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

**Course: Database Systems Reappear Exam 2021 Time allowed: 1 hour**

**Roll No: \_\_\_\_\_\_\_\_\_\_ Max marks: 70**

**Note: Cutting or overwriting is not allowed.**

**Question No 1: Select the correct answer. (2 x 20 = 40 Marks)**

1. Collection of related data is called

|  |  |  |
| --- | --- | --- |
| 1. Database | 1. Table | 1. DBMS |

1. Incompatible file formats is a limitation of which type of systems

|  |  |  |
| --- | --- | --- |
| 1. DBMS | 1. File based Systems | 1. Neither a nor b |

1. Which subset of SQL provides the ability to insert, delete and update data

|  |  |  |
| --- | --- | --- |
| 1. SQL | 1. DDL | 1. DML |

1. Constraint which prevents insertion in child table, when parent table has no associated record

|  |  |  |
| --- | --- | --- |
| 1. Referential Integrity | 1. Primary Key | 1. Unique |

1. Which key references primary key of another table

|  |  |  |
| --- | --- | --- |
| 1. Primary Key | 1. Foreign Key | Composite Key |

1. Which normal form states that each table cell should contain a single value

|  |  |  |
| --- | --- | --- |
| 1. BCNF | 1. 2nd NF | 1. 1st NF |

1. Which diagram(s) is used in planning and designing a database schema?

|  |  |  |
| --- | --- | --- |
| 1. ERD | 1. Class diagram | 1. Flow chart |

1. A snapshot of data made to match the requirements and privileges of a user

|  |  |  |
| --- | --- | --- |
| 1. Snapshot | 1. View | 1. Join |

1. A combination of multiple columns used to uniquely identify a record is called

|  |  |  |
| --- | --- | --- |
| 1. Primary Key | 1. Surrogate key | 1. Composite key |

1. Which join displays only matching records from two or more tables

|  |  |  |
| --- | --- | --- |
| 1. Inner join | 1. Left join | 1. Right join |

1. A constraint which does not allow duplicate values in a single column

|  |  |  |
| --- | --- | --- |
| 1. Referential Integrity | 1. Unique | 1. Foreign Key |

1. Which keyword allows to arrange records in ascending/ descending order

|  |  |  |
| --- | --- | --- |
| 1. Arrange by | 1. Sort by | 1. Order by |

1. For using aggregation functions count, max, etc which statement is required

|  |  |  |
| --- | --- | --- |
| 1. Group by | 1. Sort by | 1. Order by |

1. Which aggregation function can be used to find average of a column?

|  |  |  |
| --- | --- | --- |
| 1. Mean() | 1. AVG() | 1. Average() |

1. Which operator allows to specify multiple values in where clause

|  |  |  |
| --- | --- | --- |
| 1. Or | 1. Between | 1. In |

1. Which operator allows to specify range of values in where clause

|  |  |  |
| --- | --- | --- |
| 1. Between | 1. In | 1. Or |

1. Which wild card is used with like operator in where clause in mysql

|  |  |  |
| --- | --- | --- |
| 1. \* | 1. % | 1. + |

1. Which SQL statement is used to extract data from a database?

|  |  |  |
| --- | --- | --- |
| 1. Extract | 1. Get | 1. Select |

1. Which SQL statement is used to update data in a database?

|  |  |  |
| --- | --- | --- |
| 1. Update | 1. Save as | 1. Modify |

1. Which SQL statement is used to delete data from a database?

|  |  |  |
| --- | --- | --- |
| 1. Collapse | 1. Delete | 1. Remove |

**Question 2: Recall ‘world’ database & write SQL statements for the following tasks. (10 Marks)**

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 3:** **Write mysql queries to create following tables/relation: (10 marks)**

|  |  |  |
| --- | --- | --- |
| **Course** | **Teacher** | **Course\_Teacher** |
| ID (int, auto increment) Primary Key) | ID (int, auto increment) Primary Key) | ID (int, auto increment) Primary Key) |
| Title (varchar:35) | Name (not null, varchar:35) | teacher\_id (Foreign Key) |
| CourseCode (varchar:20) | Email (unique, varchar:30) | course\_id (Foreign Key) |

**Question 4**: Given the tables below write mysql join query that achieves the given output. **(10 Marks)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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 |