# Chapter 11 - Database Administration Solutions to Homework

1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Inventory**  **Records** | **Receivables**  **Records** | **Payroll**  **Records** | **Customer**  **Records** |
| **Read** | **Y** | **N** | **N** | **Y** |
| **Insert** | **N** | **N** | **N** | **N** |
| **Modify** | **Y** | **N** | **N** | **N** |
| **Delete** | **Y** | **N** | **N** | **N** |

**Authorizations for Inventory Clerks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Salespersons** | **A/R Personnel** | **Inventory Clerks** | **Carpenters** |
| **Read** | **Y** | **N** | **Y** | **Y** |
| **Insert** | **N** | **N** | **N** | **N** |
| **Modify** | **N** | **N** | **Y** | **N** |
| **Delete** | **N** | **N** | **Y** | **N** |

**Authorizations for Inventory Records**

2.

1. Aborted transaction; use backward recovery. Of course, the transaction then needs to be re-entered.
2. Database destruction; use forward recovery from the backup copy of the database.
3. System failure; use forward recovery from most recent checkpoint.
4. Incorrect data; several alternatives are possible. First, you could do a selective backward recovery to undo the incorrect transaction, and then reprocess the transaction using the correct amount. If this is not possible, then enter a compensating transaction and notify the student of the error.
5. If the system is mirrored, it may be possible to switch to the mirrored data and rebuild the corrupted data on a new disk. If the system is not mirrored, it may not be possible to restart because status information in main memory has been lost or damaged. The safest approach is to restart from the most recent checkpoint before the system failure. Because no database change log is created, the database cannot be rolled forward by applying after-images. Transactions have to be reprocessed manually.

3.

1. Because the merchandise return credit of $50 processed last, the actual balance after the last transaction was $200.
2. Payment of $250 reduces the balance to $0. A purchase on credit increases the balance to $100. A merchandise return reduces the balance to $50.

4.

1. Encryption
2. Authentication schemes
3. Authorization rules
4. Authentication schemes

8)

There are no established security procedures and policies, or the implementation and enforcement of those procedures and policies is lacking. As a result there are two major concerns:

1. *Loss of privacy or confidentiality.* Failure to control privacy of information may lead to blackmail, bribery, public embarrassment, or use of user passwords. Failure to control confidentiality may lead to loss of competitiveness.
2. *Theft and fraud.* These activities are going to be perpetrated by people able to gain access to the machines to alter or obtain data without authorization.