INDIAN SCHOOL MUSCAT

Some Points to Keep in Mind ……

- Please keep your MIC and WEBCAM in MUTE mode until your teacher asks you to unmute it.
- Please take down notes.
- Ask doubts as and when it comes and write in the CHAT box.
- Don’t post any non-academic matter in the chat box. Stringent action will be initiated.
- Some times, technology fails, don’t panic, hold on - we will be back.

INDIAN SCHOOLMUSCAT

CLASS XI

INFORMATION TECHNOLOGY(802)

UNIT - 4: RDBMS (RELATIONAL DATABASE MANAGEMENT SYSTEM)

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RDBMS

PLEASE WRITE

Introduction:

A relational database management system (RDBMS) is a database management system (DBMS) based on the relational model invented by Edgar F. Codd, of IBM's San Jose Research Laboratory fame. Most databases in widespread use today are based on his relational database model.

RDBMS

BASIC DATABASE CONCEPTS

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Data :- Raw facts and figures which are useful to an organization. We cannot take decisions on the basis of data.

Information:-Well processed data is called information. We can take decisions on the basis of information

RDBMS

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Field: Set of characters that represents specific data element.

Record: Collection of fields is called a record. A record can have fields of different data types.

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Database: Collection of logically related data along with its description is termed as database. In relational model the data's are stored as tables. A table is also known as a relation.

Why we need a database?

Database helps in keeping the files in a systematic manner. It helps in managing large amount of information in small time. A **database** is an organized collection of data. A relational **database**, more restrictively, is a collection of schemas, tables, queries, reports, views, and other elements.

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Tuple: A row in a relation or table is called a tuple.

Attribute: A column in a relation or table is called an attribute. It is also termed as field or data item.

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Degree: Number of attributes in a relation or number of columns in a table is called degree of a relation or table.

Cardinality: Number of tuples in a relation or number of rows in a table is called cardinality of a relation or table.

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Primary Key: Primary key is a key that can uniquely identifies the records/tuples in a relation or a table. This key can never be duplicated and NULL.

Foreign Key: Foreign Key is a key that is defined as a primary key in some other relation or table. This key is used to enforce referential integrity in RDBMS.

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Candidate Key: Set of all attributes which can serve as a primary key in a relation or a table.

Alternate Key: All the candidate keys other than the primary keys of a relation are alternate keys for a relation or a table.

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Advantages of Database Management System:

Reducing Data Redundancy: The file based data management systems contained multiple files that were stored in many different locations in a system or even across multiple systems.

Sharing of Data.

Data Integrity.

Data **Security**.

Privacy.

Backup and Recovery.

Data Consistency.

RDBMS

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DBA: Data Base Administrator is a person (manager) that is responsible for defining the data base schema, setting security features in database, ensuring proper functioning of the data bases etc.

RDBMS

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STRUCTURED QUERY LANGUAGE
(MySQL)

STRUCTURED QUERY LANGUAGE(MySQL)

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Website: www.mysql.com

Steps to install MySQL in your computer.

Step 1: download **MySQL**. ...

Step 2: extract **the** files. ...

Step 3: move **the** data folder (optional) ...

Step 4: create a configuration file. ...

Step 5: test **your installation**. ...

Step 6: change **the** root password.

STRUCTURED QUERY LANGUAGE(MySQL)

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MySQL is a freely available open source **Relational Database** Management System (RDBMS) that uses **Structured Query Language (SQL)**. **SQL** is the most popular language for adding, accessing and managing content in a database. It is most noted for its quick processing, proven reliability, ease and flexibility of use.

STRUCTURED QUERY LANGUAGE(MySQL)

Characteristics of MySQL

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- ✓It is very easy to learn and use.
- ✓It runs very fast
- ✓It is free of cost. It is a ‘Open Source’ database.
- ✓Large volume of databases can be handled quite easily.
- ✓It is non procedural language. It means that we do not need to specify the procedures to accomplish a task but just to give a command to perform the activity.
- ✓MySQL understands standards based Structured Query Language(SQL)

STRUCTURED QUERY LANGUAGE(MySQL)

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- ✓MySQL can be linked to most of other high level languages that makes it first choice for the database programmer.
- ✓It provides portability as it has been tested with a broad range of different compilers and can work on many different platforms.
- ✓It offers a privilege and password system that is very flexible and secure.
- ✓ Clients can connect to MySQL Server using several protocols.

STRUCTURED QUERY LANGUAGE(MySQL)

Disadvantages of MySQL:

1. MySQL does not support a very large database size as efficiently.
2. MySQL does not support ROLE, COMMIT, and Stored procedures in versions less than 5.0.
3. Transactions are not handled very efficiently.
4. There are a few stability issues.
5. It suffers from poor performance scaling.
6. The development is not community driven so it has lagged behind.
7. The functionality tends to be heavily dependent on the addons.

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STRUCTURED QUERY LANGUAGE(MySQL)

Processing Capabilities of MySQL

The following are the processing capabilities of MySQL.

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1. Data Definition Language (DDL)

DDL contains commands that are used to create the tables, databases, indexes, views, sequences and synonyms etc.

e.g: **Create table, create view, create index, alter table**

STRUCTURED QUERY LANGUAGE(MySQL)

Processing Capabilities of MySQL

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2. Data Manipulation Language (DML)

DML contains command that can be used to manipulate the data base objects and to query the databases for information retrieval.

e.g. **Select, Insert, Delete, Update.**

STRUCTURED QUERY LANGUAGE(MySQL)

Processing Capabilities of MySQL

PLEASE WRITE

3. View Definition:

DDL contains set of command to create a view of a relation.

e.g : **create view**

4. Data Control Language:

This language is used for controlling the access to the data. The commonly used commands DCL are,

GRANT, REVOKE

STRUCTURED QUERY LANGUAGE(S Q L)

Processing Capabilities of MySQL

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5. Transaction Control Language (TCL)

TCL include commands to control the transactions in a data base system. The commonly used commands in TCL are

COMMIT, ROLLBACK

STRUCTURED QUERY LANGUAGE(S Q L)

Processing Capabilities of MySQL

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6. Authorization

The SQL DDL includes commands for specifying access rights to relations and views.

7. Integrity

The SQL provides limited forms of integrity checking. Future products of SQL products and standards of SQL are likely to include enhanced features for integrity checking.

STRUCTURED QUERY LANGUAGE(MySQL)

MySQL BASIC ELEMENTS

1. Literals

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Literals ,in general, refer to a fixed data value. This fixed value may be of character type or numeric literal. For example: ‘Synthia’ , ‘8’, ‘Raunak Raj’ all are character text literals. Character literals are enclosed in single (‘) or double quotation mark (“).
Numeric literals can either be integer literal or real literals. Eg: 17, 2000 are interger literals
23.0, 0.678 are real literals

STRUCTURED QUERY LANGUAGE(MySQL)

DATA TYPES of MySQL

2. Data Types

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Just like any other programming language, the facility of defining data of various types is available in SQL also. Following are the most common data types of SQL.

1. **INT/INTEGER**
2. **CHAR**
3. **VARCHAR / VARCHAR2**
4. **DATE**
5. **DECIMAL**
6. **TIME**
7. **BLOB**

STRUCTURED QUERY LANGUAGE(MySQL)

DATA TYPES of MySQL

1.INT/INTEGER

In MySQL INT stands for integer that is a whole number. An integer can be written without a fractional component. A integer can be zero, positive or negative. Integer is 4 bytes in size and minimum and maximum values an integer can hold are -2147483648 and 2147483648

e.g. Rollno Int

STRUCTURED QUERY LANGUAGE(MySQL)

DATA TYPES of MySQL

2. CHAR

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Used to store character type data in a column. They occupy fixed number of bytes for every data element they store.

General syntax is

Char (size)

where size represents the maximum number of characters in a column. The CHAR type data can hold at most 255 characters.

e.g. name char(25) declares a data item name of type character of up to 25 size long.

STRUCTURED QUERY LANGUAGE(MySQL)

DATA TYPES of MySQL

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3. VARCHAR -This data type is used to store variable length alphanumeric data. The field length is determined separately for every data element inside the field

General syntax is, **varchar(size)**

where size represents the maximum number of characters in a column. The maximum allowed size in this data type is 2000 characters.

e.g. **address varchar(50);**

address is of type varchar of upto 50 characters long

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DATA TYPES of MySQL

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4. DATE

Date data type is used to store dates in columns.
SQL supports the format YYYY-MM-DD.
It supports other date format also.

e.g. December 30th ,1973 will be stored as 1973-12-30;

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DATA TYPES of MySQL

5. TIME

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Time data type stores time in HH:MM:SS format
e.g. 20:45:23

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DATA TYPES of MySQL

6. DECIMAL

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DECIMAL data type is used to store exact numeric values in the database. We often use the DECIMAL data type for columns that preserve exact precision e.g., money data in accounting systems.

DECIMAL(P,D);

P is the precision that represents the number of significant digits. The range of P is 1 to 65.

D is the scale that that represents the number of digits after the decimal point. The range of D is 0 and 30.

STRUCTURED QUERY LANGUAGE(MySQL)

DATA TYPES of MySQL

7. BLOB

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A field with a maximum length of 65535 characters. BLOBs are “Binary Large Objects” and are used to store large amounts of binary data such as images or other types of files. You do not specify a length with BLOB field. Comparisons and sorts are case sensitive on BLOBs

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

CREATE TABLE Command:

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Create table command is used to create a table in SQL. It is a DDL type of command. The general syntax of creating a table is

create table <table> (
<column 1> <data type> [not null] [unique]
[<column constraint>],
. . . . . .
<column n> <data type> [not null] [unique]
[<column constraint>],
[<table constraint(s)>]);

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

CREATE TABLE Command:

PLEASE WRITE

For each column, a name and a data type must be specified and the column name must be unique within the table definition. Column definitions are separated by comma. Uppercase and lowercase letters makes no difference in column names, the only place where upper and lower case letters matter are strings comparisons. A not null Constraint means that the column cannot have null value, that is a value needs to be supplied for that column. The keyword unique specifies that no two tuples can have the same attribute value for this column.

STRUCTURED QUERY LANGUAGE(MySQL)

Constraints:

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Constraints are the conditions that can be enforced on the attributes of a relation. The constraints come in play when ever we try to insert, delete or update a record in a relation.

1. **NOT NULL**
2. **UNIQUE**
3. **PRIMARY KEY**
4. **FOREIGN KEY**
5. **CHECK**
6. **DEFAULT**

STRUCTURED QUERY LANGUAGE(MySQL)

Constraints:

PLEASE WRITE

1. NOT NULL: Ensures that we cannot leave a column as null. That is a value has to be supplied for that column.

e.g. name varchar(25) not null;

2. UNIQUE: Constraint means that the values under that column are always unique.

e.g. Rollno Int unique;

STRUCTURED QUERY LANGUAGE(MySQL)

Constraints:

3. PRIMARY KEY: Constraint means that a column can not have duplicate values and not even a null value.

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e.g. Rollno int primary key;

The main difference between unique and primary key constraint is that a column specified as unique may have null value but primary key constraint does not allow null values in the column.

STRUCTURED QUERY LANGUAGE(MySQL)

Constraints:

4. FOREIGN KEY: Is used to enforce referential integrity and is declared as a primary key in some other table.

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e.g cust_id varchar(5) references master(cust_id);

it declares cust_id column as a foreign key that refers to cust_id field of table master. That means we cannot insert that value in cust_id filed whose corresponding value is not present in cust_id field of master table.

STRUCTURED QUERY LANGUAGE(MySQL)

Constraints:

5. CHECK: Constraint limits the values that can be inserted into a column of a table.

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e.g marks decimal(6,2) check(marks>=0);

The above statement declares marks to be of type number and while inserting or updating the value in marks it is ensured that its value is always greater than or equal to zero.

STRUCTURED QUERY LANGUAGE(MySQL)

Constraints:

PLEASE WRITE

6. DEFAULT: Constraint is used to specify a default value to a column of a table automatically. This default value will be used when user does not enter any value for that column.

e.g. balance decimal(6,2) default 0;

STRUCTURED QUERY LANGUAGE(MySQL)

Creating database

mysql> CREATE DATABASE CLASSXIH ;

Accessing database CLASSXIH

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myql> USE CLASSXIH ;

To create student table with the schema as follows:

student (Rollno, Name, Class, Marks, Grade,City)

```
mysql> CREATE TABLE student (
        Rollno      integer       NOT NULL PRIMARY KEY,
        Name        varchar(25)   NOT NULL ,
        Class       varchar(6),   NOT NULL ,
        Marks       decimal(6,2)  CHECK (marks>=0) ,
        Grade       char(2)       DEFAULT 'E'
        City        varchar(20) ) ;
```

STRUCTURED QUERY LANGUAGE(MySQL)

Operators in SQL:

The following are the commonly used operators in SQL

- ✓**Arithmetic Operators** **+, -, *, /**
- ✓**Relational Operators** **=, <, >, <=, >=, <>**
- ✓**Logical Operators** **OR, AND, NOT**

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✓**Arithmetic operators** are used to perform simple arithmetic operations.

✓**Relational Operators** are used when two values are to be compared and

✓**Logical operators** are used to connect search conditions in the WHERE Clause in SQL.

STRUCTURED QUERY LANGUAGE(MySQL)

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Data Modifications in SQL

After a table has been created using the create table command, tuples can be inserted into the table, or tuples can be deleted or modified.

STRUCTURED QUERY LANGUAGE(MySQL)

Data Modifications in SQL

INSERT Statement

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The simplest way to insert a tuple into a table is to use the insert statement

insert into <table> values [(<column i, . . . , column j>)] values (<value i, . . . , value j>);

INSERT INTO student VALUES(101, 'Rohan', 'XI' , 400, 'A1', 'Chennai');

While inserting the record it should be checked that the values passed are of same data types as the one which is specified for that particular column.

STRUCTURED QUERY LANGUAGE(MySQL)

Data Modifications in SQL

INSERT Statement

PLEASE WRITE

For inserting a row interactively (from keyboard) & operator can be used.

e.g. INSERT INTO student VALUES('&Rollno', '&Name', '&Class', '&Marks', '&Grade' , '&City') ;

In the above command the values for all the columns are read from keyboard and inserted into the table student.

NOTE:- In SQL we can repeat or re-execute the last command typed at SQL prompt by typing "/" key and pressing enter.

STRUCTURED QUERY LANGUAGE(MySQL)

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TABLE : STUDENT

Rollno	Name	Class	Marks	Grade	City
101	Rohan	XI	400	A1	Chennai
102	Aneeta	XII	390	A1	Bengaluru
103	Pawan Kumar	IX	298	C1	Mysore
104	Rohan	IX	376	B1	Mangalore
105	Sanjay	VII	240	C2	Mumbai
113	Anju	VIII	432	C2	Delhi

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

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Queries:

To retrieve information from a database we can query the databases. SQL SELECT statement is used to select rows and columns from a database/relation

SELECT Command

This command can perform **selection** as well as **projection**.

Selection: This capability of SQL can return you the tuples form a relation with all the attributes.

Projection: This is the capability of SQL to return only specific attributes in the relation.

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

SELECT Command

PLEASE WRITE

✓ **SELECT * FROM student ;**

The above command will display all the tuples in the relation student

Rollno	Name	Class	Marks	Grade	City
101	Rohan	XI	400	A1	Chennai
102	Aneeta	XII	390	A1	Bengaluru
103	Pawan Kumar	IX	298	C1	Mysore
104	Rohan	IX	376	B1	Mangalore
105	Sanjay	VII	240	C2	Mumbai
113	Anju	VIII	432	C2	Delhi

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Command

PLEASE WRITE

✓**SELECT * FROM student WHERE Rollno <=102;**

The above command display only those records whose Rollno less than or equal to 102.

Select command can also display specific attributes from a relation.

Rollno	Name	Class	Marks	Grade	City
101	Rohan	XI	400	A1	Chennai
102	Aneeta	XII	390	A1	Bengaluru

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Command

✓ **SELECT name, class FROM student;**

The above command displays only name and class attributes from student table.

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Name	Class
Rohan	XI
Aneeta	XII
Pawan Kumar	IX
Rohan	IX
Sanjay	VII
Anju	VIII

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Command

PLEASE WRITE

✓ **SELECT count(*) AS “Total Number of Records” FROM student ;**
Display the total number of records with title as “Total Number of Records” i.e an alias

Total Number of Records (count*)
6

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Command

We can also use arithmetic operators in select statement, like

✓ **SELECT Rollno, name, marks+20 FROM student ;**

PLEASE WRITE

Rollno	Name	Marks+20
101	Rohan	420
102	Aneeta	410
103	Pawan Kumar	318
104	Rohan	396
105	Sanjay	260
113	Anju	452

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Command

PLEASE WRITE

✓ **SELECT name, (marks/500)*100 FROM student WHERE Rollno >103 ;**

Name	(marks/500) * 100
Rohan	75.2
Sanjay	48
Anju	86.4

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Command

PLEASE WRITE

Eliminating Duplicate/Redundant data

DISTINCT keyword is used to restrict the duplicate rows from the results of a **SELECT statement**.

e.g. **SELECT DISTINCT name FROM student;**

DISTINTCT name
Rohan
Aneeta
Pawan Kumar
Sanjay
Anju

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Command

Conditions based on a range

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SQL provides a **BETWEEN** operator that defines a range of values that the column value must fall for the condition to become true.

e.g. **SELECT Rollno, name FROM student WHERE Rollno BETWEEN 100 AND 103;**

The above command displays Rollno and name of those students whose Rollno lies in the range 100 to 103 (both 100 and 103 are included in the range).

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Rollno, name FROM student WHERE Rollno BETWEEN 100 AND 103 ;

PLEASE WRITE

Rollno	Name
101	Rohan
102	Aneeta
103	Pawan Kumar

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

PLEASE WRITE

Conditions based on a list

To specify a list of values, IN operator is used. This operator select values that match any value in the given list.

e.g. **SELECT * FROM student WHERE city IN('Bengaluru','Delhi','Chennai');**

The above command displays all those records whose city is either **Bengaluru or Delhi or Chennai**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

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Conditions based on a list

To specify a list of values, NOT IN operator is used. This operator select values that dose not match any value in the given list.

e.g. **SELECT * FROM student WHERE city NOT IN('Bengaluru','Delhi','Chennai');**

The above command displays all those records whose city is not in **Bengaluru or Delhi or Chennai**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT * FROM student WHERE city IN ('Bengaluru','Delhi','Chennai') ;

PLEASE WRITE

Rollno	Name	Class	Marks	Grade	City
101	Rohan	XI	400	A1	Chennai
102	Aneeta	XII	390	A1	Bengaluru
113	Anju	VIII	432	C2	Delhi

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT * FROM student WHERE city NOT IN ('Bengaluru','Delhi','Chennai') ;

PLEASE WRITE

Rollno	Name	Class	Marks	Grade	City
103	Pawan Kumar	IX	298	C1	Mysore
104	Rohan	IX	376	B1	Mangalore
105	Sanjay	VII	240	C2	Mumbai

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Conditions based on Pattern

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SQL provides two wild card characters that are used while comparing the strings with LIKE operator.

a. **Percent (%)** Matches any string
b. Underscore (_) Matches any one character

e.g. **SELECT Rollno, name, city FROM student WHERE Rollno LIKE "%3";**

displays those records where last digit of Rollno is 3 and may have any number of characters in front.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Rollno, name, city FROM student WHERE Rollno LIKE “%3”;

PLEASE WRITE

Rollno	Name	City
103	Pawan Kumar	Mysore
113	Anju	Delhi

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Conditions based on Pattern

PLEASE WRITE

e.g. **SELECT Rollno, name, city FROM student WHERE Rollno LIKE “1_3”;**

displays those records whose Rollno starts with 1 and second letter may be any letter but ends with digit 3.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT Rollno, name, city FROM student WHERE Rollno LIKE “1_3”;

PLEASE WRITE

Rollno	Name	City
103	Pawan Kumar	Mysore
113	Anju	Delhi

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

ORDER BY Clause

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ORDER BY clause is used to display the result of a query in a specific order(sorted order).

The sorting can be done in ascending or in descending order. It should be kept in mind that the actual data in the database is not sorted but only the results of the query are displayed in sorted order.

e.g. **SELECT name, city FROM student ORDER BY city ASC;**

OR

SELECT name, city FROM student ORDER BY city ;

The above query returns name and city columns of table student sorted by city in increasing/ascending order.

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

SELECT name, city FROM student ORDER BY city ASC;

OR

SELECT name, city FROM student ORDER BY city ;

PLEASE WRITE

Name	City
Aneeta	Bengaluru
Rohan	Chennai
Anju	Delhi
Rohan	Mangalore
Sanjay	Mumbai
Pawan Kumar	Mysore

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

ORDER BY Clause

PLEASE WRITE

e.g. **SELECT * FROM student ORDER BY name DESC;**

It displays all the records of table student ordered by name in descending order.

Note:- If order is not specifies that by default the sorting will be performed in ascending order.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

SELECT * FROM student ORDER BY name DESC;

PLEASE WRITE

Rollno	Name	Class	Marks	Grade	City
105	Sanjay	VII	240	C2	Mumbai
104	Rohan	IX	376	B1	Mangalore
101	Rohan	XI	400	A1	Chennai
103	Pawan Kumar	IX	298	C1	Mysore
113	Anju	VIII	432	C2	Delhi
102	Aneeta	XII	390	A1	Bengaluru

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

GROUP BY Clause

PLEASE WRITE

The GROUP BY clause can be used in a SELECT statement to collect data across multiple records and group the results by one or more columns.

The syntax for the GROUP BY clause is:

```
SELECT column1, column2, ... column_n,
aggregate_function (expression) FROM tables
WHERE conditions GROUP BY column1, column2, ...
column_n;
```

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

GROUP BY Clause

PLEASE WRITE

Aggregate_function can be a function such as SUM, COUNT, MAX, MIN, AVG etc.

Count() function: Is used to count data's from a table based on condition or without condition

e.g. SELECT Grade, Count(Grade) FROM student GROUP BY Grade;

Grade	Count(Grade)
A1	2
B1	1
C1	1
C2	2

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Aggregate_function can be a function such as SUM, COUNT, MAX, MIN, AVG etc.

PLEASE WRITE

Min() Function: Is used to find the minimum value from a column of a table.

e.g. SELECT Min(Marks) FROM student;

Min(Marks)
240

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Aggregate_function can be a function such as SUM, COUNT, MAX, MIN, AVG etc.

Max() Function: Is used to find the maximum value from a column of a table.

PLEASE WRITE

e.g. SELECT Max(Marks) FROM student;

Max(Marks)
432

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Aggregate_function can be a function such as SUM, COUNT, MAX, MIN, AVG etc.

Avg() Function: Is used to find the average value from a column of a table.

PLEASE WRITE

e.g. SELECT Avg(Marks) FROM student;

Avg(Marks)
356

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

HAVING Clause

The **HAVING** clause is used in combination with the GROUP BY clause. It can be used in a **SELECT** statement to filter the records that a **GROUP BY** returns.

PLEASE WRITE

The syntax for the **HAVING** clause is:

```
SELECT column1, column2, ... column_n, aggregate_function
(expression)
FROM tables
WHERE predicates
GROUP BY column1, column2, ... column_n
HAVING condition1 ... condition_n;
```

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

HAVING Clause

PLEASE WRITE

e.g
```
SELECT class,SUM(marks) as "Total marks"
FROM student
GROUP BY class
HAVING SUM(marks) > 375;
```

Note: select statement can contain only those attribute which are already present in the group by clause.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

PLEASE WRITE

SQL provide large collection of inbuilt functions also called library functions that can be used directly in SQL statements.

1.Mathematical functions

2.String functions

3.Date & Time functions

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

PLEASE WRITE

SQL provide large collection of inbuilt functions also called library functions that can be used directly in SQL statements.

1.Mathematical functions

2.String functions

3.Date & Time functions

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

1. Mathematical functions

PLEASE WRITE

Some of the commonly used mathematical functions are sum() avg(), count(), min(), max() etc.

e.g. **SELECT sum(marks) FROM student;**

displays the sum of all the marks in the table student.

e.g. **SELECT min(Rollno), max(marks) FROM student;**

displays smallest Rollno and highest marks in the table student.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

These functions are used to deal with the string type values like

ASCII, LOWER, UPPER, REPLACE, LEFT, RIGHT, LTRIM, RTRIM etc.

ASCII : Returns the ASCII code value of a character (leftmost character of string).

Syntax: SELECT **ASCII(character) ;**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

e.g.

PLEASE WRITE

SELECT ASCII('a') ; returns 97

SELECT ASCII('A') ; returns 65

SELECT ASCII('1') ; returns 49

SELECT ASCII('Z') ; returns 90

For Upper character 'A' to 'Z' ASCII value 65 to 90
For Lower character 'a' to 'z' ASCII value 97 to 122
For digit '0' to '9' ASCII value 48 to 57

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

LOWER : Convert character strings data into lowercase.

Syntax: **LOWER(string)**

SELECT LOWER('STRING FUNCTION') ;

returns **string function**

NOTE: If no table name is specified then SQL uses Dual table which is a dummy table used for performing opera

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

UPPER : Convert character strings data into Uppercase.

Syntax**: UPPER(string)**

SELECT UPPER('string function') ;

returns **STRING FUNCTION**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

REPLACE : Replaces all occurrences of the second string(string2) in the first string(string1) with a third string(string3).

Syntax: **REPLACE('string1','string2','string3')**

SELECT REPLACE('STRING FUNCTION','STRING','SQL') ;

returns **SQL Function**

Returns NULL if any one of the arguments is NULL.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

LEFT : Returns left part of a string with the specified number of characters counting from left.LEFT function is used to retrieve portions of the string.

Syntax: **LEFT(string,integer)**

SELECT LEFT('STRING FUNCTION', 6) ;

returns STRING

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

RIGHT : Returns right part of a string with the specified number of characters counting from right. RIGHT function is used to retrieve portions of the string.

Syntax: **RIGHT(string, integer)**

SELECT RIGHT('STRING FUNCTION', 8) ;

returns **FUNCTION**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

LTRIM : Returns a string after removing leading blanks on Left side.(Remove left side space or blanks)

Syntax: **LTRIM(string)**

SELECT LTRIM(' STRING FUNCTION') ;

returns **STRING FUNCTION**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

RTRIM : Returns a string after removing leading blanks on Right side.(Remove right side space or blanks)

Syntax**: RTRIM(string)**

SELECT RTRIM('STRING FUNCTION ') ;

returns **STRING FUNCTION**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

REVERSE : Returns reverse of a input string.

Syntax: **REVERSE(string)**

SELECT REVERSE('STRING FUNCTION') ;

returns **NOITCNUF GNIRTS**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

SUBSTRING : Returns part of a given string.

SUBSTRING function retrieves a portion of the given string starting at the specified character(startindex) to the number of characters specified(length).

Syntax: **SUBSTRING (string,startindex,length)**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

SUBSTRING : Returns part of a given string.

SELECT SUBSTRING('STRING FUNCTION', 1, 6) ;

returns **STRING**

SELECT SUBSTRING('STRING FUNCTION', 8, 8) ;

returns FUNCTION

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

LENNGTH : Returns the length of the character string.

Syntax: **LENGTH(string)**

SELECT LENGTH('STRING FUNCTION') ;

returns **15**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

REPEAT : Repeats a input string for a specified number of times.

Syntax: **REPEAT (string, integer)**

SELECT REPEAT('FUNCTION', 3) ;

returns **FUNCTIONFUNCTIONFUNCTION**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

2. String functions

PLEASE WRITE

SUBSTRING : Returns part of a given string.

SELECT SUBSTRING('STRING FUNCTION', 1, 6)

returns **STRING**

SELECT SUBSTRING('STRING FUNCTION', 8, 8)

returns FUNCTION

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Date & Time functions

PLEASE WRITE

CURDATE: Returns the current date in yyyy-mm-dd format

SELECT CURDATE() ;

returns **2020-09-03**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Date & Time functions

PLEASE WRITE

DATE_FORMAT(Date,Format): Returns the current date in the given format

FORMAT

%W – Week day name (Sunday…. Saturday)

% M- Month name (January…. December)

SELECT DATE_FORMAT('2020-09-03', '%W %M %Y') ;

returns **Thursday September 2020**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Date Function

PLEASE WRITE

DAYOFWEEK(Date) : Returns the day of the week 1 = Sunday, 2= Monday …….

SELECT DAYOFWEEK ('2020-09-03');

returns **5**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Date Function

PLEASE WRITE

DAYOFMONTH(Date) : Returns the day of the month for date 0 to 31

SELECT DAYOFMONTH('2020-09-03');

returns **3**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Date Function

PLEASE WRITE

DAYOFYEAR(Date): Returns the day of the year of the date 1 to 366

SELECT DAYOFYEAR ('2020-09-03');

returns **247**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Time function

PLEASE WRITE

CURTIME: Returns the current time

SELECT CURTIME();

returns **09:40:22**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Time function

PLEASE WRITE

HOUR(TIME): Returns the hours from the argument

SELECT HOUR('09:40:22');

returns **09**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Time function

PLEASE WRITE

MINUTE(TIME): Returns the minutes from the argument

SELECT MINUTE('09:40:22');

returns **40**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Time function

PLEASE WRITE

SECOND(TIME): Returns the seconds from the argument

SELECT SECOND('09:40:22');

returns **22**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

Functions available in SQL

3. Date and Time function

PLEASE WRITE

NOW: Returns the current date and time

SELECT NOW();

returns **2020-09-03 09:40:22**

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

DELETE Command

PLEASE WRITE

To delete the record fro a table SQL provides a delete statement. General syntax is:-

DELETE FROM <table_name> [WHERE <condition>];

e.g. DELETE FROM student WHERE city = ‘Chennai’;

This command deletes all those records whose city is Chennai.

NOTE: It should be kept in mind that while comparing with the string type values lowercase and uppercase letters are treated as different. That is ‘Jammu’ and ‘jammu’ is different while comparing.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

UPDATE Command

PLEASE WRITE

To update the data stored in the data base, UPDATE command is used.

e. g. **UPDATE student SET marks = marks + 10;**

Increase marks of all the students by 10.

e. g. **UPDATE student SET City = 'Hyderabad' WHERE city = 'Bengaluru';**

changes the city of those students to Hyderabad whose city is Bengaluru.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

UPDATE Command

PLEASE WRITE

We can also update multiple columns with update command, like

e. g. **UPDATE student set marks = marks + 20, city = 'Mangalore'**
WHERE city NOT IN ('Delhi','Mysore');

This statement will add 20 marks to the present marks and change the city name to 'Mangalore' of those students who are not from the city 'Delhi' or 'Mysore'.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

CREATE VIEW Command

PLEASE WRITE

In SQL we can create a view of the already existing table that contains specific attributes of the table.

e. g. the table student that we created contains following fields:

Student (Rollno, Name, Class, Marks, Grade, City)

Suppose we need to create a view **v_student** that contains Rollno, name and class of student table, then Create View command can be used:

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

CREATE VIEW Command

PLEASE WRITE

CREATE VIEW v_student AS SELECT Rollno,Name,Class FROM student;

The above command create a virtual table (view) named **v_student** that has three attributes as mentioned and all the rows under those attributes as in student table.

We can also create a view from an existing table based on some specific conditions, like

CREATE VIEW v_student AS SELECT Rollno,Name,Class FROM student WHERE City <>'Delhi';

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

ALTER TABLE Command

PLEASE WRITE

In SQL if we ever need to change the structure of the database then ALTER TABLE command is used. By using this command we can add a column in the existing table, delete a column from a table or modify columns in a table.

Adding a column

The syntax to add a column is:-

ALTER TABLE table_name ADD column_name datatype;

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

ALTER TABLE Command

PLEASE WRITE

e.g **ALTER TABLE student ADD(Address varchar(30));**

The above command add a column Address to the table student.

If we give command

SELECT * FROM student;

The following data gets displayed on screen:

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

PLEASE WRITE

Rollno	Name	Class	Marks	Grade	City	Address
105	Sanjay	VII	240	C2	Mumbai	
104	Rohan	IX	376	B1	Mangalore	
101	Rohan	XI	400	A1	Chennai	
103	Pawan Kumar	IX	298	C1	Mysore	
113	Anju	VIII	432	C2	Delhi	
102	Aneeta	XII	390	A1	Bengaluru	

Note that we have just added a column and there will be no data under this attribute. UPDATE command can be used to supply values / data to this column.

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

ALTER TABLE Command

PLEASE WRITE

Removing a column

ALTER TABLE tablename DROP COLUMN columnname;

e.g **ALTER TABLE Student DROP COLUMN Address;**

The column Address will be removed from the table student

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

DROP TABLE Command

PLEASE WRITE

Sometimes you may need to drop a table which is not in use. DROP TABLE command is used to Delete / drop a table permanently. It should be kept in mind that we can not drop a table if it contains records. That is first all the rows of the table have to be deleted and only then the table can be dropped.

The general syntax of this command is:-

DROP TABLE <table_name>;

e.g DROP TABLE student;

This command will remove the table student

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

CREATE A TABLE EMPLOYEE WITH THE FOLLOWING DETAILS

PLEASE WRITE

Name	Data type	size	constraints
Ecode	integer		Primary Key
Ename	character	25	Not Null
Sex	character	1	Not Null
Dept	character	25	Not null
Desig	character	25	
DOJ	date		Not null
Salary	decimal(8,2)		Salary > 500

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

CREATING TABLE EMPLOYEE IN MySQL:

PLEASE WRITE

```
CREATE TABLE EMPLOYEE (
Ecode     integer          not null  primary key,
Ename     varchar(25)      not null,
Sex       char(1)          not null,
Dept      varchar(25)      not null,
Desig     varchar(25),
DOJ       date,
Salary    decimal(8,2) check(Salary > 500) );
```

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

INSERT THE FOLLOWING DATA TO TABLE EMPLOYEE

PLEASE WRITE

Ecode	EName	Sex	Dept	Desig	DOJ	Salary
1101	Brian	M	Accounts	Manager	2015-02-03	2000
1102	Mrinal	M	Logistics	Clerk	2012-03-02	650
1103	Sunita	F	Production	Asst. Manager	2010-04-01	1900
1104	Vansh	M	Accounts	Clerk	2009-05-07	700
1105	Samira	F	Logistics	Manager	2011-07-11	2200

STRUCTURED QUERY LANGUAGE(MySQL)
SQL Commands

INSERTING ROWS TO TABLE EMPLOYEE

PLEASE WRITE

INSERT INTO EMPLOYEE VALUES(1101, ‘Brian’, ‘M’, ‘Accounts’, ‘Manager’, ‘2015-02-03’, 2000),
(1102, ‘Mrinal’, ‘M’, ‘Logistics’, ‘Clerk’, ‘2012-03-02’, 650),
(1103, ‘Sunita’, ‘F’, ‘Production’, ‘Asst. Manager’, ‘2010-04-01’, 1900),
(1104, ‘Vansh’, ‘M’, ‘Accounts’, ‘Clerk’, ‘2009-05-07’, 700),
(1105, ‘Samira’, ‘F’, ‘Logistics’, ‘Manager’, ‘2011-07-11’, 2200) ;

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

Write MySQL commands to the following questions

PLEASE WRITE

1) To describe the structure of the table employee
2) To display all records from employee table
3) To display name and designation of all employees
4) To display the records in the descending order of their salaries
5) To display name, department and DOJ of all employees whose salary is between 1500 and 2000
6) To display the details of all managers
7) To display the number of employees department wise
8) To display all records in the ascending order of their DOJ
9) To display the name of employees starting with the letter ‘S’
10) To display the name of employees ending with letter ‘a’
11) To display the name of employees whose name has exactly 5 letters
12) To display the details of male employees

STRUCTURED QUERY LANGUAGE(MySQL)

SQL Commands

PLEASE WRITE

ANSWERS

1) Mysql> DESC Employee ;
2) mysql> SELECT * FROM EMPLOYEE ;
3) mysql> SELECT Ename, Desig FROM EMPLOYEE ;
4) mysql> SELECT * FROM EMPLOYEE ORDER BY SALARY DESC ;
5) mysql> SELECT Ename, Dept, DOJ FROM EMPLOYEE WHERE SALARY BETWEEN 1500 AND 2000 ;
6) mysql> SELECT * FROM EMPLOYEE WHERE Desig ='Manager' ;
7) mysql> SELECT Dept ,count(Dept) FROM EMPLOYEE GROUP BY Dept ;
8) mysql> SELECT * FROM EMPLOYEE ORDER BY DOJ ASC ;
9) mysql> SELECT Ename FROM EMPLOYEE WHERE Ename like 'S%' ;
10) mysql> SELECT Ename FROM EMPLOYEE WHERE Ename like '%a' ;
11) mysql> SELECT Ename FROM EMPLOYEE WHERE Ename like '_ _ _ _ _' ;
12) mysql> SELECT * FROM EMPLOYEE WHERE SEX ='M' ;

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

TABLE: INTERIORS

No.	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
1	Red rose	Double Bed	23/02/02	32000	15
2	Soft touch	Baby cot	20/01/02	9000	10
3	Jerry's home	Baby cot	19/02/02	8500	10
4	Rough wood	Office Table	01/01/02	20000	20
5	Comfort zone	Double Bed	12/01/02	15000	20
6	Jerry look	Baby cot	24/02/02	7000	19
7	Lion king	Office Table	20/02/02	16000	20
8	Royal tiger	Sofa	22/02/02	30000	25
9	Park sitting	Sofa	13/12/01	9000	15
10	Dine Paradise	Dining Table	19/02/02	11000	15
11	White Wood	Double Bed	23/03/03	20000	20
12	James 007	Sofa	20/02/03	15000	15
13	Tom look	Baby cot	21/02/03	7000	10

STRUCTURED QUERY LANGUAGE(MySQL)

Write the SQL commands for (a) to (f) and write the outputs for SQL queries (g) parts (i) to (iii) on the basis of the table INTERIORS.

PLEASE WRITE

(a)To show all information about the Sofa from the INTERIORS table.

(b) To list the ITEM NAME, which are priced at more than 10000 from the INTERIORS table.

(c)To list ITEM NAME and TYPE of those items, in which DATEOFSTOCK is before 22/01/02 from the INTERIORS table in descending order of ITEM NAME.

(d)To display ITEM NAME and DATEOFSTOCK of those items, in which the discount percentage is more than 15 from INTERIORS table.

STRUCTURED QUERY LANGUAGE(MySQL)

(e) To count the number of items, whose type is Double Bed from INTERIORS table.

(f) To insert a new row in the INTERIORS table with the following data

{114,'True Indian','Office Table',' 28/03/03',15000,20}

(g) **Give the output of following SQL statements:**

(i) SELECT COUNT (DISTINCT TYPE) FROM INTERIORS; .
(ii) SELECT AVG (DISCOUNT) FROM INTERIORS WHERE TYPE = 'Baby cot' ;
(iii) SELECT SUM(PRICE) FROM INTERIORS WHERE DATE0FST0CK<'12/02/02 ' ;

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

(a) SELECT * FROM INTERIORS WHERE TYPE = 'Sofa';

(b) SELECT ITEMNAME FROM INTERIORS WHERE PRICE > 10000;

(c) SELECT ITEMNAME, TYPE FROM INTERIORS WHERE DATEOFSTOCK < '22/01/02' ORDER BY ITEMNAME DESC;

(d) SELECT ITEMNAME , DATEOFSTOCK FROM INTERIORS WHERE DISCOUNT > 15 ;

(e) SELECT COUNT(*) FROM INTERIORS WHERE TYPE = 'Double Bed';

(f) INSERT INTO INTERIORS VALUES (114, ' True Indian', 'Office Table', '28/03/03',15000,20);

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

g) The outputs is given after excluding the row given in part (f).

(i)

COUNT (DISTINCT TYPE)
5

(ii)

AVG(DISCOUNT)
12.25

(iii)

SUM(PRICE)
53000

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

TABLE: HOSPITAL

No.	Name	Age	Department	Dateofadm	Charges	Sex
1	Sandeep	65	Surgery	23/02/98	300	M
2	Ravina	24	Orthopaedic	20/01/98	200	F
3	Karan	45	Orthopaedic	19/02/98	200	M
4	Tarun	12	Surgery	01/01/98	300	M
5	Zubin	36	ENT	12/01/98	250	M
6	Ketaki	16	ENT	24/02/98	300	F
7	Ankita	29	Cardiology	20/02/98	800	F
8	Zareen	45	Gynaecology	22/02/98	300	F
9	Kush	19	Cardiology	13/01/98	800	M
10	Shailya	31	Nuclear Medicine	19/02/98	400	M

STRUCTURED QUERY LANGUAGE(MySQL)

Write the SQL commands for (a) to (f) and write the outputs for SQL queries (g) parts (i) to (iv) on the basis of the table HOSPITAL.

PLEASE WRITE

(a) To show all information about the patients of Cardiology Department.

(b) To list the name of female patients, who are in Orthopaedic Department.

(c) To list names of all patients with their date of admission in ascending order.

(d) To display Patient's Name, Charges, Age for male patients only.

(e) To count the number of patients with age>20.

(f) To insert a new row in the HOSPITAL table with the following data:

```
{11,'Mustafa',37,'ENT','25/02/98',250,'M'}
```

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

(g) Give the output of following SQL statements:

```
(i) SELECT COUNT(DISTINCT Charges) FROM HOSPITAL;

(ii) SELECT MIN(Age) FROM HOSPITAL WHERE Sex = 'M' ;

(iii) SELECT SUM(Charges) FROM HOSPITAL WHERE Sex = ' F' ;

(iv) SELECT AVG(Charges) FROM HOSPITAL WHERE Dateofadm <
'12/02/98' ;
```

STRUCTURED QUERY LANGUAGE(MySQL)


```
(a) SELECT * FROM HOSPITAL WHERE Department = 'Cardiology';

(b) SELECT Name FROM HOSPITAL WHERE Department = 'Orthopaedic' AND
    Sex = ' F' ;

(c) SELECT Name FROM HOSPITAL ORDER BY Dateofadm;

(d) SELECT Name, Charges, Age FROM HOSPITAL WHERE Sex = 'M' ;

(e) SELECT COUNT(*) FROM HOSPITAL WHERE Age > 20;

(f) INSERT INTO HOSPITAL VALUES (11,'Mustafa',37,'ENT','25/02/98',250, 'M');
```

STRUCTURED QUERY LANGUAGE(MySQL)

(g) The output is given after excluding the row given in part (f).

(i)

COUNT (DISTINCT Charges)
5

(ii)

MIN(Age)
12

(iii)

SUM(Charges)
1600

(iv)

AVG(Charges)
387.50

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

TABLE: ITEMS

Code	IName	Qty	Price	Company	TCode
1001	DIGITAL PAD 121	120	11000	XENITA	T01
1006	LED SCREEN 40	70	38000	SANTORA	T02
1004	CAR GPS SYSTEM	50	2150	GEOKNOW	T01
1003	DIGITAL CAMERA 12X	160	8000	DIGICLICK	T02
1005	PEN DRIVE 32 GB	600	1200	STOREHOME	T03

TABLE: TRADERS

TCode	TName	City
T01	ELECTRONIC SALES	MUMBAI
T03	BUSY STORE CORP	DELHI
T02	DISP HOUSE INC	CHENNAI

STRUCTURED QUERY LANGUAGE(MySQL)

a) To display the details of all the items in ascending order of item names (i.e. I NAME).

b) To display item name and price of all those items, whose price is in the range of 10000 and 22000 (both values inclusive).

PLEASE WRITE

(c) To display the number of items, which are traded by each trader. The expected output of this query should be:

T01 2
T03 1
T02 2

STRUCTURED QUERY LANGUAGE(MySQL)

(d) To display the Price, item name (i.e. IName) and quantity (i.e. Qty) of those items, which have quantity more than 150.

(e) To display the names of those traders, who are either from DELHI or from MUMBAI.

(f) To display the name of the companies and the name of the items in descending order of company names.

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Give the output of the following SQL queries:

PLEASE WRITE

```
(i)SELECT MAX(Price), MIN(Price) FROM ITEMS;
(ii)SELECT Price * Qty as 'AMOUNT'  FROM ITEMS
    WHERE Code=1004;
(iii)SELECT DISTINCT(Tcode) FROM ITEMS;
(iv)SELECT IName, TName FROM ITEMS I, TRADERS
    T WHERE I.TCode = T.TCode AND Qty < 100;
```

STRUCTURED QUERY LANGUAGE(MySQL)

g) Obtain the outputs of the following SQL queries based on the data given in tables ITEMS and TRADERS above.

PLEASE WRITE

```
(a) SELECT*FROM ITEMS ORDER BY IName;
(b) SELECT IName, Price FROM ITEMS WHERE Price BETWEEN
    10000 AND 22000;
(c) SELECT TCode, COUNT (*) FROM ITEMS GROUP BY TCode;
(d) SELECT Price, IName, Qty FROM ITEMS WHERE Qty >150;
(e) SELECT TName FROM TRADERS WHERE City = 'MUMBAI' OR
    City = 'DELHI';
(f) SELECT Company, IName FROM ITEMS ORDER BY Company DESC;
```

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

(g) (i)

MAX(Price)	MIN(Price)
38000	1200

(ii)

AMOUNT
107500

(iii)

TCode
T01
T02
T03

(iv)

IName	TName
CAR GPS SYSTEM	ELECTRONIC SALES
LED SCREEN 40	DISP HOUSE INC

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

TABLE: CARDEN

Ccode	CarName	Make	Color	Capacity	Charges
501	A-star	Suzuki	RED	3	14
503	Indigo	Tata	SILVER	3	12
502	Innova	Toyota	WHITE	7	15
509	SX4	Suzuki	SILVER	4	14
510	C-Class	Mercedes	RED	4	35

TABLE: CUSTOMER

CCode	CName	Ccode
1001	Hamant Sahu	501
1002	Raj Lal	509
1003	Feroza Shah	503
1004	Ketan Dhal	502

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL commands for the following statements:

(i) To display the name of all the SILVER colored cars.
(ii) To display name of Car, Make and sitting Capacity of cars in descending order of their sitting Capacity.
(iii) To display the highest Charges at which a vehicle can be hired from CARDEN.
(iv) To display the Customer name and the corresponding name of the Cars hired by them.

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Give the output of the following SQL queries:

```
(i)SELECT COUNT(DISTINCT Make) FROM CARDEN;
(ii) SELECT MAX(Charges), MIN (Charges) FROM CARDEN;
(iii) SELECT COUNT(*) as “Make” FROM CARDEN;
(iv) SELECT CarName FROM CARDEN WHERE Capacity = 4;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

```
(i)SELECT CarName FROM CARDEN WHERE Color= SILVER' ;
(ii)SELECT CarName, Make, Capacity FROM CARDEN
    ORDER BY Capacity DESC;
(iii)SELECT MAX(Charges) FROM CARDEN;
(iv)SELECT CUSTOMER.CName, CARDEN.CarName FROM
    CARDEN, CUSTOMER WHERE CARDEN.Ccode=CUSTOMER.Ccode;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

(b) (i)

COUNT (DISTINCT Make)
4

(ii)

MAX (Charges)	MIN (Charges)
35	12

(iii)

Make(*)
5

(iv)

CarName
SX4
C-Class

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

TABLE: FAMILY

No.	Name	FemaleMembers	MaleMembers	Income	Occupation
1	Mishra	3	2	7000	Service
2	Gupta	4	1	50000	Business
3	Khan	6	3	8000	Mixed
4	Chaddha	2	2	25000	Business
5	Yadav	7	2	20000	Mixed
6	Joshi	3	2	14000	Service
7	Maurya	6	3	5000	Farming
8	Rao	5	2	10000	Service

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL commands for the following statements:

(a) To select all the information of family, whose Occupation is Service.

(b) To list the name of family, where female members are more than 3.

(c) To list all names of family with income in ascending order.

(d) To display family's name, malemembers and occupation of business family.

(e) To count the number of family, whose income is less than 10,000.

PLEASE WRITE

(f) To insert a new record in the FAMILY table with the following data

```
9, "D'souza", 2, 1, 15000, "Service"
```

STRUCTURED QUERY LANGUAGE(MySQL)

Give the output of the following SQL commands .

```
(i) SELECT MIN(DISTINCT Income) FROM FAMILY;
(ii)SELECT MIN(FemaleMembers) FROM FAMILY WHERE Occupation = 'Mixed';
(iii)SELECT SUM(Income) FROM FAMILY WHERE Occupation = 'Service';
(iv)SELECT AVG(Income) FROM FAMILY;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

```
(a) SELECT * FROM FAMILY WHERE Occupation =  'Service';
(b) SELECT Name FROM FAMILY WHERE FemaleMembers > 3;
(c) SELECT Name, Income FROM FAMILY ORDER BY Income;
(d) SELECT Name, MaleMembers , Occupation
    FROM FAMILY WHERE Occupation = ' Business ' ;
(e) SELECT COUNT(*) FROM FAMILY WHERE Income < 10000;
(f) INSERT INTO FAMILY VALUES(9,'D'souza',2,1,15000,'Service');
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

OUTPUT QUESTION ANSWERS:

(i)	**MIN**(DISTINCT Income)
	5000
(ii)	**MIN**(FemaleMembers)
	6
(iii)	**SUM**(Income)
	31000
(iv)	**AVG**(Income)
	17375

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

TABLE: SPORTS

STUDENTNO	CLASS	NAME	GAME1	GRADE	GAME2	GRADE1
10	7	Sameer	Cricket	B	Swimming	A
11	8	Sujit	Tennis	A	Skating	C
12	7	Kamal	Swimming	B	Football	B
13	7	Veena	Tennis	C	Tennis	A
14	9	Archana	Basketball	A	Cricket	A
15	10	Arpit	Cricket	A	Athletics	C

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write MySQL commands for the following questions

(a) Display the names of the students, who have grade ‘C in either GAMEl or GAME2 or both.

(b) Display the number of students getting grade A in Cricket.

(c) Display the names of the students who have same game for both GAME1 and GAME2.

(d) Display the games taken up by the students, whose name starts with A.

(e) Add a new column named MARKS.

(f) Assign a value 200 for Marks for all those, who are getting grade ‘A’ or grade ‘B’ in both GAME1 and GAME2.

(g) Arrange the whole table in the alphabetical order of Name.

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write MySQL commands for the following questions

```
(a) SELECT NAME FROM SPORTS WHERE GRADE ='C' OR GRADE1='C';
(b) SELECT COUNT(*) FROM SPORTS WHERE (GAME1='Cricket' AND
    GRADE='A' ) OR (GAME2 ='Cricket' AND GRADE1 ='A');
(c) SELECT NAME FROM SPORTS WHERE GAME1=GAME2;
(d) SELECT GAME1, GAME2 FROM SPORTS WHERE NAME LIKE ' A%';
(e) ALTER TABLE SPORTS ADD MARKS integer;
(f) UPDATE SPORTS SET MARKS = 200 WHERE GRADE = 'A' OR
    GRADE = 'B' OR GRADE1 = 'A' OR GRADE1 = 'B';
(g) SELECT * FROM SPORTS ORDER BY NAME;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

TABLE: COLLEGE

No	Name	Age	Department	DateofJoin	Basic	Sex
1	Shalaz	45	Biology	13/02/88	10500	M
2	Sameera	54	Biology	10/01/90	9500	F
3	Yagyen	43	Physics	27/02/98	8500	M
4	Pratyush	34	Chemistry	11/01/93	7500	M
5	Aren	51	Mathematics	22/01/91	8500	M
6	Reeta	27	Chemistry	14/02/94	9000	F
7	Urvashi	29	Biology	10/02/93	8500	F
8	Teena	35	Mathematics	02/02/89	10500	F
9	Viren	49	Mathematics	03/01/88	9000	M
10	Prakash	22	Physics	17/02/92	8000	M

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write MySQL commands for the following questions

(a) To change the Basic salary to 10500 of all those teachers from COLLEGE, who joined the COLLEGE after 01/02/89 and are above the age of 50.

(b) To display -Name, Age and Basic of all those from COLLEGE, who belong to Physics and Chemistry department only.

(c) To display all the department names from COLLEGE, with no duplication.

(d) To list names of all teachers from COLLEGE with their date of joining in ascending order within their Basic salaries in ascending order.

(e) To display maximum salary amongst the female teachers and also amongst the male teachers from COLLEGE. (Give a single command)

(f) To insert a new row in the table COLLEGE with the following data:

```
15, "ATIN", 27, "Physics", '15/05/02', 8500, "M"
```

(g) To delete a row from COLLEGE in which name is VIREN.

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write MySQL commands for the following questions

```
(a)UPDATE COLLEGE SET Basic = 10500 WHERE
    DateofJoin>'01/02/89 ' AND Age>50;
(b)SELECT Name, Age, Basic FROM COLLEGE  WHERE
   Department='Physics' OR Department ='Chemistry' ;
(c)SELECT DISTINCT Department FROM COLLEGE;
(d)SELECT Name,DateofJoin,Basic FROM COLLEGE ORDER BY
   Basic,DateofJoin;
(e)SELECT Sex,MAX(Basic) FROM COLLEGE GROUP BY Sex;
(f)INSERT INTO COLLEGE VALUES(15, 'ATIN', 27 'Physics',
   '15/05/02', 8500, 'M');
(g)DELETE FROM COLLEGE WHERE Name = 'VIREN';
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Consider the following tables PRODUCT and CLIENT. Write SQL commands for the statement (a) to (d) and give outputs for SQL queries (e) to (h).

TABLE: PRODUCT

P_ID	ProductName	Manufacturer	Price
TP01	Talcom Powder	LAK	40
FW05	Face Wash	ABC	45
BS01	Bath Soap	ABC	55
SH06	Shampoo	XYZ	120
FW12	Face Wash	XYZ	95

TABLE: CLIENT

C_ID	ClientName	City	P_ ID
01	Cosmetic Shop	Delhi	FW05
06	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty Woman	Delhi	FW12
16	Dreams	Bengaluru	TP01

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write MySQL commands for the following questions

(a) To display the details of those Clients, whose City is Delhi.
(b) To display the details of products, whose Price is in the range of 50 to 100 (both values included).
(c) To display the ClientName, City from table CLIENT and ProductName and Price from table PRODUCT, with their corresponding matching P_ID.
(d) To increase the Price of all products by 10.

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write the output for the following SQL commands

```
(e) SELECT DISTINCT City FROM CLIENT;
(f) SELECT Manufacturer, MAX(Price), MIN(Price),
    Count(*) FROM PRODUCT GROUP BY Manufacturer;
(g) SELECT ClientName, Manufacturer FROM PRODUCT,
    CLIENT  WHERE CLIENT. P_ID = PRODUCT . P_ID ;
(h) SELECT ProductName, Price * 4 FROM PRODUCT;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write MySQL commands for the following questions

```
(a) SELECT * FROM CLIENT WHERE City=' Delhi ' ;
(b) SELECT * FROM PRODUCT WHERE Price BETWEEN
    50 AND 100;
(c)  SELECT ClientName, City, ProductName,
     Price FROM CLIENT, PRODUCT WHERE
     CLIENT.P_ID = PRODUCT.P_ID;
(d)  UPDATE PRODUCT SET Price = Price + 10;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

(e)

DISTINCT City
Delhi
Mumbai
Bengaluru

(f)

Manufacturer	MAX (Price)	MIN (Price)	Count(*)
LAK	40	40	1
ABC	55	45	2
XYZ	120	95	2

(g)

ClientName	Manufacturer
Cosmetic Shop	ABC
Total Health	ABC
Live Life	XYZ
Pretty Woman	XYZ
Dreams	LAK

(h)

ProductName	Price * 4
Talcom Powder	160
Face Wash	180
Bath Soap	220
Shampoo	480
Face Wash	380

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

TABLE: FLIGHTS

FL_NO	STARTING	ENDING	NO_FLIGHT	NO_STOPS
IC301	MUMBAI	DELHI	8	0
IC799	BENGALURU	DELHI	2	1
MC101	INDORE	MUMBAI	3	0
IC302	DELHI	MUMBAI	8	0
AM812	KANPUR	BENGALURU	3	1
IC899	MUMBAI	KOCHI	1	4
AM501	DELHI	TRIVANDRUM	1	5
MU499	MUMBAI	MADRAS	3	3
IC701	DELHI	AHMEDABAD	4	0

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

TABLE: FARES

FL_NO	AIRLINES	FARE	TAX%
IC701	INDIAN AIRLINES	6500	10
MU499	SAHARA	9400	5
AM501	JET AIRWAYS	13450	8
IC899	INDIAN AIRLINES	8300	4
IC302	INDIAN AIRLINES	4300	10
IC799	INDIAN AIRLINES	10500	10
MC101	DECCAN AIRLINES	3500	4

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write MySQL commands for the following questions

(a)Display FL_NO and NO_FLIGHT from KANPUR to BENGALURU from the table FLIGHTS.

(b) Arrange the contents of the table FLIGHTS in the ascending order of FL_NO.

(c) Display the FL_NO and fare to be paid for the flights from DELHI to MUMBAI using the tables FLIGHTS and FARES, where the fare to be paid = FARE + FARE * TAX /100.

(d) Display the minimum fare INDIAN AIRLINES is offering from the table FARES.

PLEAS
WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

```
(e)SELECT FL_NO, NO_FLIGHT, AIRLINES FROM FLIGHTS,
   FARES WHERE STARTING = 'DELHI' AND
   FLIGHTS.FL_NO = FARES.FL_NO;

(f) SELECT COUNT (DISTINCT ENDING) FROM FLIGHTS;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

```
(a)SELECT FL_NO, NO_FLIGHT FROM FLIGHTS WHERE
   STARTING = 'KANPUR' AND ENDING = 'BENGALURU';
(b)SELECT * FROM FLIGHTS ORDER BY FL_NO;
(c)SELECT FL_NO, FARE + FARE * TAX/100 FROM FARES
   WHERE FL_NO = (SELECT FL_NO FROM FLIGHTS WHERE
   STARTING = 'DELHI' AND ENDING = 'MUMBAI');
(d)SELECT MIN(FARE) FROM FARES GROUP BY AIRLINES
   HAVING AIRLINES = 'INDIAN AIRLINES';
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

(e)

FL_No	NO_FLIGHT	AIRLINES
IC302	8	INDIAN AIRLINES
AM501	1	JET AIRWAYS
IC701	4	INDIAN AIRLINES

(f)

COUNT (DISTINCT ENDING)
7

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

TABLE: SHOPPE

Id	SName	Area
S001	ABC Computeronics	CP
S002	All Infotech Media	GK II
S003	Tech Shoppe	CP
S004	Geeks Tecno Soft	Nehru Place
S005	Hitech Tech Store	Nehru Place

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

TABLE: ACCESSORIES

No	Name	Price	Id
A01	Mother Board	12000	S01
A02	Hard Disk	5000	S01
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board	13000	S02
A06	Keyboard	400	S03
A07	LCD	6000	S04
T08	LCD	5500	S05
T09	Mouse	350	S05
T10	Hard Disk	4500	S03

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write the SQL queries:

(i) To display Name and Price of all the Accessories in ascending order of their Price.

(ii) To display Id and SName of all Shoppe located in Nehru Place.

(iii) To display Minimum and Maximum Price of each Name of Accessories.

(iv) To display Name, Price of all Accessories and their respective SName, where they are available.

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write the output of the following SQL commands:

```
(i)SELECT DISTINCT(NAME) FROM ACCESSORIES WHERE
   PRICE>=5000;
(ii)SELECT AREA,COUNT(*) FROM SHOPPE GROUP BY AREA;
(iii)SELECT COUNT (DISTINCT AREA) FROM SHOPPE:
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL queries answers:

```
(i) SELECT Name, Price FROM ACCESSORIES ORDER BY Price;
(ii) SELECT Id, SName FROM SHOPPE WHERE Area ='Nehru Place';
(iii)SELECT MIN(Price) as "Minimum Price", MAX(Price) as
  "Maximum Price", Name FROM ACCESSORIES GROUP BY Name;
(iv)SELECT Name, Price, SName FROM ACCESSORIES A, SHOPPE S
    WHERE A.Id = S.Id;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL queries answers:

(b) (i)

NAME
Mother Board
Hard Disk
LCD

(ii)

AREA	COUNT(*)
GK II	1
Nehru Place	2
CP	2

(iii)

COUNT (DISTINCTAREA)
3

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

1. Write two examples of DML commands in MySQL.

Answer: Two examples of DML commands are: SELECT, INSERT

2. When using the LIKE clause, which wildcard symbol represents any sequence of none, one or more characters?

Answer: The % wildcard symbol is used in LIKE clause to represent any sequence of none, one or more characters.

3. Write the UPDATE statement in MySQL to increase commission by 100.00 in the “Commission” column in the ‘EMP’ table.

Answer:

UPDATE Emp SET Commission = Commission + 100;

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

4. Rewrite the following SQL statement after correcting the error(s). Underline the corrections made.

```
INSERT IN STUDENT(RNO, MARKS) VALUE 5, 78.5);
```

Answer:

```
INSERT INTO STUDENT(RNO, MARKS) VALUES(5, 78.5);
```

5. Distinguish between ALTER TABLE and UPDATE commands of MySQL.

Answer: ALTER TABLE command is a DDL (Data Definition Language) statement which is used to modify the table structure. On the other hand UPDATE command is a DML (Data Manipulation Language) statement which is used to modify the data stored in a table.

6. Mention two categories in which MySQL commands are broadly classified.

Answer: Two categories of Mysql commands are:

DDL (Data Definition Language)

DML (Data Manipulation Language)

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

7. Give two characteristics of Primary Key.

Answer: Two characteristics of Primary Key are:

All the values in the Primary Key field are unique.

Does not allow NULL values.

8. Write two examples of DBMS software.

Answer: Two examples of DBMS Software are:

MySQL

Oracle

9. Define a foreign key with reference to RDBMS.

Answer: Foreign Key It is primary key of another table. It's used to join two tables. Name of the foreign key and the primary key may or may not be same but their data type has to be same.

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

10. Write the command to display the list of existing databases.
Answer:
The command to display list of existing databases are as follows:

```
Show databases;
```

11. Write MySQL command to open an existing database.
Answer: The command to open an existing database is as follows:

```
USE database_name;
```

12. Differentiate between alternate key and candidate key.
Answer: The attribute or a combination of attributes that have unique values for each record known as candidate key whereas a candidate key that is not the primary key is known as an alternate key.

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

13. Differentiate between SQL commands DROP TABLE and DROP VIEW.

Answer:

Difference between DROP TABLE and DROP VIEW DROP TABLE command deletes the definition of the table as well as the data of table. If the table is dropped, you cannot access it. While DROP VIEW command only deletes the definition of view. Dropping a view does not affect the base tables, i.e. no loss of data is there in DROP VIEW.

Syntax of DROP View is- DROP VIEW viewname;

14. Mr. James created a table CLIENT with 2 rows and 4 columns. He added 2 more rows to it and deleted one column. What is the Cardinality and Degree of the Table CLIENT?

Answer: Cardinality = 4 ,Degree = 3

Cardinality are the number of rows and degree is number of the columns in a table.

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

15. Mr.Gopi Krishna is using a table EMPLOYEE. It has the following columns: Code, Name, Salary, Deptcode He wants to display maximum salary Department wise.

He wrote the following command:

```
SELECT Deptcode,Max(Salary) FROM EMPLOYEE;
```

But he did not get desired result.

Rewrite the above query with necessary change to help him get the desired output.

Answer:

```
SELECT Deptcode,Max(Salary) FROM EMPLOYEE GROUP BY
Deptcode ;
```

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

16. Write MySQL command, which will open an already existing database “CONTACTS.

Answer:

The SQL command to open an already existing database CONTACTS will be as follows:

```
Use CONTACTS;
```

17. Sarthak, a student of class XI created a table “CLASS”. Grade is one of the column of this table. To find the details of students whose Grades have not been entered, he wrote the following MySQL query, which did not give the desired result

```
SELECT * FROM CLASS WHERE GRADE = "NULL”
```

Help Sarthak to run the query by removing the errors from the query and write the correct query

Answer: The correct query is

```
SELECT * FROM CLASS WHERE GRADE IS NULL;
```

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

18. Create table STUDENT as per following Table Instance Chart

PLEASE WRITE

Column_Name	DataType	Length
Roll_No	Integer	
Name	Varchar	30
Address	Varchar	20
Pincode	Integer	
Phone	Varchar	10

Answer:

The SQL command to create a table as per given structure is as follows:

```
CREATE TABLE STUDENT(Roll_No INTEGER, Name VARCHAR(30),
Address VARCHAR(20), Pincode INTEGER, Phone VARCHAR(10));
```

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

19. Mr. William wants to remove all the rows from INVENTORY table to release the storage space, but he does not want to remove the structure of the table. What MySQL statement should be used?

Answer:

The command to delete all rows from the Inventory table without deleting the structure of the table will be as follows:

```
DELETE FROM INVENTORY;
```

STRUCTURED QUERY LANGUAGE(MySQL)

SQL question and answers:

PLEASE WRITE

20. In MySQL Reena and Zebi are getting the following output of SELECT statement on a table EMPLOYEE. Which keyword has Zebi used with a select statement to get the above output?

Reena	Zebi
Lucknow	Lucknow
Delhi	Delhi
Mumbai	Mumbai
Delhi	Kanpur
Kanpur	
Delhi	

Answer:

Zebi has used the keyword DISTINCT with the SELECT command.

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL queries for (a) to (f) and write the outputs for (g) parts (i) to (iv) on the basis of tables

PLEASE WRITE

TABLE: APPLICANTS

No.	NAME	FEE	GENDER	C_ID	JOINYEAR
1012	Amandeep	30000	M	A01	2012
1102	Avisha	25000	F	A02	2009
1103	Ekant	30000	M	A02	2011
1049	Arun	30000	M	A03	2009
1025	Amber	40000	M	A02	2011
1106	Ela	40000	F	A05	2010
1017	Nikita	35000	F	A03	2012
1108	Arluna	30000	F	A03	2012
2109	Shakti	35000	M	A04	2011
1101	Kirat	25000	M	A01	2012

TABLE: COURSES

C_ID	COURSE
A01	FASHION DESIGN
A02	NETWORKING
A03	HOTEL MANAGEMENT
A04	EVENT MANAGEMENT
A05	OFFICE MANAGEMENT

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL queries for (a) to (f) and write the outputs for (g) parts (i) to (iv)

PLEASE WRITE

(a) To display NAME, FEE, GENDER, JOINYEAR about the APPLICANTS, who have joined before 2010.

(b) To display the names of applicants, who are paying FEE more than 30000.

(c) To display the names of all applicants in ascending order of their joinyear.

(d) To display the year and the total number of applicants joined in each year from the table APPLICANTS.

(e) To display the CJD and the number of applicants registered in the course from the APPLICANTS table.

(f) To display the applicant's name with their respective course's name from the tables APPLICANTS and COURSES.

STRUCTURED QUERY LANGUAGE(MySQL)

(g) Give the output of the following SQL statements:

```
(i)SELECT NAME,JOINYEAR FROM APPLICANTS WHERE GENDER='F' AND
   C_ID= 'A02' ;
(ii)SELECT MIN (JOINYEAR) FROM APPLICANTS WHERE GENDER='M' ;
(iii)SELECT AVG(FEE) FROM APPLICANTS WHERE C_ID='A01' OR
     C_ID='A05';
(iv)SELECT SUM(FEE), C_ID FROM APPLICANTS GROUP BY C_ID
    HAVING COUNT(*)= 2;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL queries answers:

PLEASE WRITE

```
(a) SELECT NAME, FEE, GENDER, JOINYEAR FROM APPLICANTS
    WHERE JOINYEAR < 2010;
(b) SELECT NAME FROM APPLICANTS WHERE FEE>30000;
(c) SELECT NAME FROM APPLICANTS ORDER BY JOINYEAR;
(d) SELECT JOINYEAR, COUNT(*) FROM APPLICANTS GROUP BY
   JOINYEAR;
(e) SELECT C_ID,COUNT(*) FROM APPLICANTS GROUP BY C_ID;
(f) SELECT NAME, COURSE FROM APPLICANTS, COURSES WHERE
    APPLICANTS.C_ID = COURSES.C_ID;
```

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

SQL output question answers:

(g) (i)

NAME	JOINYEAR
Avisha	2009

(ii)

MIN (JOINYEAR)
2009

(iii)

AVG (FEE)
31666.666

(iv)

SUM(FEE)	C_ID
55000	A01

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

Write SQL queries for (a) to (d) and write the outputs for (e) to (h) on the basis of tables

TABLE: GARMENT

GCODE	DESCRIPTION	PRICE	FCODE	READYDATE
10023	PENCIL SKIRT	1150	F03	19-DEC-08
10001	FORMAL SHIRT	1250	F01	12-JAN-08
10012	INFORMAL SHIRT	1550	F02	06-JUN-08
10024	BABY TOP	750	F03	07-APR-07
10090	TULIP SKIRT	850	F02	31-MAR-07
10019	EVENING GOWN	850	F03	06-JUN-08
10009	INFORMAL PANT	1500	F02	20-OCT-08
10007	FORMAL PANT	1350	F01	09-MAR-08
10020	FROCK	850	F04	09-SEP-07
10089	SLACKS	750	F03	20-OCT-08

TABLE: FABRIC

FCODE	TYPE
F04	POLYSTER
F02	COTTON
F03	SILK
F01	TERELENE

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL queries for (a) to (d) and write the outputs for (e) to (h) on the basis of tables

PLEASE WRITE

(a) To display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE.

(b) To display the details of all the GARMENTS, which have READYDATE in between 08-DEC-07 and 16-JUN-08 (inclusive of both the dates).

(c) To display the average PRICE of all the GARMENTS. Which are made up of FABRIC with FCODE as F03.

(d) To display FABRIC wise highest and lowest price of GARMENTS from GARMENT table. (Display FCODE of each GARMENT along with highest and lowest price.)

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

Give the output of the following SQL statements:

```
(e) SELECT SUM(PRICE) FROM GARMENT WHERE FCODE = 'F01';
(f) SELECT DESCRIPTION, TYPE FROM GARMENT, FABRIC WHERE
    GARMENT.FCODE = FABRIC.FCODE AND GARMENT.PRICE >=1260:
(g) SELECT MAX(FCODE) FROM FABRIC;
(h) SELECT COUNT(DISTINCT PRICE) FROM GARMENT;
```

STRUCTURED QUERY LANGUAGE(MySQL)

SQL queries answers:

PLEASE WRITE

```
(a) SELECT GCODE, DESCRIPTION FROM GARMENT ORDER BY
    GCODE DESC;
(b) SELECT*FROM GARMENT WHERE READYDATE BETWEEN '08-DEC-07'
    AND '16-JUN-08';
(c) SELECT AVG(PRICE) FROM GARMENT WHERE FCODE = 'F03' ;
(d) SELECT FCODE, MAX(PRICE), MIN(PRICE) FROM GARMENT
    GROUP BY FCODE;
```

STRUCTURED QUERY LANGUAGE(MySQL)

SQL output question answers:

PLEASE WRITE

(e)

SUM(PRICE)
2600

(f)

DESCRIPTION	TYPE
INFORMAL SHIRT	COTTON
INFORMAL PANT	COTTON
FORMAL PANT	TERELENE

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

SQL output question answers:

(g)

MAX(FCODE)
F04

(h)

COUNT (DISTINCT PRICE)
7

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

Write SQL queries for (a) to (d) and write the outputs for (e) to (h) on the basis of tables

TABLE: SENDER

SenderID	SenderName	SenderAddress	SenderCity
ND01	R Jain	2, ABC Appts	New Delhi
MU02	H Sinha	12, Newtown	Mumbai
MU15	S Jha	27/A, Park Street	Mumbai
ND50	T Prasad	122-K, SDA	New Delhi

TABLE: RECIPIENT

RecID	SenderID	RecName	RecAddress	RecCity
KO05	ND01	R Bajpayee	5, Central Avenue	Kolkata
ND08	MU02	S Mahajan	116, A Vihar	New Delhi
MU19	ND01	H Singh	2A, Andheri East	Mumbai
MU32	MU15	P K Swamy	B5, C S Terminus	Mumbai
ND48	ND50	S Tripathi	13, B1 D, Mayur Vihar	New Delhi

STRUCTURED QUERY LANGUAGE(MySQL)

PLEASE WRITE

Write SQL queries for (a) to (d) and write the outputs for (e) to (h) on the basis of tables

(a) To display the names of all Senders from Mumbai.
(b) To display the RecID, SenderName, SenderAddress, RecName, RecAddress for every Recipient.
(c) To display Recipient details in ascending order of RecName.
(d) To display number of Recipients from each City.

STRUCTURED QUERY LANGUAGE(MySQL)

Give the output of the following SQL statements:

PLEASE WRITE

```
(e) SELECT DISTINCT(SenderCity) FROM SENDER;
(f) SELECT A.SenderName, B.RecName FROM SENDER A,
    RECIPIENT B WHERE A.SenderID = B.SenderID AND
    B.RecCity = 'Mumbai';
(g) SELECT RecName, RecAddress FROM RECIPIENT WHERE
    RecCity NOT IN ('Mumbai', 'Kolkata');
(h) SELECT RecID, RecNam FROM RECIPIENT WHERE SenderlD =
   'MU02' OR SenderlD = ' ND50 ’ ;
```

STRUCTURED QUERY LANGUAGE(MySQL)

SQL queries answers:

```
(a) SELECT SenderName FROM SENDER WHERE SenderCity = 'Mumbai';
(b) SELECT RecID, SenderName, SenderAddress, RecName,
    RecAddress FROM RECIPIENT, SENDER WHERE RECIPIENT.SenderID
    = SENDER.SenderID;
(c) SELECT * FROM RECIPIENT ORDER BY RecName;
(d) SELECT COUNT(*) As "No. of Recipients", RecCity FROM
    RECIPIENT GROUP BY RecCity ;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL output question answers:

(e)

Distinct SenderCity
New Delhi
Mumbai

(f)

SenderName	RecName
R Jain	H Singh
S Jha	P K Swamy

(g)

RecName	RecAddress
S Mahajan	116, A Vihar
S Tripathi	13,B1D, Mayur Vihar

PLEASE WRITE

(h)

RecID	RecName
ND08	S Mahajan
ND48	S Tripathi

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL queries for (a) to (d) and write the outputs for (e) to (h) on the basis of tables

TABLE: BOOKS

Book_Id	Book_Name	Author_Name	Publishers	Price	Type	Qty
F0001	The Tears	William Hopkins	First Publ	750	Fiction	10
F0002	Thunderbolts	Anna Roberts	First Publ	700	Fictioin	5
T0001	My First C++	Brain & Brooke	EPB	250	Text	10
T0002	C++ Brainworks	A.W. Rossaine	TDH	325	Text	5
C0001	Fast Cook	Lata Kapoor	EPB	350	Cookery	8

TABLE: ISSUED

Book_Id	Quantity_Issued
F0001	3
T0001	1
C0001	5

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL queries for (a) to (f) and write the outputs for (g) (i) to iv) on the basis of tables

(a) To show Book name, Author name and Price of books of EPB Publishers.

(b) To list the names from books of Fiction type.

(c) To display the names and price of the books in descending order of their price.

(d) To increase the price of all books of First Publ by 50.

(e) To display the Book_Id, Book_Name and Quantity_issued for all books which have been issued.
(The query will require contents from both the tables.)

(f) To insert a new row in the table ISSUED having the following data'F0002', 4

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

Write SQL queries for (a) to (f) and write the outputs for (g) (i) to (iv) on the basis of tables

Give the output of the following queries based on the above tables:

```
(i)SELECT COUNT (DISTINCT Publishers) FROM BOOKS;
(ii)SELECT SUM( Price) FROM BOOKS WHERE Qty > 5;
(iii)SELECT Book_Name, Author_Name FROM BOOKS WHERE
   Price < 500;
(iv)SELECT COUNT(*) FROM BOOKS;
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL queries answers:

```
(a) SELECT Book_Name, Author_Name, Price FROM BOOKS WHERE
    Publishers = 'EPB' ;
(b) SELECT Book_Name FROM BOOKS WHERE Type = 'Fiction';
(c) SELECT Book_Name, Price FROM BOOKS ORDER BY Price DESC;
(d) UPDATE BOOKS SET Price = Price + 50 WHERE Publishers =
    'First Publ' ;
(e) SELECT a.Book_Id, a.Book_Name, b.Quantity_Issued FROM
    BOOKS a, Issued b WHERE a.Book_Id = b.Book_Id;
(f) INSERT INTO ISSUED VALUES('F0002',4);
```

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL output question answers:

(i)

COUNT(DISTINCT Publishers)
3

(ii)

SUM(Price)
1350

(iii)

Book_Name	Author_Name
My First C++	Brain & Brooke
C++ Brainworks	A.W. Rossaine
Fast Cook	Lata Kapoor

(iv)

COUNT(*)
5

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL LAB WORKSHEET-1:

1.CREATE TABLE EMPLOYEE **(**EmpNo integer not null primary key,
Name varchar(20) not null,
Dept varchar(20) not null,
Salary decimal(10,2) default 2000**);**

2. INSERT INTO EMPLOYEE VALUES (1002, 'Varun', 'Sales', 30000),
(1003, 'Devesh', 'Accounts', 34000),
(1004, 'Krishnan', 'Sales', 25000),
(1005, 'Abdul', 'Stores', 38000),
(1006, 'Arun', 'Production', 35000));

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL LAB WORKSHEET-1:

3. DESC EMPLOYEE ;
4. SELECT NAME ‘gets a salary’, SALARY ‘for the employees in’, DEPT ‘Department’ FROM EMPLOYEE ;
5. SELECT DISTINCT(DEPT) FROM EMPLOYEE ;
6. ALTER TABLE EMPLOYEE ADD Bonus decimal(10,2) ;
7. UPDATE EMPLOYEE SET BONUS = (SALARY * 20)/100.00 ;
8. ALTER TABLE EMPLOYEE ADD NETPAY decimal(10,2) ;
9. UPDATE EMPLOYEE SET NETPAY = SALARY + BONUS ;
10. SELECT NAME FROM EMPLOYEE WHERE SALALRY BETWEEN 20000 AND 50000 ;
11. SELECT * FROM EMPLOYEE WHERE NAME LIKE “%n” ;
12. SELECT NAME FROM EMPLOYEE WHERE NAME LIKE “A%” ;
13. SELECT DEPT,SALARY FROM EMPLOYEE WHERE NAME LIKE “_ _ _ _ _” ;
14. SELECT * FROM EMPLOYEE WHERE NAME LIKE “%sh%” ;
15. ALTER TABLE EMPLOYEE MODIFY Dept varchar(12)

PLEASE WRITE

STRUCTURED QUERY LANGUAGE(MySQL)

SQL LAB WORKSHEET-1:

16. DELETE FROM EMPLOYEE WHERE Dept = “Sales” ;
17. ALTER TABLE EMPLOYEE DROP COLUMN BONUS;
18. DROP TABLE EMPLOYEE ;

PLEASE WRITE