Question 1:

End User: retrieves data and uses it by initiating transactions or generating reports.

Database developer: designs and develops the interface. The application can be custom made for a specific purpose, such as web-based applications, or it can be designed to be sold in mass quantities as a standalone product.

Database administrator: maintains a database management system. The DBA manages, monitors, tunes, and backs up data and recovers it.

Question 2:

1. Potential errors from many statements can be handled by using a single exception handler.
2. Instead of troubleshooting for an error at every probable instance, adding an exception handler to the block will handle an error in the event that the exception raised is in that block.
3. Keeping the error handling routines separate makes the rest of the program easy to read and understand.

Question 3:

1. Relational: stores data in logically connected tables (called relations) through common fields in all tables. Uses primary/ foreign keys. This enhances efficiency and reduces redundancy. It is the most commonly used database model today.
2. Hierarchical: based on a tree-like structure, with many parent-child relationships. One parent may have multiple children, but each child may only have one parent. This enhances efficiency, and reduces redundancy.
3. Network: based on the connectivity of data relationships, where multiple computers are used and information is stored and shared. Data relationships result in reduced redundancy.
4. Flat file: this database model uses a 2d array of data, stored in a table with columns of attributes, and rows of related data.
5. Object Relational: designed to bridge the gap between the relational model and the object-oriented model. Allows for inheritance, which improves efficiency.

Question 4 (pg 137):

1. Ability to save and run script files.
2. Ability to use local variables.
3. Cross platform support

Question 5:

Line 1: Incorrect syntax. Replace “SET ServerOutputs on” with “SET ServerOutput on”

Line 2: Incorrect syntax. Replace “Declaring” with “Declare”

Line 4: Incorrect syntax. Replace “CURSER c1 IS SELECT d.firstname || ' ' || d.surname DOCTOR” with “CURSOR c1 IS SELECT d.firstname || ' ' || d.surname”

Line 12: Incorrect cursor name. Replace “FETCH cur1 INTO doctor\_name;” with “FETCH c1 INTO doctor\_name;”

Line 14: Incorrect syntax and variable name used. Replace “dbms\_output.put\_line('DOCTOR: ' + d\_name );” with “dbms\_output.put\_line('DOCTOR: ' || doctor\_name );”

Line 15: Incorrect syntax. Replace “END;” with “END LOOP;”

Question 6:

1. Management of data security: the DBA must ensure that all data in the database is kept secure, by ensuring unauthorised users cannot gain access to the system.
2. Management of installed oracle products: The DBA will update and maintain the currently installed products, as well as installing new or deleting existing oracle products.
3. Updating the database with new releases: the DBA will update the database server software, to ensure security, and reliability is maintained.
4. Analysing the future requirements of the database. The DBA will ensure that database has enough resources in order to grow, as more data is stored by the database, and more users start using the database.

Question 7:

Major components of the PL/SQL environment:

1. Database server: a computer that runs the Oracle database. PL/SQL runs on the database server. A database management system, an oracle software unit, it installed on the database server.
2. Database: a set of tables and data that constitute the information stored.
3. Application server: a computer where you store and execute your application codes.