Question 1:

Databases improve file compatibility, as they store data in a structured, well-known format. They use Structured Query Language to accomplish file consistency across the database. Because the files are in a consistent format, files can more easily be shared within or outside the database. Manual file processing systems will not have a consistent format, and therefore will not promote the sharing of the data stored within the file system.

The database structure ensures that the data stored in the database is consistent, so a record changed in one database object will also affect other objects that are referencing the modified data. For example, using cascade delete in a foreign key will ensure that data is not referencing incomplete or non-existent data in the database. A manual data processing system does not have these benefits, as there is no form of referencing in this type of system.

Data redundancy is another major disadvantage of using a manual data processing system. This system will not ensure that data is not duplicated throughout the database. The database system uses bridging entities, and relationships to ensure that data is not unnecessarily duplicated throughout the database. This reduces the resources required to operate the database system.

Database systems are operated more easily, when compared to manual file systems, as they use SQL and other standardized practices. This reduces costs and other resources required to operate the database.

Databases are much more powerful, and they can process data much more efficiently due to the Database Management System (DBMS).

Question 2:

Q2.1

Object privileges allow users to interact with database objects. This includes selecting information from objects, and inserting, updating, and deleting data within the object. Users with these permissions cannot delete objects, create objects, and alter objects. Further, they cannot perform system tasks such as shutting the server down, or starting it up. Object privileges are assigned to database end users so that they can perform transactions and generate reports from the data in the database.

System privileges allow users to create schema objects, such as tables, views, procedures, and functions. They can also alter, and delete these objects. In addition to this, these users can perform system admin tasks, such as creating users, assigning privileges, and starting and shutting down the server. System privileges are assigned to DBAs and DBOs, and allow for much greater control of the database.

Q2.2

SQL \* Plus provides the ability to save and run file scripts.

SQL \* Plus provides the ability to assign and use local variables.

SQL \* Plus can be used on multiple different environments, such as Linux, Mac, and Windows, without any change to the SQL code.

Question 3:

SET SERVEROUTPUT ON;

DECLARE

V\_order\_id number(3);

V\_order\_qty number(3);

CURSOR A IS

SELECT order\_id, quantity

FROM tblOrders;

BEGIN

OPEN A;

FETCH A INTO V\_order\_id, V\_order\_qty;

LOOP

dbms\_output.put\_line(V\_order\_id || ' ' || V\_order\_qty);

FETCH A INTO V\_order\_id, V\_order\_qty;

EXIT WHEN A%NOTFOUND;

END LOOP;

CLOSE A;

END;

Question 4:

Modularity allows the program to be split up into well-defined and manageable modules. This makes it easier to read and understand. Modules are called wherever they are required in the main script.

Reusability allows the script to be run multiple times throughout the application, without the need to re-code the method multiple times. This greatly improves efficiency and reduces usage of storage on the database.

Maintainability is another benefit of subprograms, in that the code within the subprogram can be changed without changes being required to the invoking method/ script or other subprograms stored in the database. This makes maintenance much easier for the users of the database.

Dummy subprograms defer definition of procedures and functions until after the main program has been tested. This promotes the idea of abstraction, as you do not have to worry about implementation details.

Subprograms help to extend the PL/SQL language. Procedures act like new statements. Functions act like new expressions and operators.

Question 5:

Trigger types:

Table level/ row level: triggers that fire when inserting, updating, or deleting records in a table. For example, a trigger may run when a user inserts a new record into a table.

Event level: these triggers fire when a system event occurs, such as shutdown, log off, etc.

Composite: Features of both table and event triggers. These triggers will run when certain events occur, and when modifications to tables are made.