the Application Development Life Cycle, DA would be involved more in the requirements gathering, analysis, and design phases; DBA in the design, development, testing, and operational phases.

4. What factors determine the number of DBAs required to properly support an organization's database environment?

A: Determining the number of DBAs required can be quite difficult. A number of factors influence the decision for the number of DBA needed including the number of databases to support, the size of the databases, the number of users, the number of applications, the type of Service Level Agreements (SLAs) that must be supported, the availability requirements for the organization's databases, the impact of database downtime, performance requirements, type of applications, volatility of the databases, DBA staff experience, programming staff experience, end user experience, variety of DBMSs to be supported, and the availability of DBA tools.

5. How does new technology impact the job of the DBA?

A: The DBA is at the center of the action whenever new ways of doing business and new technologies are introduced to the organization. This is so because data is at the heart of any application and most new technology impacts data as it is adopted by application developers. Therefore, the DBA will need to be involved in new technology evaluation and adoption because he is the expert who understands database technology–and in particular, how databases can be integrated with other new technologies.

6. Cite the technology influences that mandate the need for procedural DBAs?

A: Until recently, a DBMS was designed to store, manage, and access data. Although these core capabilities are still required of modern DBMS products, additional procedural functionality has been added. Features such as triggers, user-defined fucntions, and stored procedures provide the ability to define business rules to the DBMS instead of in separate, application programs. These features tightly couple application logic to the database server. A procedural DBA is needed to implement and manage these code objects in a consistent and efficient manner.

7. What is the difference between a database architect and a system administrator?

A: The database architect is involved in new design and development work only; he does not get involved in maintenance, administration, and tuning efforts for established databases and applications. The database architect designs new databases for new applications or perhaps a new database for an existing application. A system administrator is responsible for the installation and setup of the DBMS. The SA typically has no responsibility for database design and support.

8. What job function is most likely to be responsible for installing a new DBMS release.

A: The system administrator, or if one does not exist, the DBA.

9. What are the three types of integrity that DBAs must understand?

A: Physical data integrity, semantic data integrity, and internal DBMS integrity.

10. Is a certified DBA necessarily a qualified DBA? Why or why not?

A: A certified DBA is not necessarily a qualified DBA. Of course, certification is better than no certification, but passing a test is not a viable indicator of being able to perform a complex job like DBA.

Bonus Question

1. Why must the DBA be prepared to function as a "Jack of all Trades?"

A: Databases are at the center of modern applications. If the DBMS fails, applications fail, and if applications fail the entire business can come to a halt. If databases and applications fail often enough, the entire business can fail. Database administration therefore is critical to the on-going success of modern business.