QUESTION BANK

Unit – I

1. Define DBMS. Explain advantages of DBMS
2. Explain traditional file processing system in detail.
3. Explain various components of database environment
4. Define data, information, metadata, database, information, DBMS
5. Costs and risks associated with databases
6. Explain various types of databases
7. List the advantages of Database Management System

Unit - II

1. Define data Model. Explain in detail the Entity –Relationship model
2. Define an Entity, Attributes and various types of relationships
3. Explain types of Entities with their representation
4. Explain various types of attributes and how they are represented
5. Explain the degree of relationship
6. What is a constraint? Explain various types of constraints

Unit – III

1. What is Normalization and Explain the need for normalization
2. Explain various Normal Forms
3. Explain Boyce codd normal form
4. What is de-normalization and its advantages
5. List all the Codds rules

Unit – IV

1. Explain SQL environment
2. Types of commands
3. Explain DDL, DML, and DCL commands with syntax
4. Explain various types of constraints or Data Integrity Controls
5. SQL operators

Unit – V

1. Explain various Clauses
2. Explain Aggregate functions
3. Explain Set Operators
4. Why are joins useful? Explain various types of joins
5. Explain the concept of views
6. Explain sub queries and Correlated queries

DBMS Lab Practical

Lab Practical No.1
Question:

1. (Exercise on retrieving records from the table) EMPLOYEES (Employee_Id, First_Name, Last_Name, Email, Phone_Number, Hire_Date, Job_Id, Salary, Commission_Pct, Manager_Id, Department_Id)
   (a) Find out the employee id, names, salaries of all the employees
   (b) List out the employees who works under manager 100
   (c) Find the names of the employees who have a salary greater than or equal to 4800
   (d) List out the employees whose last name is 'AUSTIN'
   (e) Find the names of the employees who works in departments 60,70 and 80
   (f) Display the unique Manager_Id

Employees table:

1. create an employee's table with the following fields:
(Emp_id,First_name,Last_name,Phone_No,Hire_date,Job_id,Emp_Salary,Comission_Pct,manager_id,Department_id)

Query:

```
create table Employees (Emp_id  NUMBER(6),First_name CHAR(25),Last_name
CHAR(20),Phone_No NUMBER(12),Hire_date DATE,Job_Id NUMBER(5),Emp_Salary
NUMBER(7),Comission_Pct NUMBER(5),manager_id NUMBER(5),Department_id
NUMBER(5));
```

2. Insert five records into the table employees:

Query:

```
SQL> insert into employees values (47401,'Rama','Rao',8965324170,'28-Jan-
2003',301,60000,601,100,60);

1 row created.

SQL> insert into employees values (47402,'Ranga','Reddy',7020321450,'23-Jun-
2004',302,56464,602,101,70);

1 row created.

SQL> insert into employees values (47403,'Raja','Shekhar',9848002255,'12-aug-
2004',303,58451,603,103,80);

1 row created.

SQL> insert into employees values (47404,'Ravi',' AUSTIN ',9701811356,'30-sep-
2006',304,36520,604,100,90);
```

1 row created.

SQL> insert into employees values (47405,'Ranga','Raju',9032553262,'17-May-2014',305,2568,605,105,60);

1 row created.

SQL> Select * from Employees;

3. Display the table Employees :

Query:
sql>select * from employees;

a) Find out the employee id, names, salaries of all the employees

Query:
sql>select Emp_id, First_Name, Last_Name, Emp_Salary from employees;

b) List out the employees who works under manager 100

Query:
sql>select * from employees where manager_id=100;

c) Find the names of the employees who have a salary greater than or equal to 4800

Query:
sql>select * from employees where EMP_SALARY>=4800;

d) List out the employees whose last name is 'AUSTIN'

Query:
sql>select * from employees where Last_Name='AUSTIN ';

e) Find the names of the employees who works in departments 60,70 and 80

Query: sql>select * from employees where DEPARTMENT_ID IN(60,70,80);

f) Display the unique Manager_Id from employees table

Query:
sql>select DISTINCT(MANAGER_ID) from employees;

Lab Practical No: 2
Question:

(Exercise on updating records in table)Create Client_master with the following fields(ClientNO, Name, Address, City, State, bal_due)
(a) Insert five records
(b) Find the names of clients whose bal_due> 5000
(c) Change the bal_due of ClientNO " C123" to Rs. 5100
(d) Change the name of Client_master to Client12
(e) Display the bal_due heading as "BALANCE" Client master table:

1. create a client master table with attributes (Client_no,Client_Name,Client_Address,Client_City,Client_State,Balance_Due)

Query:
create table Client_Master(Client_no varchar(6),Client_Name char(25),Client_Address varchar(25),Client_City varchar(20),Client_State varchar(20),Balance_Due number(20));

a) insert five records into the Client_Master

Query:
sql>insert into CLIENT_MASTER Values('C123','Ramesh','L B Nagar', 'Hyderabad', 'Telangana', 7000);
sql>insert into CLIENT_MASTER Values('C124', 'Suresh', 'Dilsuknagar', 'Hyderabad', 'Telangana',6000);
sql>insert into CLIENT_MASTER Values('C125','Vignesh','Saroor nagar', 'Hyderabad', 'Telangana',3500);
sql>insert into CLIENT_MASTER Values('C126','Rajiv','A S Rao Nagar','Hyderabad', 'Telangana',4500);
sql>insert into CLIENT_MASTER Values('C127','Ranga', 'Vanasthalipuram','Hyderabad', 'Telangana',5478);

1. Display Client Master Table

Query: sql>select * from Client_Master;

b) Find the name of Clients whose balance_due >5000

Query: sql>select Client_Name from Client_Master where Balance_Due>5000;

c) Change the bal_due of ClientNO " C123" to Rs. 5100

Query: sql>update Client_Master set Balance_Due=5100 where Client_No='C123';

d) Change the name of Client_master to Client12 .

Query: sql>rename Client_Master to Client12;

e) Display the bal_due heading as "BALANCE" Client master table:

Query: sql> select Client_No, Balance_Due Balance from Client_Master

Lab Practical No: 3
Question:

Rollback and Commit commands
Create Teacher table with the following fields (Name, DeptNo, Date of joining, DeptName, Location, Salary)
(a) Insert five records
(b) Give Increment of 25% salary for Mathematics Department
(c) Perform Rollback command
(d) Give Increment of 15% salary for Commerce Department
(e) Perform commit command

Create Teacher table with the following fields(Id,Name, DeptNo, Date of joining, DeptName, Location, Salary)

Query :

SQL> create table teacher (Id number(2) primary key, name varchar2(20) not null, Deptno number(2) not null, Deptname varchar2(20) not null, joinDate date not null, location varchar2(20) not null, salary number(10,2) not null);

(a) Insert five records

SQL> insert into teacher values(10,'kiran',4,'computer science', '03-Jun-2003', 'hyderabad', 50000);
SQL> insert into teacher values(11,'ramu',5,'mathematics', '13-Jul-2008', 'hyderabad', 40000);
SQL> insert into teacher values(12,'raju',6,'commerce', '23-Dec-2005', 'abids', 30000);
SQL> insert into teacher values(13,'manirathnam',6,'commerce', '18-Dec-2006', 'abids', 30000);
SQL> insert into teacher values(14,'sita',6,'commerce', '28-Aug-2016', 'kingkoti', 23000);

(b) Give Increment of 25% salary for Mathematics Department .

Sql> update teacher set salary= salary+(salary * 0.25) where Deptname= ‘mathematics';

(c) Perform Rollback command
Sql>rollback;

(d) Give Increment of 15% salary for Commerce Department
Sql> update teacher set salary= salary+(salary * 0.15) where Deptname= ‘commerce';

(e) Perform commit command

Sql>commit;

Lab Practical No: 4
Question:

4. (Exercise on order by and group by clauses) Create Sales table with the following fields(Sales No, Salesname, Branch, Salesamount, DOB)
(a) Insert five records
(b) Calculate total salesamount in each branch
(c) Calculate average salesamount in each branch .
(d) Display all the salesmen, DOB who are born in the month of December as day in character format i.e. 21-Dec-09
(e) Display the name and DOB of salesman in alphabetical order of the month.

Sales Table:

Create a Sales Table with the following fields (Sales_No,Sales_Name,Branch,Sales_Amount,DOB)

Query:

Sql> Create Table Sales(Sales_No number(5),Sales_Name char(25),Branch char(25), Sales_Amount number(10), DOB Date);

(a) Insert five records
(b) Calculate total salesamount in each branch
(c) Calculate average salesamount in each branch .
(d) Display all the salesmen, DOB who are born in the month of December as day in character format i.e. 21-Dec-09
(e) Display the name and DOB of salesman in alphabetical order of the month.

Query:

```
Sql> insert into Sales VALUES(1020,'AutoMobiles','Hyderabad',68452,'28-JUL-1985');
Sql> insert into Sales VALUES(1021,'Electronics','Secunderabad',47850,'22-DEC-1995');
Sql> insert into Sales VALUES(1022,'Electronics','Secunderabad',44500,'03-JUN-1986');
Sql> insert into Sales VALUES(1023,'AutoMobiles','Hyderabad',74200,'28-SEP-1996');
Sql> insert into Sales VALUES(1024,'AutoMobiles','Hyderabad',54500,'28-OCT-1984');
```

Display the Sales table:

Query: sql>select * from Sales;

(b) Calculate total salesamount in each branch

Query: sql>select branch, sum(Sales_Amount) from sales group by Branch;

(c) Calculate average salesamount in each branch .

Query:

Select branch,avg(Sales_Amount) from sales group by Branch;

(d) Display all the salesmen, DOB who are born in the month of December as day in character format i.e. 21-Dec-09

Query:

SQL> select Sales_Name, DOB from sales where SUBSTR(DOB,4,3)='DEC';

(e) Display the name and DOB of salesman in alphabetical order of the month.

Query:

sql>select Sales_Name,to_char(DOB,'MONTH') from sales Order by to_Char(DOB,'Day');

Lab Practical No: 5

Question:

5. Create an Emp table with the following fields:(EmpNo, EmpName, Job,Basic, DA, HRA,PF, GrossPay, NetPay)

(Calculate DA as 30% of Basic and HRA as 40% of Basic)

(a) Insert Five Records and calculate GrossPay and NetPay.

(b) Display the employees whose Basic is lowest in each department .

(c) If NetPay is less than <Rs. 10,000 add Rs. 1200 as special allowances .

(d) Display the employees whose GrossPay lies between 10,000 & 20,000

(e) Display all the employees who earn maximum salary .

Employee Table

create an employee table with the following fields:
(Emp_No,Emp_ Name, Designation, basic, DA, HRA, PF, Gross pay, Net pay);

Query:

Sql> create table Employee (Emp_No number(6) primary key, Emp_Name char(25) not null , Designation varchar(25),Emp_Basic number(10,2));

(a) Insert Five Records and calculate GrossPay and NetPay.

Query:

```
insert into Employee values(4019,'Talatam Venkatesh','Director',10000);
insert into Employee  values(4039,'Gumaa','Technical Engineer',15000);
insert into Employee values(4015,'Anudeep Varma','Technical Engineer',12000);
insert into Employee values(4016,'I Vasudeva Varma','Technical Engineer',13000);
insert into Employee values(4027,'Uday Reddy','Director',16000);
```

insert into Employee values(4006,'Sai Mani','Director',10000);

#Updating Attributes DA, HRA, PF, Gross pay, Net Pay ?

 # Adding coloumn to table and Updating Attributes DA

Sql>alter table employeeadd(Emp_DA number(6));

Sql>update Employeeset Emp_DA=(30/100)*Emp_Basic;

 # Adding coloumn to table and Updating Attributes HRA

Sql>alter table employee add(Emp_HRA number(6));

update Employee set Emp_HRA=(40/100)*Emp_Basic;

 # Adding coloumn to table and Updating Attributes PF

Sql>alter table employee add (Emp_PF number(6));

Sql> Employee set Emp_pf= Emp_basic*(12/100);

 # Adding coloumn to table and Updating Attributes Gross Pay

Sql>alter table employee add (Emp_Grosspay number(6));

Sql>update Employee set Emp_grosspay= EMp_hra+emp_da+emp_basic;

 # Adding coloumn to table and Updating Attributes Net Pay

alter table employee add (Emp_netpay number(6));

update Employee set Emp_netpay=emp_grosspay-emp_pf;

Display the employeetable:

Query: sql>select * from employee;

(b) Display the employees whose Basic is lowest in each department .

Query: sql>select min(emp_basic) from employee group by designation;

(c) If NetPay is less than <Rs. 10,000 add Rs. 1200 as special allowances .

Query:

Sql> update employee set emp_netpay=emp_netpay+1200 where emp_netpay<30000;

(d) Display the employees whose GrossPay lies between 10,000 & 20,000

Query: sql>select * from employee where emp_grosspay between 10000 and 20000;

(e) Display all the employees who earn maximum salary .

Query:

sql>select * from employee where emp_grosspay = (select max(emp_grosspay) from employee);

Lab Practical No:6

Question:

6. Employee Database An Enterprise wishes to maintain a database to automate its operations. Enterprise is divided into certain departments and each department consists of employees. The following two tables describes the automation schemas

Dept (deptno, dname, loc)

Emp (empno, ename, job, mgr, hiredate, sal, comm, deptno)

a)Update the employee salary by 15%, whose experience is greater than 10 years.

b)Delete the employees, who completed 30 years of service.

c)Display the manager who is having maximum number of employees working under him?

d)Create a view, which contain employee names and their manager

Creating Dept and Emp table

Create Dept table : Dept (deptno, dname, loc)

Sql> create table dept(deptno number(3) primary key, dname varchar2(30) not null, loc varchar2(30) not null);

Create Dept table : Emp (empno, ename, job, mgr, hiredate, sal, comm, deptno)

Sql>create table emp(empno number(3) primary key, ename varchar2(20) not null, job varchar2(20) not null, mgr number(3) references emp(empno), hiredate date not null, sal number(10,2) not null, comm Number(10,2), deptno number(3));

Inserting data int Dept and Emp tables

Inserting data into Dept table

Sql>insert into dept values(101, 'FINANCE',' SYDNEY');

Sql>insert into dept values(102, 'AUDIT',' MELBOURNE');

Sql>insert into dept values(103, 'MARKETING',' PERTH');

Sql>insert into dept values(104, 'PRODUCTION',' BRISBANE');

Sql>insert into dept values(105, 'Humanresource',' hyderabad');

Inserting data into Emp table

Sql> insert into emp (empno, ename ,job, hiredate, sal, deptno) values

(68319,’KAYLING’,’PRESIDENT’,’18-Nov-1991’,6000.00,101);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(66928,’ BLAZE’,’ MANAGER’,68319,’09 -Jun-1991’, 2750.00,103);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(67832,’ CLARE’,’ MANAGER’,68319,’18-Nov-1991’, 2550.00,101);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(65646,’ JONAS’,’ MANAGER’,68319,’02-Apr-1991’, 2957.00,102);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(67858,’ SCARLET’,’ ANALYST’, 65646,’19-Apr-1997’, 3100.00,102);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(69062,’ FRANK’,’ ANALYST’, 65646,’03-Dec-1991’, 3100.00,102);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(63679,’ SANDRINE’,’ CLERK’, 69062,’18-Dec-1990’, 900.00,102);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal,comm, deptno) values
(64989,’ ADELYN’,’ SALESMAN’, 66928,’20-Feb-1991’, 1700.00,400, 103);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal,comm, deptno) values
(65271,’ WADE’,’ SALESMAN’, 66928,’22-Feb-1991’, 1350.00,600, 103);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal,comm, deptno) values
(66564,’ MADDEN’,’ SALESMAN’, 66928,’28-Sep-1991’, 1350.00,1500, 103);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal,comm, deptno) values
(68454,’ TUCKER’,’ SALESMAN’, 66928,’08-Sep-1991’, 1600.00, 0, 103);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(68736,’ ADNRES’,’ CLERK’, 67858,’23-May-1997’, 1200.00,102);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(69000,’ JULIUS’,’ CLERK’, 66928,’03-Dec-1991’, 1050.00,103);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(69324,’ MARKER’,’ CLERK’, 67832,’23-Jan-1992’, 1400.00,101);

Sql> insert into emp (empno, ename ,job,mgr, hiredate, sal, deptno) values
(69924,’ MARKER’,’ CLERK’, 67832,’23-Jan-1992’, 1400.00,104);

a)Update the employee salary by 15%, whose experience is greater than 30 years.

Query
Sql> update emp set sal=sal+(sal*0.15) where (sysdate-hiredate)/365>30;

b)Delete the employees, who completed 30 years of service.

Sql> delete from emp where (sysdate-hiredate)/365>30;

c)Display the manager who is having maximum number of employees working under him?

Create view
Sql> create view mgrcount as select mgr, count(empno) total from emp group by mgr;

Sql> select mgr from mgrcount where total in (select max(total) from mgrcount);

d)Create a view, which contain employee names and their manager

Sql> create view employee_manager as select e1.ename ,e2.ename from emp e1, emp e2 where e1.mgr=e2.empno;

Lab Practical No:7
Question:

7. Using Employee Database perform the following queries
a)Determine the names of employee, who earn more than their managers.
b)Determine the names of employees, who take highest salary in their departments.
c)Determine the employees, who are located at the same place.
d)Determine the employees, whose total salary is like the minimum Salary of any department.
e)Determine the department which does not contain any employees.

a)Determine the names of employee, who earn more than their managers.

sql>select e1.ename from emp e1, emp e2 where e1.mgr=e2.empno and e1.sal>e2.sal;

b)Determine the names of employees, who take highest salary in their departments.

Create a view to store maximum salaries of each department

SQL> create view maxsalaries as select max(sal) maxsalary, deptno from emp group by deptno;

Displaythe names of employees, who take highest salary in their departments.

Sql>select ename, sal from emp, maxsalaries where emp.deptno= maxsalaries.deptno and sal=maxsalary;

c)Determine the employees, who are located at the same place.
SQL> select ename,dname from emp , dept where emp.deptno=dept.deptno order by dname;

d)Determine the employees, whose total salary is like the minimum Salary of any department.

SQL> select empno, ename, sal from emp where sal in(select max(sal) from emp group by deptno);

e)Determine the department which does not contain any employees.

SQL> select dname from dept where deptno not in(select deptno from emp);

Lab Practical No:8
Question:

9. Usingthe tables "DEPARTMENTS" and "EMPLOYEES" perform the following queries
a)Display the employee details, departments that the departments are same in both the emp and dept.
b)Display the employee name and Department name by implementing a left outer join.
c)Display the employee name and Department name by implementing a right outer join.
d)Display the details of those who draw the salary greater than the average salary.

a)Display the employee details, departments that the departments are same in both the emp and dept.

sql > select ename, dname from dept,emp where emp.deptno=dept.deptno;

b)Display the employee name and Department name by implementing a left outer join.

sql > select ename, dname from dept,emp where emp.deptno(+)=dept.deptno;

c)Display the employee name and Department name by implementing a right outer join.
sql > select ename, dname from dept,emp where emp.deptno=+dept.deptno;

d)Display the details of those who draw the salary greater than the average salary.

SQL> Select empno,sal from emp where sal> (select avg(sal) from emp);