Database Systems

Laboratory Worksheet 2

01)

a).

```
create type dept_t
/

create type emp_t AS OBJECT(
    EMPNO        CHAR  (6) ,
    FIRSTNAME    VARCHAR(12),
    LASTNAME     VARCHAR (15),
    WORKDEPT     REF dept_t ,
    SEX          CHAR(1)        ,
    BIRTHDATE    DATE,
    SALARY        NUMBER (8,2)
  )
  /

create type dept_t AS OBJECT(
    EMPNO        CHAR  (3) ,
    DEPTNAME    VARCHAR(12),
    MGRNO        REF emp_t
    ADMRDEPT    REF dept_t
  )
  /
```

b)

```
create table ORDEPT of emp_t (
    Constraint   ORDEPT_PK  PRIMARY KEY (EMPNO),
    Constraint   ORDEPT_FIRSTNAME_NN  FIRSTNAME  NOT NULL,
    Constraint   ORDEPT_ LASTNAME_NN  LASTNAME   NOT NULL,
    Constraint   ORDEPT_SEC_CK CHECK (SEX= "M" OR SEX="F" OE
SEX= "m" OR

SEX="f"  )
```

```
    )
    /


  Create table ORDEPT dept_t (
      Constraint  ORDEPT_PK  PRIMARY  KEY (DEPTNO),
      Constraint  ORDEPT_ DEPTNAME_NN  DEPTNAME  NOT NULL,
      Constraint  ORDEPT_
MGRNO_FK  FOREING  KEY(MGRNO)  REFERENCES OREMP,
      Constraint  ORDEPT_ ADMRDEPT_FK  FOREING  KEY(ADMRDEPT)
REFERENCES  ORDEPT,
    )
    /


ALTER TABLE OREMP
ADD constraint ORMP_WORKDEPT_FK FOREIGN  KEY(WORKDEPT)
REFERENCES OREPT
/




c)

Insert into ORDEPT values (DEPT_T("A00", "SPIFFY COMPUTER SERVICE
DIV",null, null))
/

Insert into OREMP values (DEPT_T("B01","Planning", "null",
    (Select ref(d) from ORDEPT d where d.DEPTNO = "A00" )))
/

Insert into OREMP values (DEPT_T("C01","Information Center", "null",
    (Select ref (d) from ORDEPT D where d.DEPTNO = "A00" )))
/

Insert into OREMP values (DEPT_T("D01","Information Center", "null",
    (Select ref (d) from ORDEPT D where d.DEPTNO = "C01" )))
/

UPDATE ORDEPT d
Set d.ADMRDEPT = (SELECT REF(D)  FROM  ORDEPT  d where d.DEPTNO
= "A00")
Where d.DEPTNO = "A00"
```

/


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

Insert into OREMP values(EMP T('000010','Christine' , 'HasS',
     (select ref(d) from ORDEPT d where d. DEPTNO = ' A00'), 'F', '14-AUG-
1953, 72750)
 )
/

Insert into OREMP values (EMP_T(' 000020, 'Michell'
(select ref (d) from ORDEPT d where) 1. DEPTNO ,'Thompson' ,'B01')), 'M', '02-
FEB-1968', 61250)
)
/

Insert into OREMP values (EMP_T(' 000030', *Sally', 'Kwan',
(select ref(d) from ORDEPT d where d. DEPTNO = '(01'), 'F', '11-MAY-1971',
58250)
)
/

insert into OREMP values (EMP_T('000060' , 'Irving'
(select ref(d) from ORDEPT d whère d.DEPÑO = 'DeL'). "N" . '07-JUL -1965'
,55555)
)
/

insert into OREMP values (EMP_T('000070','Eva','Pulaksi'
(select ref(d) from ORDEPT d where d. DEPTNO= 'Dei), 'Fi','26-MAY-1973',
56170)
)
/

insert into OREMP values (EMP_T('000050' ,'hon', 'Geyer'
(select ref(d) from ORDEPT d where d.DEPTNO= 'co1'),'M',   '15-SEP-1955',
60175)
)
/

insert into OREMP values (EMP_T('000090','Eileen' ,"Henderson'
```

```
(select ref(d) from ORDEPT d where d.DEPTNO = 'B01'), PA +15-MAY-1961',
49750)
)
/

insert into OREMP values (EMP_T('000100','Theodore
(select ref (d) from ORDEPT d where d.DEPTNO ='B01'), 'M' ,'18-AUG-1976',
46150)
 )
/
```

****
*****

```
Update ORDEPT d
Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000010")
where d.DEPTNO = "A00"
/



Update ORDEPT d
Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000020")
where d.DEPTNO = "B01"
/

Update ORDEPT d
Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000030")
where d.DEPTNO = "C01"
/

Update ORDEPT d
Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000060")
where d.DEPTNO = "D01"
/
```

********************** Question. *****************************

```
    a)  select d.DEPTNAME, d.MGRNO.LASTNAME AS MANAGER
        FROM ORDEPT d
```

/

b) select e.EMPNO, e.LASTNAME, e.WORKDEPT.DEPTNAME AS
DEPTNAME
FROM OREMP e
/

c) select d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS
ADMRNAME
FROM ORDEPT d
/

d) select d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS
ADMRNAME, d.ADMRDEPT.MGRNO.LASTNAME AS ADMANAGER
FROM ORDEPT d
/

e) select e.EMPNO,
    e.FIRSTNAME,
    e.LASTNAME,
    e.SALARY,
    e.WORKDEPT.MGRNO.LASTNAME AS MANAGER,
    e.WORKDEPT.MGRNO.SALARY   AS MGRSAL
    FROM OREMP e
/

f) select e.WORKDEPT.DEPTNO AS DEPTNO,
e.WORKDEPT.DEPTNAME AS DEPTNAME, e.SEX, AVG(e.SALARY)
AS AVGSAL
from OREMP e
group by e.WORKDEPT.DEPTNO, e.WORKDEPT.DEPTNAME, e.SEX
/

select *
from user_types
/

select *
from user_type_attrs
/

02)

(a)

SELECT d.DEPTNAME, d.MGRNO.LASTNAME AS LAST_NAME

```
        FROM ORDEPT d
        /


(b)

        SELECT E.EMPNO, e.LASTNAME, E.WORKDEPT.DEPTNAME AS
        DEPARTMENT_NAME
        FROM OREMP e
        /


(c)

        SELECT d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS S
        UB_DEPT
        FROM ORDEPT d
        /


(d)

        SELECT d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS S
        SUB_DEPT, D.MGRNO.LASTNAME AS MANAGER_LAST_NAME
        FROM ORDEPT d
        /


(e)

        SELECT e.EMPNO,
              e.FIRSTNAME,
              e.LASTNAME,
              e.SALARY,
               e.WORKDEPT.MGRNO.LASTNAME AS MANAGER_NAME,
              e.WORKDEPT.MGRNO.SALARY   AS MANAGER_SALARY
        FROM OREMP e
        /
(f)

        SELECT d.DEPTNO, d.DEPTNAME
        FROM ORDEPT d
        /

        SELECT e.WORKDEPT.DEPTNO   AS DEPARTMENT_NO,
           e.WORKDEPT.DEPTNAME AS DEPARTMENT_NAME, e.SEX,
          AVG(e.SALARY)
           AS AVARAGE_SALARY
```

```
 FROM OREMP e
 GROUP BY
 e.WORKDEPT.DEPTNO, e.WORKDEPT.DEPTNAME, e.SEX
 /

 COMMIT;
```