**Transaction Locking Questions**

1. Some businesses will experience locking issues. A choice could be to make all updates run during a nightly batch cycle to alleviate locking issues in the daytime when users (customers) are using the system. Would batch processing be a good alternative for an online business, such as Amazon? Why or why not? (20)

2. What is the difference between a shared lock and an exclusive lock? (10)

3. You use the ATM machine to withdraw money from your checking account. What set of steps does the DBMS need to perform in order for you to complete your transaction? (20)

4. For credit card processing, stock exchanges, and airline reservations, data availability must be continuous. There are many other examples of mission-critical applications. Research the Internet to find two additional mission-critical applications and explain why data availability must be continuous for these applications. (25)

5. Locking is a "normal" database activity. It is the mechanism which mediates the concurrent access of a given resource by several "competing" processes. However, as a DBA you will come to recognize certain locking behavior that is an immediate tell-tale sign of something being intrinsically wrong.

Some common **lock types** are:

* RID – single row lock
* KEY – a range of keys in an index
* PAG – data or index page lock
* EXT – Extent Lock
* TAB – Table Lock
* DB – Database Lock

In addition to lock types that refer to resources or objects that can be locked, some databases such as SQL Server have common **lock modes**:

* S – Shared lock
* U – Update Lock
* X – Exclusive lock
* IS – Intent shared
* IU – Intent Update
* IX – Intent Exclusive
* BU – Bulk update

Discuss each **lock mode**: it’s intent/use, as well as, when and why it might be used. (25)