Assignment No. 1
DBMS CONCEPTS

TYPE A : VERY SHORT ANSWER QUESTIONS

1. What is data redundancy? What are the problems associated with it?
2. How do data base management systems overcome the problems associated with data redundancy?
3. How do database management systems ensure data security and privacy?
4. What is data model? Name various data model?
5. Define the following terms:

   (I) DBMS (ii) View (iii) data security (iv) data integrity (v) Relation
   (vi) domain (vii) tuple (viii) attribute (ix) Degree (x) cardinality
6. What are views? How are they useful?
7. What do you mean by referential Integrity? How it is enforced in DBMS?
8. What is Key? Define the following keys-

   (I) Primary key (ii) Candidate key (iii) Alternate key (IV) Foreign key.

TYPE B : SHORT ANSWER QUESTIONS

1. What is Database Management System? Discuss its functions?
2. Why DBMS is mostly used in IT applications. Discuss its advantages.
3. What is Data Abstraction? Draw a diagram explaining various levels of data abstraction.
4. What is meant by “Data independence”? Explain difference between Logical and Physical data independence.
5. What do you mean by data model? Discuss various data model with their major characteristics.

Assignment No. 2

INTRODUCTION TO MYSQL

TYPE A : VERY SHORT ANSWER QUESTIONS

1. What is MySQL? By which company was MySQL developed?

2. Who is chief developer of MySQL? What is name of dolphin logo of MySQL?

3. What LAMP stands for? Write the use of its element applications.

4. What types of commands are used in the following categories?

1. DDL
2. DML
3. TCL
4. System control commands

5. What do you mean by Data dictionary? What it consist of?

TYPE B : SHORT ANSWER QUESTIONS

1. What is MySQL? Describe its features?

2. What is the use of SQL and MySQL?

3. Differentiate between DDL and DML commands?

4. What do you understand by client server architecture of MySQL?

5. What is SQL? Discuss the different categories of commands of SQL?

Assignment No. 3
SIMPLE QUERIES IN SQL

TYPE A: VERY SHORT ANSWER QUESTION

1. What is data type? Name some data types available in MySQL.
2. What are fixed length fields? What are variable length fields?
3. Compare Char and Varchar data types?
4. What is null value in MySQL database? Can you use nulls in arithmetic expressions?
5. Which keyword eliminates the redundant data from a query result?
6. Which keyword retains duplicate output rows in a query result?
7. How would you display system date as the result of a query?
8. How would you calculate 13*15 in SQL?
9. Which function is used to substitute Null values in a query result?
10. Which operator concatenates two strings in a query result?
11. What command is used for-
    1. To change/open a database 2. To view the table structure.
12. Which comparison operator is used for comparing?
    (i) Patterns **(ii)** character value **(iii)** null values **(iv)** ranges **(v)** list of values

TYPE B: SHORT ANSWER QUESTION

Table: Empl

empno	ename	job	mgr	hiredate	sal	comm	deptno
8369	SMITH	CLERK	8902	1990-12-18	800.00	NULL	20
8499	ANYA	SALESMAN	8698	1991-02-20	1600.00	300.00	30
8521	SETH	SALESMAN	8698	1991-02-22	1250.00	500.00	30
8566	MAHADEVAN	MANAGER	8839	1991-04-02	2985.00	NULL	20
8654	MOMIN	SALESMAN	8698	1991-09-28	1250.00	1400.00	30
8698	BINA	MANAGER	8839	1991-05-01	2850.00	NULL	30
8882	SHIVANSH	MANAGER	8839	1991-06-09	2450.00	NULL	10
8888	SCOTT	ANALYST	8566	1992-12-09	3000.00	NULL	20
8839	AMIR	PRESIDENT	NULL	1991-11-18	5000.00	NULL	10
8844	KULDEEP	SALESMAN	8698	1991-09-08	1500.00	0.00	30

1. Consider the Empl table and write SQL command to get the following.
   - **a.** Write a query to display EName and Sal of employees whose salary are greater than or equal to 2200?
   - **b.** Write a query to display details of employs who are not getting commission?
   - **c.** Write a query to display employee name and salary of those employees who don't have their salary in range of 2500 to 4000?
   - **d.** Write a query to display the name, job title and salary of employees who don't have manager?
   - **e.** Write a query to display the name of employee whose name contains "A" as third alphabet?
   - **f.** Write a query to display the name of employee whose name contains "T" as last alphabet?
   - **g.** Write a query to display the name of employee whose name contains "M" as First and "L" as third alphabet?
   - **h.** Write a query to display details of employs with the text "Not given", if commission is null?

2. Write SQL command for the following in the basis of given table (STUDENT)?

Student No.	Class	Name	Game	Grade 1	SUPW	Grade 2
10	7	Sameer	Cricket	B	Photography	A
11	8	Sujit	Tennis	A	Gardening	C
12	7	Kamal	Swimming	B	Photography	B
13	7	Veena	Tennis	C	Cooking	A

(i) Display the names of the student who are getting a grade "C" in either games or SUPW.

(ii) Display the different games offered in the school.

(iii) Display the SUPW taken up by the student whose names starts with "A"

3. Write SQL command for the following on the basis of given table sports.

Student No.	Class	Name	Game 1	Grade 1	Game 2	Grade 2
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	8	Kamal	Cricket	A	Tennis	B

(i) Display the name of the students who have grade C In either game 1 or game 2 or both.

(ii) Display the name of the students who have same grade for both game 1 and game 2.

(iii) Display the games taken up by the student whose name starts with "A"

4. Write SQL command for the following in the basis of given table (Club)?

COACH_ID	COACH	AGE	SPORTS	Dsteofapp	PAY	SEX
1	KUKREJ	35	KARATE	27/3/1996	1000	M
2	RAVINA	34	KARATE	20/01/1998	1200	F
3	KARAN	34	SQUASH	19/02/1998	2000	M
4	TARUN	33	SWIMMIN	01/01/1998	1500	M
5	ZUBIN	36	SWIMMIN	12/01/1998	750	M

a. To show all information about the swimming coaches in the club.

b. To list names of all coaches with their date of appointment in descending order.

c. To display report, showing coachmen pay, age and bonus (15% of pay).

5. Write SQL command for the following in the basis of given table (Student)?

No	Name	Stipend	Stream	Avg	Grad	Clas
1	Karan	400	Medical	78.5	B	12B
2	Diwakar	450	Commerce	89.2	A	11C
3	Divyu	300	Commerce	68.6	C	12C
4	Arun	350	Humanities	73.1	B	12C
5	Sabeena	500	Non	90.6	A	11A

a. Select all the Non medical stream students from this table.

b. List names of those students who are in class 12 stored in stipend.

c. List all student stored by avg marks in descending order.

d. Display a report, listing name, stipend, stream, and amount of stipend received in a year assuming that stipend is paid every month.

6. Write SQL commands for the following on the basis of given table.

Table: LIBRARY

No.	Title	Author	Type	Pub	Qty	Price
1	Data Structure	Lipschu	DS	McGraw	4	217
2	Computer studies	French	FND	Galgotia	2	75
3	Advanced Pascal	Schildt	PRO	McGraw	4	350
4	Dbase dummies	Palmer	DBM	PustakM	5	130
5	Mastering C++	Gurewi	PRO	BPB	3	295

a. Select all the PROG type published by BPB from Library.

b. Display a list of all books with Price more than 130 and stored by Qty.

c. Display all the books stored by Price in ascending order.

7. Write SQL commands for the following on the basis of given table MOV.

No	Title	Type	Ratin	Stars	Qty	Price
1	Gone with the wind	Drama	G	Gable	4	39.95
2	Friday the 13th	Horror	R	Jason	2	69.95
3	Top sun	Drama	PG	Cruise	7	49.95
4	Splash	Comed	PG13	Hanks	3	29.95
5	Independence Day	Drama	R	Turner	3	19.95
6	Risky business	Comed	R	Cruise	2	44.95

a. Display a list of all movies with Price over 20 and sorted by Price.

b. Display all the movies sorted by QTY in descending order.

c. Display a report listing a movie number, current value and replacement value for each movie in the above table. Calculate the replacement value for all movies as QTY *Price* 1.15.

8. Write SQL commands for the following on the basis of given table relation Teacher.

No.	NAME	Age	Department	Dateofjoin	Salary	Sex
1	Jugal	33	Computer	10/01//97	12000	M
2	Sharmila	31	History	23/03/98	20000	F
3	Sandeep	32	Maths	12/12/96	30000	M
4	Sanggeta	35	History	01/07/99	40000	F
5	Rakesh	42	Maths	05/09/97	25000	M
6	Shaym	50	History	27/06/98	30000	M
7	Shiv Om	44	Computer	25/02/97	21000	M
8	Shalakha	33	Math	31/07/97	20000	F

a. To show all information about the teacher of history department.

b. To list the names of female teachers who are in Hindi department.

c. To list names of all teachers with their date of joining in ascending order.

9. Write the Syntax of Select command and describe various options/ keywords used, with example.

10. What do you mean by Operator Precedence? Make a ordered list of operators from highest precedence to lowest.

Assignment No. 4
MySQL FUNCTIONS

TYPE A: VERY SHORT ANSWER QUESTION

1. Define a function. Why they are useful?
2. Differentiate between single row and multiple row functions?
3. What will be the output of following command?
   a. mysql>SELECT CONCAT(CONCAT ('Inform', 'atics'),'Practices');
   b. mysql> SELECT LCASE ('INFORMATICS PRACTICES CLASS !!TH');
   c. mysql> SELECT UCASE ('Computer studies');
   d. mysql> SELECT CONCAT (LOWER ('class'), UPPER ('xii'));
4. Write commands to display the system date.
5. Write a command to display the name of current month.
6. Write SQL statement to display
   Today, the date is <current date>
7. Write command to print the day of the week of your birthday in the year 1999.
8. What is the difference between SYSDATE() and NOW() function?
9. Consider two fields B_date, which stores the birth date and J_date, which stores the joining date of an employee. Write commands to find out and display the approximate age of an employee as on joining date.
10. Consider a field B_date, which stores the birth date of student. Write commands to find out and display the approximate age of student as on today.

TYPE B: SHORT ANSWER QUESTION

1. Given the following table:

TABLE: CLUB

COACH_ID	COACHNAME	AGE	SPORTS	DATOFAPP	PAY	SEX
1	KUKREJA	35	KARATE	1996-03-27	1000	M
2	RAVINA	34	KARATE	1998-01-20	1200	F
3	KARAN	34	SQUASH	1998-02-19	2000	M
4	TARUN	33	BASKETBALL	1998-01-01	1500	M
5	ZUBIN	36	SWIMMING	1998-01-12	750	M
6	KETAKI	36	SWIMMING	1998-02-24	800	F
7	ANKITA	36	SQUASH	1998-02-20	2200	F
8	ZAREEN	37	KARATE	1998-02-22	1100	F
9	KUSH	41	SWIMMING	1998-01-13	900	M
10	SHAILYA	37	BASKETBALL	1998-02-19	1700	M

   Give the output of following SQL statements:
   (i) SELECT LCASE (SPORTS) FROM Club;
   (ii) SELECT MOD (Age, 5) FROM CLUB WHERE Sex ='F';
   (iii) SELECT POWER (3, 2) FROM CLUB WHERE Sports='KARATE';
   (iv) SELECT SubStr (CoachName, 1, 2) FROM CLUB WHERE Datofapp>'1998-01-31';
2. Write a query to show the current date and time.
3. Write a query against the ADDRESS table to show the names (first name, last name) and phones of all persons concatenated in the following form:
   TinaSeth23456789
   MoradK.22211890
4. Write a query for EMPL table to show the names of employees concatenated with their jobtypes.
5. Given the following table-

TABLE: STUDENT

No	Name	Stipend	Stream	AvgMark	Grade	Class
1	Karan	400	Medical	78.5	B	12B
2	Divakar	450	Commerce	89.2	A	11C
3	Divya	300	Commerce	68.6	C	12C
4	Arun	350	Humanities	73.1	B	12C
5	Sabina	500	Nonmedical	90.6	A	11A
6	John	400	Medical	75.4	B	12B
7	Robert	250	Humanities	64.4	C	11A
8	Rubina	450	Nonmedical	88.5	A	12A
9	Vikas	500	Nonmedical	92.0	A	12A
10	Mohan	300	Commerce	67.5	C	12C

Give the output of the following SQL statement:

(i) SELECT TRUNCATE(AvgMark) FROM Student1 WHERE AvgMark<75;
(ii) SELECT ROUND(AvgMark) FROM Student1 WHERE Grade='B';
(iii)SELECT CONCAT(Name, Stream) FROM Student1 WHERE Class='12A';
(iv)SELECT RIGHT (Stream,2) FROM Student1

6. Given the following table:

TABLE: LIBRARY

No.	Title	Author	Type	Pub	Qty	Price
1.	Data Structure	Lipschutz	DS	McGraw	4	217
2.	Computer Studies	French	FND	Galgotia	2	75
3.	Advanced Pascal	Schildt	PROG	McGraw	4	350
4.	Dbase dummies	Palmer	DBMS	PustakM	5	130
5.	Mastering C++	Gurewich	PROG	BPB	3	295
6.	Guide Network	Freed	NET	BPB	3	200
7.	Mastering FoxPro	Seigel	DBMS	BPB	2	135
8.	DOS Guide	Norton	OS	PHI	3	175

Give the output of following SQL commands on the basis of table library.

(i) SELECT UPPER (Title) FROM Library WHERE Price<150;
(ii) SELECT CONCAT (Author, Type) FROM Library WHERE Qty <3;
(iii) SELECT MOD (Qty, 4) FROM Library;

7. Consider the structure of ADDRESS table-

TABLE: ADDRESS

Column Name	Data Type	Column Name	Data Type
LastName	VARCHAR(25)	State	CHAR(2)
FirstName	VARCHAR(25)	Zip	NUMBER
Street	VARCHAR(20)	Phone	VARCHAR(12)
City	VARCHAR(25)	Ext	VARCHAR(5)

8. Write a query against the ADDRESS table to select a list of names and phone numbers. The output should match these requirements:
   (i) The name column should contain both the first and last names with a blank space between them.
   (ii) The second column will contain the phone number in (999)999-9999 format.
   (iii) Order the query by last name then first name.
9. Make summery tables with category of MySQL commands, syntax and use.
10. Explain the following functions with syntax, purpose and example.

1) CONCAT()	2) SUBSTR()	3) TRIM()	4) INSTR()
5) MID()	6) MOD()	7) POW()	8) ROUND()
9) CURDATE()	10) NOW()	11) SYSDATE()	12) DAYNAME()

Assignment No. 5

Table Creation & DML Commands

TYPE A: VERY SHORT ANSWER QUESTION

1. Which command is used for creating tables?
2. Which is a constraint? Name some constraint that you can apply to enhance database integrity.
3. What is the role of UNIQUE constraint? How is PRIMARY KEY constraint different from UNIQUE constraint?
4. What is Primary key? What is PRIMARY KEY constraint?
5. What is NOT NULL constraint? What are DEFAULT constraints?
6. When column's value is skipped in an INSERT command, which value is inserted in the database?
7. Can a column defined with NOTNULL constraint, be skipped in an INSERT command?
8. How would you view the structure of table Dept?
9. Table NewEmpl has same structure as that EMPL. Write a query to insert data from EMPL table into NewEmpl, where salary is more than Rs 4000 and commission is greater than 500.
10. What is the error in following statement?

    UPDATE EMPL;

TYPE B: SHORT ANSWER QUESTION

1. How constraints ensure the validity of data? Explain various types of constraints with example.
2. What is FOREIGN key? How do you define foreign key in your table?
3. How is FOREIGN KEY different from PRIMARY KEY command?
4. What are table constraints? What are column constraints? How are these two different?
5. What is default value? How do you define it? What is default value for a column for which no value is defined?
6. Differentiate between:
   (i) DROP TABLE & DROP DATADABASE
   (ii) DROP TABLE & DROP clause of ALTER TABLE.
7. Consider the following table and answer the following-

Table: Empl

empno	ename	job	mgr	hiredate	sal	comm	deptno
8369	SMITH	CLERK	8902	1990-12-18	800.00	NULL	20
8499	Anya	SALESMAN	8839	1991-02-20	1600.00	300.00	30
8521	SETH	SALESMAN	8839	1991-02-22	1250.00	500.00	30
8566	MAHADEVAN	MANAGER	8844	1991-04-02	2985.00	NULL	20
8888	SCOTT	ANALYST	8566	1992-12-09	3000.00	NULL	20
8839	AMIR	MANAGER	8844	1991-11-18	5000.00	NULL	10
8844	Gates	PRESIDENT	NULL	1991-11-18	5000.00	NULL	10
….	…….	……	…..	…….	…….	…..	….
….	…….	……	…..	…….	…….	…..	….

a) Update all Ename so that it contains the entire name in capital letters.

b) Increase the salary of employee by 10% in Empl table.

c) Give commission of Rs 500 to all employees who joined in year 1982 in Empl table

d) Modify table Empl, add another column called Grade of VARCHAR type size 1 into it.

e) In the added column Grade, assign grade as follows.

if sal is in range 700-1500 Grade is 1
If sal is in range 1500-2200 Grade is 2
If sal is in range 2200-3000 Grade is 3
if sal is in range 3000- Grade is 4

f) Display the details of employees who are working under the employee named AMIR.

g) Modify the definition of column Grade. Increase its size to 2.

h) Drop the table Empl.

8. Given the following tables:

Orders (Ordno, Ord_date, ProdNo, Qty)
Product (Prodno,Descp,Price)
Payment (OrdNo,Pment)

Write query statements for following transaction.

a) Increase price of all products by 10 %.

b) List the details of all orders. Whose payment is pending.

c) Decrease price by 10% for all those products for which order were placed 10 months before.

d) Write a query to delete all those records from table Orders whose payment has been made.

9. Create the table Employee based on the following table instance Chart.

Column name	ID	FirstName	LastName	DeptID
Data Type	NUMBER	VARCHAR	VARCHAR	NUMBER
Length	8	25	25	8

10. Write the command for the following-

a) Create table CUSTOMER as per following Table structure.

Column Name	CustID	CustName	CustAdd1	CustAdd2	CustPhone
Data Type	NUMBER	VARCHAR	VARCHAR	VARCHAR	VARCHAR
Length	7	30	20	30	10

b) Add one column Email of data type VARCHAR and size 30 to table Customer.

c) Add one more column CustIncomeGroup of data type VARCHAR(10).

d) Insert few records with relevant information in the Customer table.

e) Drop the column CustomerIncomeGroup from table Customer.

11. Create table Employee as per following Table structure.

Col. name	EmpID	EmpName	EmpAdd	EmpPhone	EmpSal	DeptID
Key type	Primary					Foreign
Nulls /Unique		NOT NULL				
Fk Table						Department
Fk Column						Dept_ID
Datatype	NUMBER	VARCHAR	VARCHAR	VARCHAR	NUMBER	VARCHAR
Length	6	20	30	10	9,2	2