**Computer Science and Information Technology Department, UoB, Quetta**

**Course: Database Systems**

**Reappear Exam Session: 2016-2020**

**BSIT 4rth Semester Roll No: \_\_\_\_\_\_\_\_\_\_ Max marks: 70**

**Note: Attempt all questions. Every question is of 10 marks. Avoid cutting / overwriting.**

**Question No 1-A: Fill in the blanks.**

1. Part of the DBMS that interacts with the user is called \_\_\_\_\_\_\_\_\_
2. A software that manages and controls access to database is called \_\_\_\_\_\_\_\_\_.
3. A program that interacts with database at some point in its execution is called \_\_\_\_\_\_\_\_\_\_\_.
4. A subset of SQL which allows user to define the database is called \_\_\_\_\_\_\_\_\_\_.
5. A subset of SQL that allows user to create, update, delete data is called \_\_\_\_\_\_\_\_.

**Question No 1-B: True or false?**

1. Application programs are typically written in 2nd Generation languages.
2. A collection of related data is called a record.
3. DBMS provides no facility for asking unplanned queries.
4. File based approach is not ideal for situations when we have to cross reference large amounts of data.
5. File based approach does not allow to recover data in case of hardware/ software failure

**Question No 2:**  What are the components of DBMS environment?, support your answer with a diagram.

**Question No 3: Recall ‘world’ database and write SQL statements for the following tasks.**

1. Use the database **world**.
2. List all tables in the **world** database.
3. Display the structure of the **city** table.
4. Select top 5 rows from the table **city**.
5. Select last 5 rows from the table **city**.
6. Select **Name** and **Region** column from **country** table and display first 5 rows.
7. Display **Name** and **Region** of the countries where **Region** value is ‘**South America**’.
8. Modify the SQL statement of task 6 to sort the results by **Name** (ascending).
9. Modify the SQL statement of task 6 to sort the results by **Name** (descending).
10. Display **Name,** **Region, and Population** of the countries where **Region** value is ‘**South America**’ and **Population** value is greater than **40,000**.

**Question 4:** Write mysql query for country table to display

i) Region and sum of Population (group by Region)

ii) modify above query (i) to sort the results so that Region with highest population is listed 1st and lowest population last.

**Question 5:** Draw an entity relationship diagram to model a database required to store information of Recipes and Ingredients.

**Question 6:** **Write mysql queries to create following tables:**

|  |  |  |
| --- | --- | --- |
| **Recipe** | **Ingredient** | **Recipe\_Ingredient** |
| ID (int, auto increment) Primary Key) | ID (int, auto increment) Primary Key) | ID (int, auto increment) Primary Key) |
| Title (varchar:50) | Name (not null, varchar:50) | Recipe\_id (Foreign Key) |
|  |  | Ingredient\_id (Foreign Key) |

**Question 7**: Given the tables below write mysql join query that achieves the given output.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **city** | | |  | | **country** | |
| **name** | **CountryCode** |  | | **Code** | | **name** |
| Kabul | AFG |  | | AFG | | Afghanistan |
| Qandahar | AFG |  | | NLD | | Netherlands |
| Herat | AFG |  | |  | |  |
| Mazar-e-Sharif | AFG |  | |  | |  |
| Amsterdam | NLD |  | |  | |  |

**Output:**

|  |  |
| --- | --- |
| **city.name** | **country.name** |
| Kabul | Afghanistan |
| Qandahar | Afghanistan |
| Herat | Afghanistan |
| Mazar-e-Sharif | Afghanistan |
| Amsterdam | Netherlands |