Question 1 (pg 55):

1. Management of user accounts: the DBA would control who can and cannot access certain objects in the database. This task would be completed by assigning roles and privileges to certain users.
2. Installing and maintaining installed oracle software: the DBA would install required database, security, and application software on servers. They would also maintain the currently installed software by installing patches and updates.
3. Managing data security. This includes securing the database, and restricting access to database objects.

Question 2:

Triggers are program units that are stored in a database, and they are executed in response to certain events such as modifications. They are necessary to automate tasks within the database. The modification statement may be an insert, update, or delete statement which triggers the program unit. They can execute either before or after the modification has occurred. They can use the RAISE\_APPLICATION\_ERROR keyword to raise an alert, which will prevent the modification from occurring, if a criteria is (or is not) met within the trigger. They can perform data manipulation (DML), by inserting records in a log table automatically. For example, if a user were to generate an invoice with a total over a certain amount, then it could log the user, and invoice number in a “log” table. This would include an INSERT INTO statement in the trigger.

Question 3 (pg 213):

Benefits of subprograms:

1. Modularity means that programs can be split into well-defined and manageable modules.
2. Extends the PL/SQL language. Procedure calls are like new statements, and function calls are like new expressions and operators.
3. Reusability means that once the subprogram has been tested, they can be reused in a number of applications. PL/SQL subprograms can also be invoked multiple times in the same application.
4. Maintainability means that internal details of the subprogram can be edited without disturbing other subprograms that invoke it.
5. Dummy subprograms defer definition of procedures and functions until after the main program has been tested.

Question 4:

VARCHAR2: Stores variable length strings of characters. Can be limited to the number placed within the parentheses, for example VARCHAR(20) can store a maximum of 20 characters. VARCHAR2 does not allow for characters of different languages.

DECIMAL: Stores numeric information, with a precision point. Often used for storing currency data. For example, DECIMAL(10, 2) has 8 digits before the decimal point, and two after.

CHAR: Stores fixed length character data. Does not allow for characters of different languages to be stored. For example, CHAR(6) requires 6 characters to be entered. Any fewer or more characters than 6 characters will cause an error to be displayed.

Question 5:

Program categories:

1. Application development: enables easy access to the database. Oracle SQL developer tool is included in this category.
2. Configuration and Migration tool: provides ODBC and assists in configuring network connections.
3. Integrated management tool: manages the security credentials on oracle clients and servers
4. Database control: helps to connect to the enterprise manager.
5. Oracle installation products: helps install or uninstall oracle configuration tools.
6. Warehouse builder: helps ETL (extract, transform, and load), data quality, and the life cycle management of data and metadata.

Question 6:

Line 1: Incorrect syntax. Replace “create or replaced” with “create or replace”.

Line 9: Incorrect parameter used. Replace “and a.author\_sname like a\_sname;” with “and a.author\_sname like author\_sname;”

Line 10: Incorrect syntax. Replace “starting” with “begin”.

Line 11: Incorrect cursor opened. Replace “open c2” with “open c1”.

Line 12: Incorrect variable used. Replace “fetch c1 into the\_book” with “fetch c1 into name\_of\_book”.

Line 19: Incorrect syntax. Replace “errors” with “exception”.

Line 25: Incorrect function name used. Replace “select AUTHOR\_BOOK(‘Smith’)” with “select BOOK\_AUTHOR(‘Smith’)”.