QUESTIONS & ANSWERS on MySQL

Q.1. What is MySQL?

Ans:- It is an Open Source RDBMS Software. It is available free of cost.

Q.2. What is SQL?

Ans . SQL is Non-procedural universal data access language used to access and manipulate data stored in nearly all the data bases available currently. SQL standards are defined by ANSI (American National Standards Institute). SQL statements are used to retrieve and update data in a database. SQL works with database programs like MySQL, MS Access, DB2, Informix, MS SQL Server, Oracle, Sybase, etc.

Q.3. Differentiate between DDL and DML?

Ans Data Definition Language (DDL): This is a category of SQL commands. All the commands which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER. Data Manipulation Language (DML): This is a category of SQL commands. All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE.

Q.4 What is a constraint?

Ans : A constraints is a condition or check application on a field or set of fields.

Example: NOT NULL (ensure that column con not have null value), CHECK (make sure that all value satisfy certain criteria), UNIQUE (ensure that all values in a column are different) etc.

Q5 What are single row functions ?

Ans: Single Row Function work with a single row at a time. A single row function returns a result for every row of a queried table.

Examples of Single row functions are Sqrt(), Concat(), Lcase(), Upper(), Day(), etc.

Q. 6 Compare CHAR and VARCHAR data types.

Ans. The CHAR data-type stores fixed length strings such that strings having length smaller than the field size are padded on the right with spaces before being stored.

The VARCHAR on the other hand supports variable length strings and therefore stores strings smaller than the field size without modification.

Q.7 What are the differences between DELETE and DROP commands of SQL?

Ans: DELETE is DML command while DROP is a DDL command. Delete is used to delete rows from a table while DROP is used to remove the entire table from the database.

Q8 What do you understand by MySQL Server?

Ans:MySQL server listens for clients requests coming in over the network and accesses database contents according to those requests and provides that to the client.

Q9 What do you understand by MySQL Client?

Ans:MySQL Clients are programs that connect to MySQL Server and issue queries in predefined format.

Q.10 Explain with the help of an example that why should a transaction be executed as a whole or it should be not executed at all.

Ans: Suppose Raunak's account number is 3246 and his aunt's account number is 5135. In order to process the cheque presented by Raunak, the following two SQL commands need to be executed on the database maintained by the bank:

```
UPDATE Savings SET balance = balance - 2000
WHERE account_no = 5135;
UPDATE Savings SET balance = balance + 2000
WHERE account_no = 3246;
```

The above two Updates should both take place. If the first Update takes place and there is a system failure, the first updation should be undone. Either both the updations should be done and if it is not possible for both the updations to be done, then no updation should be done.

Query Based question & answers

1. The Pincode column of table 'Post' is given below-

.Pincode
10001
120012
300048
281001

i. SELECT Pincode from Post where Pincode LIKE " %1" ;

ii. SELECT Pincode from Post where Pincode LIKE " 0%" ;

Ans:

i) 110001 ii) No Output

2. A table "Animals" in a database has 3 columns and 10 records. What is the degree and cardinality of this table?

Ans: Degree 3 and Cardinality=10

3. Answer the question based on the table VOTER given below:

Table : VOTER

Column Name	Data type	Size	Constraints	Description
V_id	BIGINT	8	Primary key	Voter identification
Vname	VARCHAR	25	Not null	Name of the voter
Age	INT	3	Check>17	Age should not less than equal to 17
Address	VARCHAR2	30		Address of voter
Phone	VARCHAR	10		Phone number of the voter

(i) Write the command to delete all the rows of particular voter from the table voter where voter ID between 10 and 20.

Ans: Delete from VOTER where V_id between 10 and 20;

(ii) Delete the table physically.

Ans: Drop table VOTER;

4. . Write MySql command to create a furniture table including all constraint.

Table: Furniture

ITEMNO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
INT	VARCHAR	VARCHAR	DATE	INT	INT
5	20	20		6	2
PRIMARY KEY	NOT NULL		DEFAULT '19/03/2010'		

CREATE TABLE FURNITURE

(ITEMNO INT(5) PRIMARY KEY, ITEMNAME VARCHAR(20) NOT NULL,

TYPE VARCHAR(20),DATE_STOCK DATE DEFAULT '2012/03/19', PRICE INT(6), DISCOUNT INT(2));

5. Consider a database LOANS with the following table:

Table: Loan_Accounts

AccNo	Cust_Name	Loan_Amount	Instalments	Int_Rate	Start_Date	Interest
1	R.K. Gupta	300000	36	12.00	19-07-2009	
2	S.P. Sharma	500000	48	10.00	22-03-2008	
3	K.P. Jain	300000	36	NULL	08-03-2007	
4	M.P. Yadav	800000	60	10.00	06-12-2008	
5	S.P. Sinha	200000	36	12.50	03-01-2010	
6	P. Sharma	700000	60	12.50	05-06-2008	
7	K.S. Dhall	500000	48	NULL	05-03-2008	

Answer the following questions.

Create Database and use it

1. Create the database LOANS.

   Mysql> Create Database LOANS;

2. Use the database LOANS.

   Mysql> Use LOANS;

Create Table / Insert Into

3. Create the table Loan_Accounts and insert tuples in it.

   Mysql>Create table Loan_Acc (AccNo int primary key,

   Cust_Name varchar(30), Loan_Amount int, Installment int, Int_Rate number(5,3),

   Start_Date date, Interest number(7,2));

   Mysql> Insert into Loan_Acc values(1,'R.K. GUPTA',300000,36,12.0.'2009-07-19');

Simple Select

4. Display the details of all the loans.

   Mysql> Select * from Loan_Acc;

5. Display the AccNo, Cust_Name, and Loan_Amount of all the loans.

   Mysql> Select Acc_No,Cust_Name,Loan_Amount from Loan_Acc;

Conditional Select using Where Clause

6 Display the details of all the loans with less than 40 instalments.

   Mysql> Select * from Loan_Acc where Instalment <40;

7. Display the AccNo and Loan_Amount of all the loans started before 01-04-2009.

   Mysql> Select AccNo, Loan_Amount from Loan_Acc where Start_Date <'2009-04-01'; 8. Display the Int_Rate of all the loans started after 01-04-2009.

   Mysql> Select Int_Rate from Loan_Acc where Start_date>'2009-04-01';

Using NULL

8. Display the details of all the loans whose rate of interest is NULL.

   Mysql> Select * from Loan_Acc where Int_rate is NULL;

9. Display the details of all the loans whose rate of interest is not NULL.

   Mysql> Select * from Loan_Acc where Int_rate is not NULL;

Using DISTINCT Clause

10. Display the amounts of various loans from the table Loan_Accounts. A loan amount should appear only once.

```
Mysql> Select DISTINCT Loan_Amount from Loan_Acc;
```

11. Display the number of instalments of various loans from the table Loan_Accounts. An instalment should appear only once..

```
Mysql> Select DISTINCT Instalment from Loan_Acc;
```

Using Logical Operators (NOT, AND, OR)

12. Display the details of all the loans started after 31-12-2008 for which the number of instalments are more than 36.

```
Mysql> Select * from Loan_Acc where Start_Date>'2008-12-31' and Instalment>36;
```

13. Display the Cust_Name and Loan_Amount for all the loans which do not have number of instalments 36.

```
Mysql> Select Cust_Name, Loan_Amount from Loan_Acc where Instalment <>36;
```

14. Display the Cust_Name and Loan_Amount for all the loans for which the loan amount is less than 500000 or int_rate is more than 12.

```
Mysql> Select Cust_Name, Loan_Amount from Loan_Acc where Loan_Amount <500000 or
Int_rate>12;
```

15. Display the details of all the loans which started in the year 2009.

```
Mysql> Select * from Loan_Acc where Year(Start_Date)=2009;
```

16. Display the details of all the loans whose Loan_Amount is in the range 400000 to 500000.

```
Mysql> Select * from Loan_Acc where Loan_Amount between 400000 and 50000;
```

17. Display the details of all the loans whose rate of interest is in the range 11% to 12%.

```
Mysql> Select * from Loan_Acc where Int_Rate between 11 and 12;
```

Using IN Operator

19. Display the Cust_Name and Loan_Amount for all the loans for which the number of instalments are 24, 36, or 48. (Using IN operator)

```
Mysql> Select Cust_Name, Loan_Amount from Loan_Acc where Instalment IN(24,36,48);
```

Using LIKE Operator

20. Display the AccNo, Cust_Name, and Loan_Amount for all the loans for which the Cust_Name ends with 'Sharma'.

```
Mysql> Select AccNo, Cust_name from Loan_Acc where
Cust_Name like '%Sharma';
```

21. Display the AccNo, Cust_Name, and Loan_Amount for all the loans for which the Cust_Name ends with 'a'.

```
Mysql> Select AccNo, Cust_name,Loan_Amount from Loan_Acc where Cust_Name like '%a';
```

22. Display the AccNo, Cust_Name, and Loan_Amount for all the loans for which the Cust_Name contains 'a'

```
Mysql> Select AccNo, Cust_name,Loan_Amount from Loan_Acc where
```

Cust_Name like '%a%';

23. Display the AccNo, Cust_Name, and Loan_Amount for all the loans for which the Cust_Name does not contain 'P'.

Mysql> Select AccNo, Cust_name,Loan_Amount from Loan_Acc where NOT (Cust_Name like '%P%');

24. Display the AccNo, Cust_Name, and Loan_Amount for all the loans for which the Cust_Name contains 'a' as the second last character.

Mysql> Select AccNo, Cust_name,Loan_Amount from Loan_Acc where Cust_Name like '%a_';

Using ORDER BY clause

25. Display the details of all the loans in the ascending order of their Loan_Amount.

Mysql> Select * from Loan_Acc ORDER BY Loan_Amount;

28. Display the details of all the loans in the descending order of their Start_Date.

Mysql> Select * from Loan_Acc ORDER BY Start_date DESC;

29. Display the details of all the loans in the ascending order of their Loan_Amount and within Loan_Amount in the descending order of their Start_Date.

Mysql> Select * from Loan_Acc ORDER BY Loan_Amount, Start_Date DESC;

Using UPDATE, DELETE, ALTER TABLE

30. Put the interest rate 11.50% for all the loans for which interest rate is NULL.

Mysql> Update Loan_Acc SET Int_Rate =11.50 Where Int_Rate IS NULL:

31. Increase the interest rate by 0.5% for all the loans for which the loan amount is more than 400000.

Mysql> Update Loan_Acc SET Int_Rate= Int_Rate+0.5
Where Loan_Amount >400000;

32. For each loan replace Interest with (Loan_Amount*Int_Rate*Instalments) 12*100.

Mysql> Update Loan_Acc
SET Interest=(Loan_Amount*Int_Rate*Instalments) /12*100;

33. Delete the records of all the loans whose start date is before 2007.

Mysql> Delete From Loan_Acc Where Year(Start_Date)<2007;

34. Delete the records of all the loans of 'K.P. Jain'

Mysql> Delete From Loan_Acc Where Cust_Name='K.P.Jain';

35. Add another column Category of type CHAR(1) in the Loan table.

Mysql> Alter Table Loan_Acc ADD (Category CHAR(1));

Find the Output of the following queries

36.

SELECT cust_name, LENGTH(Cust_Name), LCASE(Cust_Name), UCASE(Cust_Name) FROM Loan_Accounts WHERE Int_Rate < 11.00;

Cust_Name	Length(Cust_Name)	LCASE(Cust_Name)	UCASE(Cust_Name)
S.P. Sharma	11	s.p. sharma	S.P. SHARMA
M.P. Yadav	10	m.p. yadav	M.P. YADAV

37.

SELECT LEFT(Cust_Name, 3), Right(Cust_Name, 3), SUBSTR(Cust_Name, 1, 3) FROM Loan_Accounts WHERE Int_Rate > 10.00;

LEFT(Cust_Name, 3)	Right(Cust_Name, 3)	SUBSTR(Cust_Name, 1, 3)
R.K	pta	R.K
S.P	nha	S.P
P.	Rma	P.

38. SELECT RIGHT(Cust_Name, 3), SUBSTR(Cust_Name, 5) FROM Loan_Accounts;

RIGHT(Cust_Name, 3)	SUBSTR(Cust_Name, 5)
pta	Gupta
rma	Sharma
ain	Jain
dav	Yadav
nha	Sinha
rma	harma
all	Dhall

39. SELECT DAYOFMONTH(Start_Date) FROM Loan_Accounts;

DAYOFMONTH(Start_Date)
19
22
08
06
03
05
05