Practical

OSMANIA UNIVERSITY FACULTY OF SCIENCE

B.Sc. (Computer Science) SEMESTER-IV

Data Base Management Systems Lab

1. Create a database having two tables with the specified fields, to computerize a library system of a University College.

LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price). Issued Books (Accession number, Borrower)

a) Identify primary and foreign keys. Create the tables and insert at least
5 records in each table.

b) Delete the record of book titled "Database System Concepts".

c) Change the Department of the book titled "Discrete Maths" to "CS".

d) List all books that belong to "CS" department.

e) List all books that belong to "CS" department and are written by author "Navathe".

f) List all computer (Department-"CS") that have been issued.

g) List all books which have a price less than 500 or purchased between "01/01/1999" and "01/01/2004".

```
SQL> conn
Enter user-name: system/system
Connected.
SQL> create user ssdclibrary identified by ssdc2012;
User created.
SQL> grant connect,resource,dba to ssdclibrary;
Grant succeeded.
SQL> conn
Enter user-name: ssdclibrary/ssdc2012
Connected.
SQL> select *from tab;

no rows selected
SQL> create table LibraryBook(
  2  accno number(4),
  3  title varchar2(20),
  4  author varchar2(20),
  5  dept varchar2(20),
  6  purchasedate date,
  7  price number(4),
  8  constraint c1 primary key(accno)
  9  );
Table created.
SQL> desc LibraryBook;
 Name                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ACCNO                     NOT NULL NUMBER(4)
 TITLE                              VARCHAR2(20)
```

```
AUTHOR                          VARCHAR2(20)
DEPT                           VARCHAR2(20)
PURCHASEDATE                          DATE
PRICE                          NUMBER(4)

SQL> insert into LibraryBook values(
  2  &accno,'&title','&author','&dept','&purchasedate',&price);
Enter value for accno: 1001
Enter value for title: DB System Concepts
Enter value for author: Korth
Enter value for dept: cs
Enter value for purchasedate: 1-jan-2015
Enter value for price: 499
old   2: &accno,'&title','&author','&dept','&purchasedate',&price)
new   2: 1001,'DB System Concepts','Korth','cs','1-jan-2015',499)

1 row created.

SQL> /
Enter value for accno: 1002
Enter value for title: Database System
Enter value for author: Navathe
Enter value for dept: MBA
Enter value for purchasedate: 17-may-2001
Enter value for price: 490
old   2: &accno,'&title','&author','&dept','&purchasedate',&price)
new   2: 1002,'Database System','Navathe','MBA','17-may-2001',490)

1 row created.

SQL> /
Enter value for accno: 1003
Enter value for title: Discrete Maths
Enter value for author: Fatina
Enter value for dept: ME
Enter value for purchasedate: 16-jul-2002
Enter value for price: 870
old   2: &accno,'&title','&author','&dept','&purchasedate',&price)
new   2: 1003,'Discrete Maths','Fatina','ME','16-jul-2002',870)

1 row created.

SQL> /
Enter value for accno: 1004
Enter value for title: STLD
```

```
Enter value for author: Navathe
Enter value for dept: EC
Enter value for purchasedate: 25-Aug-2003
Enter value for price: 628
old   2: &accno,'&title','&author','&dept','&purchasedate',&price)
new   2: 1004,'STLD','Navathe','EC','25-Aug-2003',628)

1 row created.

SQL> /
Enter value for accno: 1005
Enter value for title: Java Programming
Enter value for author: Navathe
Enter value for dept: cs
Enter value for purchasedate: 12-dec-2009
Enter value for price: 330
old   2: &accno,'&title','&author','&dept','&purchasedate',&price)
new   2: 1005,'Java Programming','Navathe','cs','12-dec-2009',330)

1 row created.

SQL> create table issuedbooks(accno number(10) references LibraryBook(accno),Borrower
varchar2(20),primary key(accno));

Table created.

SQL> desc issuedbooks;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ACCNO                                     NOT NULL NUMBER(10)
 BORROWER                                           VARCHAR2(20)


SQL> insert into issuedbooks values(1001,'Nithisha');

1 row created.

SQL> insert into issuedbooks values(1003,'SaiSree');

1 row created.

SQL> insert into issuedbooks values(1005,'SaiPrabha');

1 row created.
```

```
SQL> insert into issuedbooks values(1002,'Ravali');

1 row created.

SQL> insert into issuedbooks values(1004,'Pallavi');

1 row created.

SQL> select *from issuedbooks;

    ACCNO BORROWER
---------- --------------------
     1001 Nithisha
     1003 SaiSree
     1005 SaiPrabha
     1002 Ravali
     1004 Pallavi

SQL> select *from LibraryBook;

    ACCNO TITLE              AUTHOR             DEPT
---------- -------------------- -------------------- --------------------
PURCHASED      PRICE
--------- ----------
     1001 DB System Concepts   Korth              cs
01-JAN-15       499

     1002 Database System      Navathe            MBA
17-MAY-01       490

     1003 Discrete Maths       Fatina             ME
16-JUL-02       870


    ACCNO TITLE              AUTHOR             DEPT
---------- -------------------- -------------------- --------------------
PURCHASED      PRICE
--------- ----------
     1004 STLD                 Navathe            EC
25-AUG-03       628

     1005 Java Programming     Navathe            cs
12-DEC-09       330
```

```
SQL> set linesize 100;
SQL> set pagesize 100;
SQL> select *from LibraryBook;

    ACCNO TITLE              AUTHOR             DEPT               PURCHASED      PRICE
---------- -------------------- -------------------- -------------------- --------- ----------
     1001 DB System Concepts   Korth              cs                 01-JAN-15       499
     1002 Database System      Navathe            MBA                17-MAY-01       490
     1003 Discrete Maths       Fatina             ME                 16-JUL-02       870
     1004 STLD                 Navathe            EC                 25-AUG-03       628
     1005 Java Programming     Navathe            cs                 12-DEC-09       330

SQL> delete from issuedbooks where accno=1002;

1 row deleted.

SQL> delete from LibraryBook where Title='DB System Concepts';
delete from LibraryBook where Title='DB System Concepts'
*
ERROR at line 1:
ORA-02292: integrity constraint (SSDCLIBRARY.SYS_C004028) violated - child record found


SQL> delete from issuedbooks where accno=1001;

1 row deleted.

SQL> delete from LibraryBook where Title='DB System Concepts';

1 row deleted.

SQL> select *from LibraryBook;

    ACCNO TITLE              AUTHOR             DEPT               PURCHASED      PRICE
---------- -------------------- -------------------- -------------------- --------- ----------
     1002 Database System      Navathe            MBA                17-MAY-01       490
     1003 Discrete Maths       Fatina             ME                 16-JUL-02       870
     1004 STLD                 Navathe            EC                 25-AUG-03       628
     1005 Java Programming     Navathe            cs                 12-DEC-09       330

SQL> select *from issuedbooks;

    ACCNO BORROWER
---------- --------------------
     1003 SaiSree
```

```
     1005 SaiPrabha
     1004 Pallavi

SQL> update LibraryBook set dept='cs'
  2  where title='Discrete Maths';

1 row updated.

SQL> select *from LibraryBook;

    ACCNO TITLE              AUTHOR             DEPT               PURCHASED      PRICE
---------- -------------------- -------------------- -------------------- --------- ----------
     1002 Database System      Navathe            MBA                17-MAY-01       490
     1003 Discrete Maths       Fatina             cs                 16-JUL-02       870
     1004 STLD                 Navathe            EC                 25-AUG-03       628
     1005 Java Programming     Navathe            cs                 12-DEC-09       330

SQL> select title from LibraryBook where dept='cs';

TITLE
--------------------
Discrete Maths
Java Programming



SQL> select title from LibraryBook where dept='cs' and author='Navathe';

TITLE
--------------------
Java Programming


SQL> select l.accno,l.title,l.dept from LibraryBook l,issuedbooks i
  2  where l.dept='cs' and l.accno=i.accno;

    ACCNO TITLE              DEPT
---------- -------------------- --------------------
     1003 Discrete Maths       cs
     1005 Java Programming     cs

SQL> select title from LibraryBook where price<500
  2  or (purchasedate between to_date('01-jan-1999','dd-mm=yyyy') and to_date('01-jan-2004','dd-
mm-yyyy'));
```

TITLE

Database System
Discrete Maths
STLD
Java Programming

****
****

2. Create a database having three tables to store the details of students of Computer Department in your college.
Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10+2, Phone number)
Paper Details (Paper code, Name of the Paper)
Student's Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).
a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
c) List all students who live in "Warangal" and have marks greater than 60 in paper1.
d) Find the total attendance and total marks obtained by each student. e) List the name of student who has got the highest marks in paper2.

```
SQL> create user compdept identified by compdept123;

User created.

SQL> grant connect,resource,dba to compdept;

Grant succeeded.

SQL> conn
Enter user-name: compdept/compdept123
Connected.
SQL> create table Personalinfo(rollno number(10)primary key,name varchar2(15),dob date,address
varchar2(10),marks number(10),phoneno number(12));

Table created.

SQL> desc Personalinfo;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ROLLNO                                    NOT NULL NUMBER(10)
 NAME                                               VARCHAR2(15)
```

```
DOB                                     DATE
ADDRESS                                   VARCHAR2(10)
MARKS                                    NUMBER(10)
PHONENO                                    NUMBER(12)

SQL>SQL> insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno);
Enter value for rollno: 101
Enter value for name: ayehsa
Enter value for dob: 28-may-1992
Enter value for address: Hyd
Enter value for marks: 89
Enter value for phoneno: 8976543218
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(101,'ayehsa','28-may-1992','Hyd',89,8976543218)

1 row created.

SQL> /
Enter value for rollno: 102
Enter value for name: Rabia
Enter value for dob: 27-jul-1991
Enter value for address: ranchi
Enter value for marks: 72
Enter value for phoneno: 8436173378
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(102,'Rabia','27-jul-1991','ranchi',72,8436173378)

1 row created.


SQL> /
Enter value for rollno: 103
Enter value for name: Ameer
Enter value for dob: 15-apr-1989
Enter value for address: Goa
Enter value for marks: 69
Enter value for phoneno: 8199765347
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(103,'Ameer','15-apr-1989','Goa',69,8199765347)

1 row created.

SQL> /
Enter value for rollno: 104
Enter value for name: Narmad
```

```
Enter value for dob: 12-may-1991
Enter value for address: Delhi
Enter value for marks: 69
Enter value for phoneno: 7314256772
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(104,'Narmad','12-may-1991','Delhi',69,7314256772)

1 row created.

SQL> /
Enter value for rollno: 105
Enter value for name: Anusha
Enter value for dob: 04-oct-1996
Enter value for address: Delhi
Enter value for marks: 80
Enter value for phoneno: 78965443210
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(105,'Anusha','04-oct-1996','Delhi',80,78965443210)

1 row created.

SQL> /
Enter value for rollno: 106
Enter value for name: Yusra
Enter value for dob: 15-dec-1990
Enter value for address: Ranchi
Enter value for marks: 81
Enter value for phoneno: 7567435109
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(106,'Yusra','15-dec-1990','Ranchi',81,7567435109)

1 row created.

SQL> /
Enter value for rollno: 107
Enter value for name: Aparna
Enter value for dob: 17-Feb-1991
Enter value for address: Goa
Enter value for marks: 82
Enter value for phoneno: 7567435109
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(107,'Aparna','17-Feb-1991','Goa',82,7567435109)

1 row created.
```

```
SQL> /
Enter value for rollno: 108
Enter value for name: Afia
Enter value for dob: 15-mar-1990
Enter value for address: Salen
Enter value for marks: 83
Enter value for phoneno: 7786578017
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(108,'Afia','15-mar-1990','Salen',83,7786578017)

1 row created.

SQL> /
Enter value for rollno: 109
Enter value for name: Fatima
Enter value for dob: 22-dec-1992
Enter value for address: Delhi
Enter value for marks: 75
Enter value for phoneno: 7123458967
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(109,'Fatima','22-dec-1992','Delhi',75,7123458967)

1 row created.

SQL> /
Enter value for rollno: 110
Enter value for name: Hyma
Enter value for dob: 22-jul-1994
Enter value for address: Ranchi
Enter value for marks: 82
Enter value for phoneno: 7619573492
old   1: insert into Personalinfo values(&rollno,'&name','&dob','&address',&marks,&phoneno)
new   1: insert into Personalinfo values(110,'Hyma','22-jul-1994','Ranchi',82,7619573492)

1 row created.

SQL> select *from Personalinfo;

    ROLLNO NAME           DOB       ADDRESS        MARKS    PHONENO
---------- ---------------- --------- ---------- ---------- ----------
       101 ayehsa          28-MAY-92 Hyd              89 8976543218
       102 Rabia           27-JUL-91 ranchi           72 8436173378
       103 Ameer           15-APR-89 Goa              69 8199765347
       104 Narmad          12-MAY-91 Delhi            69 7314256772
       105 Anusha          04-OCT-96 Delhi            80 7.8965E+10
```

```
106 Yusra       15-DEC-90 Ranchi          81 7567435109
107 Aparna      17-FEB-91 Goa             82 7567435109
108 Afia        15-MAR-90 Salen           83 7786578017
109 Fatima      22-DEC-92 Delhi           75 7123458967
110 Hyma        22-JUL-94 Ranchi          82 7619573492

10 rows selected.

SQL> create table paperDetails(PaperCode varchar2(10)primary key,PaperName varchar2(10));

Table created.

SQL> desc paperDetails;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PAPERCODE                                 NOT NULL VARCHAR2(10)
 PAPERNAME                                          VARCHAR2(10)

SQL> insert into  paperDetails values('paper1','jp');

1 row created.

SQL> insert into  paperDetails values('paper2','cpp');

1 row created.

SQL> insert into  paperDetails values('paper3','c');

1 row created.

SQL> insert into  paperDetails values('paper4','ds');

1 row created.

SQL> insert into  paperDetails values('paper5','python');

1 row created.

SQL> select *from  paperDetails;

PAPERCODE  PAPERNAME
---------- ----------
paper1     jp
paper2     cpp
paper3     c
```

```
paper4     ds
paper5     python

SQL> create table AcademicDetails(Rollno number(10) references Personalinfo(Rollno),
  2  papercode varchar2(10)references paperDetails(papercode),Attendance number,marksathome
number(10),primary key(Rollno,papercode));

Table created.

SQL> desc AcademicDetails;
 Name                                      Null?    Type
 ----------------------------------------------------- -------- ------------------------------------
 ROLLNO                                    NOT NULL NUMBER(10)
 PAPERCODE                                 NOT NULL VARCHAR2(10)
 ATTENDANCE                                         NUMBER
 MARKSATHOME                                        NUMBER(10)

SQL> select pd.papercode,pd.papername,p.name from paperdetails pd,
  2  personalinfo p,AcademicDetails a where a.attendance>75 and p.rollno=a.rollno and
  3  a.papercode=pd.papercode and a.papercode='paper2' and p.marks>60;

PAPERCODE  PAPERNAME  NAME
---------- ---------- ---------------
paper2     cpp        Yusra
paper2     cpp        Afia
paper2     cpp        Hyma


SQL> select p.rollno,p.name,p.dob,p.address,p.phoneno from paperdetails pd,
  2  personalinfo p,AcademicDetails a where p.rollno=a.rollno and a.papercode=pd.papercode
  3  and a.papercode='paper1' and p.marks>60 and p.address ='Delhi';

    ROLLNO NAME           DOB       ADDRESS       PHONENO
---------- ---------------- --------- ---------- ----------
       105 Anusha         04-OCT-96 Delhi      7.8965E+10
       109 Fatima         22-DEC-92 Delhi      7123458967


SQL> select p.name,sum(p.marks),sum(a.attendance) from paperdetails pd,
  2  personalinfo p,AcademicDetails a where p.rollno=a.rollno and a.papercode=pd.papercode
  3  group by p.name;

NAME           SUM(P.MARKS) SUM(A.ATTENDANCE)
---------------- ------------ -----------------
Fatima                  75               93
```

```
Rabia            72          70
Ameer            69          60
Yusra            81          85
ayehsa           89          80
Aparna           82          90
Narmad           69          65
Anusha           80          75
Afia             83          95
Hyma             82          82

10 rows selected.

SQL> select p.name from personalinfo p,AcademicDetails a where p.rollno=a.rollno
  2  and a.papercode='paper2' group by p.name having sum(p.marks)=all(select sum(p.marks)
  3  from personalinfo p,AcademicDetails a where a.rollno=p.rollno and a.papercode='paper2' group
by p.name);

no rows selected
```

3. Create the following tables and answer the queries given below: Customer (CustID, email, Name, Phone, ReferrerID)
Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo) BicycleModel(ModelNo, Manufacturer, Style) Service (StartDate, BicycleID, EndDate)

a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
b) List all the customers who have the bicycles manufactured by manufacturer "Honda".
c) List the bicycles purchased by the customers who have been referred by Customer "C1".
d) List the manufacturer of red colored bicycles.
e) List the models of the bicycles given for service.

```
SQL> conn
Enter user-name: system/system
Connected.
SQL> create table customer(custid varchar2(20),email varchar2(20),name varchar2(10),phone
number(12),referenceid varchar2(10),constraint pk1 primary key(custid));

Table created.

SQL> desc customer;
 Name                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTID                    NOT NULL VARCHAR2(20)
 EMAIL                              VARCHAR2(20)
 NAME                               VARCHAR2(10)
 PHONE                              NUMBER(12)
```

```
 REFERENCEID                               VARCHAR2(10)

SQL> insert into customer values('c1','shoeb@gmail.com','shoeb',9876543210,'R1');

1 row created.

SQL> insert into customer values('c2','zuberi@gmail.com','zuberi',9642113561,'R2');

1 row created.

SQL> insert into customer values('c3','vara@gmail.com','vara',8374219652,'R3');

1 row created.

SQL> insert into customer values('c4','venky@gmail.com','venky',8967254168,'R4');

1 row created.

SQL> insert into customer values('c5','adil@gmail.com','adil',8275139621,'R5');

1 row created.

SQL> select *from customer;

CUSTID           EMAIL              NAME          PHONE REFERENCEI
-------------------- -------------------- ---------- ---------- ----------
c1               shoeb@gmail.com     shoeb     9876543210 R1
c2               zuberi@gmail.com    zuberi    9642113561 R2
c3               vara@gmail.com      vara      8374219652 R3
c4               venky@gmail.com     venky     8967254168 R4
c5               adil@gmail.com      adil      8275139621 R5

SQL> create table bicyclemodel(modelno varchar2(10),manufacture  varchar2(10),style
varchar2(10),constraint pk2 primary key(modelno));

Table created.

SQL> desc bicyclemodel;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 MODELNO                                   NOT NULL VARCHAR2(10)
 MANUFACTURE                                        VARCHAR2(10)
 STYLE                                              VARCHAR2(10)

SQL> insert into bicyclemodel values('m1','honda','cb');
```

1 row created.

SQL> insert into bicyclemodel values('m2','yamaha','fz25');

1 row created.

SQL> insert into bicyclemodel values('m3','honda','cbr');

1 row created.

SQL> insert into bicyclemodel values('m4','yamaha','Fascino');

1 row created.

SQL> insert into bicyclemodel values('m5','Hero','Splender');

1 row created.

SQL> select *from bicyclemodel;

MODELNO MANUFACTUR STYLE
---------- ---------- ----------
m1 honda cb
m2 yamaha fz25
m3 honda cbr
m4 yamaha Fascino
m5 Hero Splender

QL> create table bicycle(bicycleid varchar2(10),datepurchased date,color varchar2(10),custid varchar2(10),modelno varchar2(10),constraint pk3 primary key(bicycleid),constraint fk1 foreign key(custid) references customer,constraint fk2 foreign key(modelno) references bicyclemodel);

Table created.

SQL> desc bicycle;
Name Null? Type
---------- -------- ----------
BICYCLEID NOT NULL VARCHAR2(10)
DATEPURCHASED DATE
COLOR VARCHAR2(10)
CUSTID VARCHAR2(10)
MODELNO VARCHAR2(10)
SQL> insert into bicycle values('b1','02-jul-2017','black','c1','m1');

1 row created.

SQL> insert into bicycle values('b2','01-jun-1996','red','c2','m2');

1 row created.

SQL> insert into bicycle values('b3','05-nov-2001','grey','c3','m3');

1 row created.

SQL> insert into bicycle values('b4','04-aug-2015','black','c4','m4');

1 row created.

SQL> insert into bicycle values('b5','04-jun-2018','red','c5','m5');

1 row created.

SQL> select *from bicycle;

BICYCLEID DATEPURCH COLOR CUSTID MODELNO
---------- --------- ---------- ---------- ----------
b1 02-JUL-17 black c1 m1
b2 01-JUN-96 red c2 m2
b3 05-NOV-01 grey c3 m3
b4 04-AUG-15 black c4 m4
b5 04-JUN-18 red c5 m5

SQL>SQL> create table service(startdate date,bicycleid varchar2(10),enddate date,constraint pk4 primary key(bicycleid,startdate),constraint fk3 foreign key(bicycleid) references bicycle);

Table created.

SQL> desc service;
Name Null? Type
---------- -------- ----------
STARTDATE NOT NULL DATE
BICYCLEID NOT NULL VARCHAR2(10)
ENDDATE DATE

SQL> insert into service values('11-july-2017','b1','13-oct-2017');

1 row created.

SQL> insert into service values('10-sep-1996','b2','12-sep-1996');

```
1 row created.

SQL> insert into service values('07-mar-2002','b3','09-mar-2002');

1 row created.

SQL> insert into service values('08-nov-2015','b4','10-nov-2015');

1 row created.

SQL> insert into service values('22-aug-2018','b5','24-aug-2018');

1 row created.

SQL> select *from service;

STARTDATE BICYCLEID  ENDDATE
--------- ---------- ---------
11-JUL-17 b1         13-OCT-17
10-SEP-96 b2         12-SEP-96
07-MAR-02 b3         09-MAR-02
08-NOV-15 b4         10-NOV-15
22-AUG-18 b5         24-AUG-18


SQL> select c.custid,c.name,c.phone,c.email,m.manufacture from customer c,
  2  bicycle b,bicyclemodel m where c.custid=b.custid and b.modelno=m.modelno and
m.manufacture='honda';

CUSTID               NAME           PHONE EMAIL               MANUFACTUR
-------------------- ---------- ---------- -------------------- ----------
c1                   shoeb      9876543210 shoeb@gmail.com      honda
c3                   vara       8374219652 vara@gmail.com       honda


SQL> select *from bicycle b,customer c where c.custid=b.custid and c.custid='c1';

BICYCLEID  DATEPURCH COLOR      CUSTID     MODELNO    CUSTID
---------- --------- ---------- ---------- ---------- --------------------
EMAIL                NAME           PHONE REFERENCEI
-------------------- ---------- ---------- ----------
b1         02-JUL-17 black      c1         m1         c1
shoeb@gmail.com      shoeb      9876543210 R1
```

```
SQL> set linesize 100;
SQL> set pagesize 100;
SQL> select *from bicycle b,customer c where c.custid=b.custid and c.custid='c1';

BICYCLEID  DATEPURCH COLOR      CUSTID     MODELNO    CUSTID             EMAIL
---------- --------- ---------- ---------- ---------- -------------------- --------------------
NAME           PHONE REFERENCEI
---------- ---------- ----------
b1         02-JUL-17 black      c1         m1         c1                 shoeb@gmail.com
shoeb      9876543210 R1


SQL> set linesize 150;
SQL> set pagesize 150;
SQL> select *from bicycle b,customer c where c.custid=b.custid and c.custid='c1';

BICYCLEID  DATEPURCH COLOR      CUSTID     MODELNO    CUSTID             EMAIL              NAME
PHONE REFERENCEI
---------- --------- ---------- ---------- ---------- -------------------- -------------------- ---------- ---------- ----------
b1         02-JUL-17 black      c1         m1         c1                 shoeb@gmail.com      shoeb      9876543210
R1



SQL> select m.manufacture from bicyclemodel m,bicycle b where m.modelno=b.modelno and
b.color='red';

MANUFACTUR
----------
yamaha
Hero

SQL> select m.modelno from bicyclemodel m,service s,bicycle b
  2  where m.modelno=b.modelno and b.bicycleid=s.bicycleid;

MODELNO
----------
m1
m2
m3
m4
m5
```

****

4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Employee (Person_Name, Street, City)

Works (Person Name, Company Name, Salary)

Company (Company Name, City)

Manages (Person_Name, Manager_Name)

a) Identify primary and foreign keys.

b) Alter table employee, add a column "email" of type varchar(20).

c) Find the name of all managers who work for both Samba Bank and NCB Bank.

d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than $10,000. e) Find the names of all employees who live in the same city as the company for which they work.

f) Find the highest salary, lowest salary and average salary paid by each company.

g) Find the sum of salary and number of employees in each company.

h) Find the name of the company that pays highest salary.

SQL> create table s_employee(person_name varchar(10)primary key,street varchar2(10),city varchar2(10));

Table created.

SQL> desc s_employee;

Name	Null?	Type
PERSON_NAME	NOT NULL	VARCHAR2(10)
STREET		VARCHAR2(10)
CITY		VARCHAR2(10)

SQL> insert into s_employee values('ravi','charminar','hyderbad');

1 row created.

SQL> insert into s_employee values('ramesh','benzcircle','vijayawada');

1 row created.

SQL> insert into s_employee values('rakesh','annanagar','vizag');

1 row created.

SQL> insert into s_employee values('radha','RKnagar','bangalore');

1 row created.

```
SQL> insert into s_employee values('rao','mountroad','kakinada');

1 row created.

SQL> insert into s_employee values('rajini','rkroad','karnataka');

1 row created.

SQL> insert into s_employee values('rakhi','eastroad','salem');

1 row created.

SQL> insert into s_employee values('ramu','srnagar','hyderbad');

1 row created.

SQL> insert into s_employee values('raju','oldcity','kukatpally');

1 row created.

SQL> insert into s_employee values('rajesh','oldcity','kukatpally');
1 row created.

SQL> select *from s_employee;

PERSON_NAM STREET     CITY
---------- ---------- ----------
ravi       charminar  hyderbad
ramesh     benzcircle vijayawada
rakesh     annanagar  vizag
radha      RKnagar    bangalore
rao        mountroad  kakinada
rajini     rkroad     karnataka
rakhi      eastroad   salem
ramu       srnagar    hyderbad
raju       oldcity    kukatpally
rajesh     oldcity    kukatpally

10 rows selected.


SQL> create table works(person_name varchar2(10) references s_employee(person_name)
  2  ,company_name varchar2(10),salary number(10),primary key(person_name));
```

Table created.

```
SQL> desc works;
 Name                                                  Null?    Type
 ----------------------------------------------------------------------------------- -------- ------------------------------------------
----------------
 PERSON_NAME                                           NOT NULL VARCHAR2(10)
 COMPANY_NAME                                                   VARCHAR2(10)
 SALARY                                                NUMBER(10)
```

```
SQL> insert into works values('ravi','samba bank',31000);

1 row created.

SQL> insert into works values('rajesh','ncb bank',28000);

1 row created.

SQL> insert into works values('ramesh','state bank',30000);

1 row created.

SQL> insert into works values('rakesh','icici bank',40000);

1 row created.

SQL> insert into works values('radha','boi',25000);

1 row created.

SQL> insert into works values('rao','samba bank',29000);

1 row created.

SQL> insert into works values('rajini','ncb bank',15000);

1 row created.

SQL> insert into works values('rakhi','state bank',9000);

1 row created.

SQL> insert into works values('ramu','boi',30000);
```

1 row created.

SQL> insert into works values('raju','icici bank',33000);

1 row created.

SQL> select *from works;

PERSON_NAM COMPANY_NA SALARY
---------- ---------- ----------
ravi samba bank 31000
rajesh ncb bank 28000
ramesh state bank 30000
rakesh icici bank 40000
radha boi 25000
rao samba bank 29000
rajini ncb bank 15000
rakhi state bank 9000
ramu boi 30000
raju icici bank 33000

10 rows selected.

SQL>SQL> create table company(company_name varchar2(10) primary key,city varchar2(10));

Table created.

SQL> desc company;
Name Null? Type
---------- -------- ----------
COMPANY_NAME NOT NULL VARCHAR2(10)
CITY VARCHAR2(10)

SQL> insert into company values('samba bank','hyderbad');

1 row created.

SQL> insert into company values('ncb bank','vijayawada');

1 row created.

SQL> insert into company values('state bank','vizag');

1 row created.

```
SQL> insert into company values('icici','chennai');

1 row created.

SQL> insert into company values('boi','bangalore');

1 row created.

SQL> select *from company;

COMPANY_NA CITY
---------- ----------
samba bank hyderbad
ncb bank   vijayawada
state bank vizag
icici      chennai
boi        bangalore

SQL> create table manages(person_name varchar2(10) references s_employee(person_name),
  2  manager_name varchar2(10));

Table created.

SQL> desc manages;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PERSON_NAME                                        VARCHAR2(10)
 MANAGER_NAME                                       VARCHAR2(10)

SQL> alter table manages
  2  modify(person_name varchar2(10)primary key);

Table altered.

SQL> desc manages;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PERSON_NAME                               NOT NULL VARCHAR2(10)
 MANAGER_NAME                                       VARCHAR2(10)
SQL> insert into manages values('ravi','nikitha');

1 row created.
```

```
SQL> insert into manages values('rajesh','nikitha');

1 row created.

SQL> insert into manages values('ramesh','saisree');

1 row created.

SQL> insert into manages values('rakesh','pallavi');

1 row created.

SQL> insert into manages values('radha','pallavi');

1 row created.

SQL> insert into manages values('rao','saisree');

1 row created.

SQL> insert into manages values('rajini','saisree');

1 row created.

SQL> insert into manages values('rakhi','nishitha');

1 row created.

SQL> insert into manages values('ramu','sudha');

1 row created.

SQL> insert into manages values('raju','dharani');

1 row created.

SQL> select *from manages;

PERSON_NAM MANAGER_NA
---------- ----------
ravi       nikitha
rajesh     nikitha
ramesh     saisree
rakesh     pallavi
```

```
radha      pallavi
rao        saisree
rajini     saisree
rakhi      nishitha
ramu       sudha
raju       dharani

10 rows selected.

SQL> alter table s_employee
  2  add(email varchar2(10));

Table altered.

SQL> desc s_employee;
 Name                                                  Null?    Type
 ----------------------------------------------------------------------------------- -------- ------------------------------------------
----------------
 PERSON_NAME                                           NOT NULL VARCHAR2(10)
 STREET                                                VARCHAR2(10)
 CITY                                                  VARCHAR2(10)
 EMAIL                                                 VARCHAR2(10)

SQL> select distinct(m.manager_name) from manages m,
  2  works w where w.person_name = m.person_name and
  3  w.company_name ='samba bank' or w.company_name='ncb bank';

MANAGER_NA
----------
sudha
nishitha
dharani
nikitha
saisree
pallavi

6 rows selected.

SQL> select e.person_name from s_employee e,
  2  works w,company c
  3  where e.person_name =w.person_name and e.city=c.city and
w.company_name=c.company_name;

PERSON_NAM
----------
```

ravi
radha

SQL> select company_name,max(salary),min(salary),avg(salary) from works group by company_name;

COMPANY_NA MAX(SALARY) MIN(SALARY) AVG(SALARY)
---------- ---------- ---------- ----------
state bank 30000 9000 19500
icici bank 40000 33000 36500
ncb bank 28000 15000 21500
boi 30000 25000 27500
samba bank 31000 29000 30000

SQL> select company_name,sum(salary),count(person_name)from works
2 group by company_name;

COMPANY_NA SUM(SALARY) COUNT(PERSON_NAME)
---------- ---------- ----------
state bank 39000 2
icici bank 73000 2
ncb bank 43000 2
boi 55000 2
samba bank 60000 2

SQL> select company_name from works group by company_name having sum(salary)>=all(select sum(salary)from works group by company_name);

COMPANY_NA
---
icici bank

****

5. Create the following tables, enter at least 5 records in each table and answer the queries given below.
Suppliers (SNo, Sname, Status, SCity)
Parts (PNo, Pname, Colour, Weight, City)
Project (JNo, Jname,Jcity)
Shipment (Sno, Pno, Jno, Qunatity)
a) Identify primary and foreign keys.
b) Get supplier numbers for suppliers in Paris with status>20.

c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
d) Get suppliers names for suppliers who do not supply part P2.
e) For each shipment get full shipment details, including total shipment weights.
f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
h) Get the names of cities that store more than five red parts.
i) Get full details of parts supplied by a supplier in Hyderabad.
j) Get part numbers for part supplied by a supplier in Warangal to a project in Chennai.
k) Get the total number of project supplied by a supplier (say, S1).
I) Get the total quantity of a part (say, PI) supplied by a supplier (say, S1).

```
SQL> create table suppliers(sno number(10) primary key,
  2  sname varchar2(10),
  3  status number(10),
  4  scity varchar2(10));
create table suppliers(sno number(10) primary key,
          *
ERROR at line 1:
ORA-00955: name is already used by an existing object


SQL> create table s_suppliers(sno number(10) primary key,
  2  sname varchar2(10),
  3  status number(10),
  4  scity varchar2(10));

Table created.

SQL> desc s_suppliers;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SNO                                       NOT NULL NUMBER(10)
 SNAME                                              VARCHAR2(10)
 STATUS                                             NUMBER(10)
 SCITY                                              VARCHAR2(10)

SQL> insert into s_suppliers values('s1','raju',20,'hyd');
insert into s_suppliers values('s1','raju',20,'hyd')
                       *
ERROR at line 1:
ORA-01722: invalid number
```

```
SQL> alter table s_suppliers
  2  modify(sno varchar2(10)primary key);
modify(sno varchar2(10)primary key)
                   *
ERROR at line 2:
ORA-02260: table can have only one primary key


SQL> alter table s_suppliers
  2  modify(sno varchar2(10));

Table altered.

SQL> desc s_suppliers;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SNO                                       NOT NULL VARCHAR2(10)
 SNAME                                              VARCHAR2(10)
 STATUS                                             NUMBER(10)
 SCITY                                              VARCHAR2(10)

SQL> insert into s_suppliers values('s1','raju',20,'hyd');

1 row created.

SQL> insert into s_suppliers values('s2','sudha',10,'knr');

1 row created.

SQL> insert into s_suppliers values('s3','madhu',30,'sdpt');

1 row created.

SQL> insert into s_suppliers values('s4','gopi',15,'adbl');

1 row created.

SQL> insert into s_suppliers values('s5','pavani',44,'gdk');

1 row created.

SQL> select *from s_suppliers;

SNO        SNAME          STATUS SCITY
```

---------- ---------- ---------- ----------
s1 raju 20 hyd
s2 sudha 10 knr
s3 madhu 30 sdpt
s4 gopi 15 adbl
s5 pavani 44 gdk

```
SQL> cerate table parts(pno varchar2(10)primary key,
SP2-0734: unknown command beginning "cerate tab..." - rest of line ignored.
SQL> create table parts(pno varchar2(10)primary key,
  2  pname varchar2(10),colour varchar2(10),
  3  weight number(10),city varchar2(10));
create table parts(pno varchar2(10)primary key,
           *
ERROR at line 1:
ORA-00955: name is already used by an existing object


SQL> create table s_parts(pno varchar2(10)primary key,
  2  pname varchar2(10),colour varchar2(10),
  3  weight number(10),city varchar2(10));

Table created.

SQL> desc s_parts;
 Name                                                  Null?    Type
 ----------------------------------------------------------------------------------- -------- ------------------------------------------
----------------
 PNO                                                   NOT NULL VARCHAR2(10)
 PNAME                                                          VARCHAR2(10)
 COLOUR                                                         VARCHAR2(10)
 WEIGHT                                                         NUMBER(10)
 CITY                                                           VARCHAR2(10)

SQL> insert into s_parts values('p1','part1','green',40,'mncl');

1 row created.

SQL> insert into s_parts values('p2','part2','yellow',8,'nzb');

1 row created.

SQL> insert into s_parts values('p3','part3','red',25,'hyd');

1 row created.
```

```
SQL> insert into s_parts values('p4','part4','white',20,'khm');

1 row created.

SQL> insert into s_parts values('p5','part5','black',60,'wrgl');

1 row created.

SQL> select *from s_parts;

PNO       PNAME     COLOUR       WEIGHT CITY
---------- ---------- ---------- ---------- ----------
p1        part1     green            40 mncl
p2        part2     yellow            8 nzb
p3        part3     red              25 hyd
p4        part4     white            20 khm
p5        part5     black            60 wrgl

SQL> create table project(jno varchar2(10)primary key,jname varchar2(10),jcity varchar2(10));
create table project(jno varchar2(10)primary key,jname varchar2(10),jcity varchar2(10))
             *
ERROR at line 1:
ORA-00955: name is already used by an existing object


SQL> create table s_project(jno varchar2(10)primary key,jname varchar2(10),jcity varchar2(10));

Table created.

SQL> desc s_project;
 Name                                                  Null?    Type
 ----------------------------------------------------------------------------------- -------- ----------------------------------------
----------------
 JNO                                                   NOT NULL VARCHAR2(10)
 JNAME                                                          VARCHAR2(10)
 JCITY                                                          VARCHAR2(10)

SQL> insert into s_project values('j1','pr1','jarkand');

1 row created.

SQL> insert into s_project values('j2','pr2','bilaspur');

1 row created.
```

```
SQL> insert into s_project values('j3','pr3','kothagudam');

1 row created.

SQL> insert into s_project values('j4','pr4','ramagundam');

1 row created.

SQL> insert into s_project values('j5','pr5','ranchi');

1 row created.

SQL> select *from s_project;

JNO        JNAME      JCITY
---------- ---------- ----------
j1         pr1        jarkand
j2         pr2        bilaspur
j3         pr3        kothagudam
j4         pr4        ramagundam
j5         pr5        ranchi

SQL> create table shipment(sno varchar2(10) references s_suppliers(sno),pno varchar2(10)
references s_parts(pno),
  2  jno varchar2(10) references s_project(jno),
  3  quantity number,primary key(sno,pno,jno));

Table created.

SQL> desc shipment;
 Name                                                                                    Null?    Type
 --------------------------------------------------------------------------------------- -------- ----------------------------------------
---------------
 SNO                                                                                     NOT NULL VARCHAR2(10)
 PNO                                                                                     NOT NULL VARCHAR2(10)
 JNO                                                                                     NOT NULL VARCHAR2(10)
 QUANTITY                                                                                         NUMBER

SQL> insert into shipment values('s1','p1','j1',400);

1 row created.

SQL> insert into shipment values('s2','p2','j2',700);
```

```
1 row created.

SQL> insert into shipment values('s3','p3','j3',120);

1 row created.

SQL> insert into shipment values('s4','p4','j4',150);

1 row created.

SQL> insert into shipment values('s5','p5','j5',100);

1 row created.

SQL> select *from shipment;

SNO        PNO        JNO        QUANTITY
---------- ---------- ---------- ----------
s1         p1         j1              400
s2         p2         j2              700
s3         p3         j3              120
s4         p4         j4              150
s5         p5         j5              100
SQL> select sno from s_suppliers where scity='hyd' and status>20;

no rows selected

SQL> select *from s_suppliers
  2  where sno in(select sno from shipment where pno='p2')
  3  order by sno;

SNO        SNAME          STATUS SCITY
---------- ---------- ---------- ----------
s2         sudha              10 knr

SQL> select sname from s_suppliers where sno not in(Select sno from shipment where pno='p2');

SNAME
----------
raju
madhu
gopi
pavani
```

```
SQL> select sh.sno,sh.pno,sh.jno,sh.quantity,p.weight from shipment sh,
  2  s_parts p where p.pno=sh.pno;

SNO        PNO        JNO          QUANTITY     WEIGHT
---------- ---------- ---------- ---------- ----------
s1         p1         j1              400         40
s2         p2         j2              700          8
s3         p3         j3              120         25
s4         p4         j4              150         20
s5         p5         j5              100         60

SQL> select *from shipment where quantity between 300 and 950;

SNO        PNO        JNO          QUANTITY
---------- ---------- ---------- ----------
s1         p1         j1              400
s2         p2         j2              700


SQL> select pno from s_parts where weight>16 union select pno from shipment
  2  where sno='s2';

PNO
----------
p1
p2
p3
p4
p5


SQL> select distinct(city) from s_parts where (select count(*) from s_parts where colour='red')>5;

no rows selected

SQL> select p.pno,p.pname,p.colour,p.weight,p.city from s_partsp,s_suppliers s,project p,shipment
sh
  2  where p.pno=sh.pno and s.sno=sh.sno and pr.jno and s.scity='hyd' and pr.city='ranchi';
where p.pno=sh.pno and s.sno=sh.sno and pr.jno and s.scity='hyd' and pr.city='ranchi'
                                    *
ERROR at line 2:
ORA-00920: invalid relational operator
```

```
SQL> select p.pno,p.pname,p.colour,p.weight,p.city from s_partsp,s_suppliers s,project p,shipment
sh
  2  where p.pno=sh.pno and s.sno=sh.sno and pr.jno and s.scity='hyd' and pr.city='ranchi';
where p.pno=sh.pno and s.sno=sh.sno and pr.jno and s.scity='hyd' and pr.city='ranchi'
                                *
ERROR at line 2:
ORA-00920: invalid relational operator


SQL> select p.pno,p.pname,p.colour,p.weight,p.city from s_partsp,s_suppliers s,project p,shipment
sh
  2  where p.pno=sh.pno and s.sno=sh.sno and pr.jno and s.scity='hyd' and pr.city='ranchi';
where p.pno=sh.pno and s.sno=sh.sno and pr.jno and s.scity='hyd' and pr.city='ranchi'
                                *
ERROR at line 2:
ORA-00920: invalid relational operator


SQL> select count(sno) as "count" from shipment where sno='s1';

    count
----------
         1

SQL> select sum(quantity) as "sum" from shipment where pno='p1'
  2  and sno='s1';

      sum
----------
      400
```

6. Write a PL/SQL Program to demonstrate Procedure.

```
SQL> SET SERVEROUTPUT ON
SQL> CREATE OR REPLACE PROCEDURE SSDC
  2  AS
  3  BEGIN
  4     dbms_output.put_line('WELCOME TO SSDC');
  5  END;
  6  /

Procedure created.

SQL> EXECUTE SSDC;
WELCOME TO SSDC
```

PL/SQL procedure successfully completed.

---

7. Write a PL/SQL Program to demonstrate Function.

```
SQL> CREATE OR REPLACE FUNCTION cal_area(l NUMBER, w NUMBER)
  2  RETURN NUMBER
  3  IS
  4  area NUMBER;
  5  BEGIN
  6  area := l * w;
  7  RETURN area;
  8  END cal_area;
  9  /
```

Function created.

```
SQL> DECLARE
  2  length_value NUMBER := 5;
  3  width_value NUMBER := 10;
  4  area_result NUMBER;
  5  BEGIN
  6  area_result := cal_area(length_value, width_value);
  7  DBMS_OUTPUT.PUT_LINE('The area is: ' || area_result);
  8  END;
  9  /
The area is: 50
```

PL/SQL procedure successfully completed.

****

8.Write a PL/SQL program to Handle Exceptions

```
SQL> set serveroutput on;
SQL>
SQL> DECLARE
  2    a int;
  3    b int;
  4    c int;
  5  BEGIN
  6    a := &a;
  7    b := &b;
  8    c := a/b;
  9    dbms_output.put_line('RESULT=' || c);
```

```
 10  EXCEPTION
 11     when ZERO_DIVIDE then
 12           dbms_output.put_line('Division by 0 is not possible');
 13  END;
 14  /
Enter value for a: 10
old   6:       a := &a;
new   6:       a := 10;
Enter value for b: 0
old   7:       b := &b;
new   7:       b := 0;
Division by 0 is not possible

PL/SQL procedure successfully completed.



SQL> create table bscII(rollno number(10),sname varchar2(10),course varchar2(10));

Table created.

SQL> insert into bscII values(100,'raju','bsccvr2');

1 row created.

SQL> insert into bscII values(101,'rajesh','bscIIr2');

1 row created.

SQL> insert into bscII values(103,'madhu','bscIIIr');

1 row created.

SQL> insert into bscII values(103,'madhu','bsccvrIII');

1 row created.



set serveroutput on;

DECLARE
          sno bscII.rollno%type;
          sna bscII.sname%type;
          cr bscII.course%type;
```

```
        -- Exception name declared below

    already_exist EXCEPTION;
        -- pragma statement to provide name to numbered exception

    pragma exception_init(already_exist, -1);
BEGIN
        sno:=&rollno;
        sna:='&sname';
        cr:='&course';
        INSERT into bscII values(sno,sna,cr);
        dbms_output.put_line('Record inserted');
        EXCEPTION
                WHEN already_exist THEN
                        dbms_output.put_line('Record already exist');
END;
/

Enter value for rollno: 101
old  12:       sno:=&rollno;
new  12:       sno:=101;
Enter value for sname: rajesh
old  13:       sna:='&sname';
new  13:       sna:='rajesh';
Enter value for course: bscIIr2
old  14:       cr:='&course';
new  14:       cr:='bscIIr2';
Record inserted

PL/SQL procedure successfully completed.
```

****

9.Write a PL/SQL Program to Perform a set of DML OPerations

```
SQL> create table wipro(empid number(10),emp_name varchar2(10),sal number(10));

Table created.

SQL> insert into wipro values(1000,'shekar',59000);

1 row created.

SQL> insert into wipro values(1001,'bala',100000);

1 row created.
```

```
SQL> insert into wipro values(1002,'bindu',90000);

1 row created.

SQL> insert into wipro values(1003,'sudha',45000);

1 row created.


SQL> set serveroutput on;
SQL>
SQL> declare
  2  l_empid number;
  3  l_emp_name varchar2(10);
  4  l_sal number;
  5  begin
  6  select empid,emp_name,sal into l_empid,l_emp_name,l_sal from wipro
  7  where empid=1000;
  8  end;
  9  /

PL/SQL procedure successfully completed.


SQL> declare
  2  l_empid number;
  3  l_emp_name varchar2(10);
  4  l_sal number;
  5  begin
  6  insert into wipro(empid,emp_name,sal) values(1009,'rahul',76000);
  7  COMMIT;
  8  dbms_output.put_line('value inserted');
  9  end;
 10  /
value inserted

PL/SQL procedure successfully completed.

SQL> select *from wipro;

    EMPID EMP_NAME         SAL
---------- ---------- ----------
     1000 shekar         59000
     1001 bala          100000
     1002 bindu          90000
```

```
     1003 sudha          45000
     1009 rahul          76000

SQL> declare
  2  l_empid number;
  3  l_emp_name varchar2(10);
  4  l_sal number;
  5  begin
  6  update wipro set sal=86000 where emp_name='rahul';
  7  COMMIT;
  8  dbms_output.put_line('value updated');
  9  end;
 10  /
value updated

PL/SQL procedure successfully completed.

SQL> select *from wipro;


SQL> select *from wipro;

    EMPID EMP_NAME         SAL
---------- ---------- ----------
     1000 shekar         59000
     1001 bala          100000
     1002 bindu          90000
     1003 sudha          45000
     1009 rahul          86000

SQL> declare
  2  l_empid number;
  3  l_emp_name varchar2(10);
  4  l_sal number;
  5  begin
  6  delete wipro where emp_name='rahul';
  7  COMMIT;
  8  dbms_output.put_line('value deleted');
  9  end;
 10  /
value deleted

PL/SQL procedure successfully completed.

SQL> select *from wipro;
```

```
    EMPID EMP_NAME        SAL
---------- ---------- ----------
     1000 shekar         59000
     1001 bala          100000
     1002 bindu          90000
     1003 sudha          45000
```

****

10.Create a View using PL/SQL Program

```
SQL> CREATE VIEW view_name AS
  2    SELECT emp_name
  3    FROM wipro
  4   where empid=1000;

View created.

SQL> select *from view_name;

EMP_NAME
----------
shekar
```

****

11.Write a PL/SQL Program on statement Level Trigger

```
SQL> Create or replace trigger dept_check_time
  2  Before
  3  Insert or update or delete
  4  On wipro
  5  Begin
  6   If to_number(to_char(sysdate,'hh224')) not between 7 and 15 then
  7   Raise_application_error(-0010,'DML Operations not allowed now');
  8   End if;
  9  End;
 10  /

Trigger created.

SQL> select *from wipro;

    EMPID EMP_NAME        SAL
---------- ---------- ----------
     1000 shekar         59000
     1001 bala          100000
```

```
     1002 bindu          90000
     1003 sudha          45000



SQL> delete from wipro;
delete from wipro
*
ERROR at line 1:
ORA-01821: date format not recognized
ORA-06512: at "SYSTEM.DEPT_CHECK_TIME", line 2
ORA-04088: error during execution of trigger 'SYSTEM.DEPT_CHECK_TIME'


SQL> select *from wipro;

    EMPID EMP_NAME         SAL
---------- ---------- ----------
     1000 shekar         59000
     1001 bala          100000
     1002 bindu          90000
     1003 sudha          45000

SQL> update wipro
  2  set emp_name='balu'
  3  where empid=1001;
update wipro
*
ERROR at line 1:
ORA-01821: date format not recognized
ORA-06512: at "SYSTEM.DEPT_CHECK_TIME", line 2
ORA-04088: error during execution of trigger 'SYSTEM.DEPT_CHECK_TIME'


SQL> insert into wipro values(1004,'mahesh',125000);
insert into wipro values(1004,'mahesh',125000)
*
ERROR at line 1:
ORA-01821: date format not recognized
ORA-06512: at "SYSTEM.DEPT_CHECK_TIME", line 2
ORA-04088: error during execution of trigger 'SYSTEM.DEPT_CHECK_TIME'

**********************************************************************
```

12.Write a PL/SQL Program on Row Level Trigger

```
SQL> Create or replace trigger check_salary
  2  Before
  3  Insert or update of sal
  4  On wipro
  5  For each row
  6  Begin
  7   If :new.sal<500 then
  8   Raise_application_error(-20030,'minimum salary is 500');
  9   End if;
 10  End;
 11  /

Trigger created.
```