Practical No:1

A) Write the query for the following.

1) Create the following table and include the necessary constraints NOT NULL, DEFAULT, CHECK, PRIMARY KEY,UNIQUE.

a) Student (sId,sname,gender,dob,marks,class,email)

```
SQL> create table student(sid int primary key, sname varchar(10) not null, gende
r varchar(10) not null, dob date not null, marks int check (marks>50), class var
char(10) default 'FYCS', emailid varchar(10));

Table created.

SQL> desc student
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 SID                                       NOT NULL NUMBER(38)
 SNAME                                     NOT NULL VARCHAR2(10)
 GENDER                                    NOT NULL VARCHAR2(10)
 DOB                                       NOT NULL DATE
 MARKS                                              NUMBER(38)
 CLASS                                              VARCHAR2(10)
 EMAILID                                            VARCHAR2(10)

SQL>
```

b) course(cId,cname,credits)

```
SQL> desc course
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 CID                                       NOT NULL NUMBER(38)
 CNAME                                     NOT NULL VARCHAR2(20)
 CREDITS                                   NOT NULL NUMBER(38)

SQL>
```

2) Alter the structure of the course table

c) Modify data type of cname

```
SQL> alter table course
  2  modify cname varchar(30);

Table altered.

SQL> desc course
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 CID                                       NOT NULL NUMBER(38)
 CNAME                                     NOT NULL VARCHAR2(30)
 CREDITS                                   NOT NULL NUMBER(38)

SQL>
```

d) Add a column coursehours with minimum course hours greater than 45.

```
SQL> alter table course
  2  add coursehours int check(coursehours>45);

Table altered.

SQL> desc course
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 CID                                       NOT NULL NUMBER(38)
 CNAME                                     NOT NULL VARCHAR2(30)
 CREDITS                                   NOT NULL NUMBER(38)
 COURSEHOURS                                        NUMBER(38)

SQL>
```

e) Add a column cdesc

```
SQL> alter table course
  2  add cdesc varchar(10);

Table altered.

SQL> desc course
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 CID                                       NOT NULL NUMBER(38)
 CNAME                                     NOT NULL VARCHAR2(30)
 CREDITS                                   NOT NULL NUMBER(38)
 COURSEHOURS                                        NUMBER(38)
 CDESC                                              VARCHAR2(10)

SQL>
```

3) Alter the structure of the student table

f) Add column age with minimum age as 17

```
SQL> alter table student
  2  add age int check(age>17);

Table altered.

SQL> desc student
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 SID                                       NOT NULL NUMBER(38)
 SNAME                                     NOT NULL VARCHAR2(10)
 GENDER                                    NOT NULL VARCHAR2(10)
 DOB                                       NOT NULL DATE
 MARKS                                              NUMBER(38)
 CLASS                                              VARCHAR2(10)
 EMAILID                                            VARCHAR2(10)
 AGE                                                NUMBER(38)

SQL>
```

g) Delete column dob

```
SQL> alter table student
  2  drop column dob;

Table altered.

SQL> desc student
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 SID                                       NOT NULL NUMBER(38)
 SNAME                                     NOT NULL VARCHAR2(10)
 GENDER                                    NOT NULL VARCHAR2(10)
 MARKS                                              NUMBER(38)
 CLASS                                              VARCHAR2(10)
 EMAILID                                            VARCHAR2(10)
 AGE                                                NUMBER(38)

SQL>
```

h) Add a column phoneno

```
SQL> alter table student
  2  add phoneno int;

Table altered.

SQL> desc student
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 SID                                       NOT NULL NUMBER(38)
 SNAME                                     NOT NULL VARCHAR2(10)
 GENDER                                    NOT NULL VARCHAR2(10)
 MARKS                                              NUMBER(38)
 CLASS                                              VARCHAR2(10)
 EMAILID                                            VARCHAR2(10)
 AGE                                                NUMBER(38)
 PHONENO                                            NUMBER(38)

SQL>
```

i) Rename phoneno to contactno

```
SQL> alter table student
  2  rename column phoneno to contactno;

Table altered.

SQL> desc student
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 SID                                       NOT NULL NUMBER(38)
 SNAME                                     NOT NULL VARCHAR2(10)
 GENDER                                    NOT NULL VARCHAR2(10)
 MARKS                                              NUMBER(38)
 CLASS                                              VARCHAR2(10)
 EMAILID                                            VARCHAR2(10)
 AGE                                                NUMBER(38)
 CONTACTNO                                          NUMBER(38)

SQL>
```

4) Rename student table as Student_details

```
SQL> alter table student
  2  rename to student_details;

Table altered.

SQL> desc student_details
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 SID                                       NOT NULL NUMBER(38)
 SNAME                                     NOT NULL VARCHAR2(10)
 GENDER                                    NOT NULL VARCHAR2(10)
 MARKS                                              NUMBER(38)
 CLASS                                              VARCHAR2(10)
 EMAILID                                            VARCHAR2(10)
 AGE                                                NUMBER(38)
 CONTACTNO                                          NUMBER(38)

SQL>
```

6) Drop the table student_details and course

```
SQL> drop table course;

Table dropped.

SQL> drop table student_details;

Table dropped.

SQL> desc course
ERROR:
ORA-04043: object course does not exist


SQL> desc student_details
ERROR:
ORA-04043: object student_details does not exist


SQL>
```

B) 1. Create a table EMPLOYEE with following attributes and specific data types and constraints required (Emp_no, E_name, E_address, E_ph_no, Dept_no, Dept_name,Job_id , Salary)

```
SQL> create table employee(emp_no int primary key, e_name varchar(10) not null,
e_address varchar(50), e_ph_no int, dept_no int not null, dept_name varchar(10)n
ot null, job_id int, salary int);

Table created.

SQL> desc employee
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 EMP_NO                                    NOT NULL NUMBER(38)
 E_NAME                                    NOT NULL VARCHAR2(10)
 E_ADDRESS                                          VARCHAR2(50)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(10)
 JOB_ID                                             NUMBER(38)
 SALARY                                             NUMBER(38)

SQL>
```

2) . Add a new column HIREDATE to the existing relation.

```
SQL> alter table employee
  2  add hiredate date;

Table altered.

SQL> desc employee
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 EMP_NO                                    NOT NULL NUMBER(38)
 E_NAME                                    NOT NULL VARCHAR2(10)
 E_ADDRESS                                          VARCHAR2(50)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(10)
 JOB_ID                                             NUMBER(38)
 SALARY                                             NUMBER(38)
 HIREDATE                                           DATE

SQL>
```

3) Change the datatype of JOB_ID from char to varchar2.

```
SQL> alter table employee
  2  modify job_id varchar(20);

Table altered.

SQL> desc employee
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 EMP_NO                                    NOT NULL NUMBER(38)
 E_NAME                                    NOT NULL VARCHAR2(10)
 E_ADDRESS                                          VARCHAR2(50)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(10)
 JOB_ID                                             VARCHAR2(20)
 SALARY                                             NUMBER(38)
 HIREDATE                                           DATE

SQL>
```

4) . Change the name of column/field Emp_no to E_no.

```
SQL> alter table employee
  2  rename column emp_no to e_no;

Table altered.

SQL> desc employee
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 E_NO                                      NOT NULL NUMBER(38)
 E_NAME                                    NOT NULL VARCHAR2(10)
 E_ADDRESS                                          VARCHAR2(50)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(10)
 JOB_ID                                             VARCHAR2(20)
 SALARY                                             NUMBER(38)
 HIREDATE                                           DATE

SQL>
```

5) Modify the column width of the job field of emp table.

```
SQL> alter table employee
  2  modify job_id varchar(10);

Table altered.

SQL> desc employee
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 E_NO                                      NOT NULL NUMBER(38)
 E_NAME                                    NOT NULL VARCHAR2(10)
 E_ADDRESS                                          VARCHAR2(50)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(10)
 JOB_ID                                             VARCHAR2(10)
 SALARY                                             NUMBER(38)
 HIREDATE                                           DATE

SQL>
```

C) Create the following tables with specified attributes and constraints

1) Department Table: Department_Id varchar2(20) primary key, Department_Name varchar2(25) with required data.

```
SQL> create table department(department_id varchar(20) primary key, department_n
ame varchar(20));

Table created.

SQL> desc department
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 DEPARTMENT_ID                             NOT NULL VARCHAR2(20)
 DEPARTMENT_NAME                                    VARCHAR2(20)

SQL> alter table department
  2  modify department_name varchar(20) not null;

Table altered.

SQL> desc department
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 DEPARTMENT_ID                             NOT NULL VARCHAR2(20)
 DEPARTMENT_NAME                           NOT NULL VARCHAR2(20)

SQL>
```

2) Instructor Table: Instructor_id varchar2(20) primary key, Department_Id varchar2(20) Foreign key, Last_Name varcha
First_Name varchar2(200) must have value, Telephone varchar2(20) must be unique, gender char(1) must be either '
'M',city varchar(10) default value must be 'MUMBAI'.

```
SQL> create table instructor(instructor_id varchar(20) primary key, department_i
d varchar(20) references department(department_id), last_name varchar(20), first
_name varchar(20) not null, telephone varchar(20) unique, gender char(1) check(g
ender='F'or gender='M'), city varchar(10) default 'MUMBAI');

Table created.

SQL> desc instructor
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 INSTRUCTOR_ID                             NOT NULL VARCHAR2(20)
 DEPARTMENT_ID                                      VARCHAR2(20)
 LAST_NAME                                          VARCHAR2(20)
 FIRST_NAME                                NOT NULL VARCHAR2(20)
 TELEPHONE                                          VARCHAR2(20)
 GENDER                                             CHAR(1)
 CITY                                               VARCHAR2(10)

SQL>
```

D) Create the following described below:

Table Name: EMP

Column	Data Type	Length	Precision	Scale	Primary Key	Nullable
EMPNO	Int	-	-	-	Yes	-
ENAME	Varchar2	10	-	-	-	No
JOB	Varchar2	9	-	-	-	✓
MGR	Int	-	-	-	-	✓
HIREDATE	Date	-	-	-	-	✓
SAL	Number	-	7	2	-	✓
COMM	Int	-	-	-	-	✓
DEPTNO	Int	-	-	-	-	✓

Table Name: DEPT

Column	Data Type	Length	Precision	Scale	Primary Key	Nullable
DEPTNO	Int	-	-	-	Yes	-
DNAME	Varchar2	14	-	-	-	No
LOC	Varchar2	13	-	-	-	✓

```
SQL> create table aadil_dept(dept_no int primary key, dname varchar(14), loc var
char(13));

Table created.

SQL> desc aadil_dept
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 DEPT_NO                                   NOT NULL NUMBER(38)
 DNAME                                              VARCHAR2(14)
 LOC                                                VARCHAR2(13)

SQL>
```

```
SQL> create table aadil_emp(emp_no int primary key, ename varchar(10) not null,
job varchar(9), MGR int, hiredate date, SAL decimal(7,2), comm int, dept_no int
references aadil_dept(dept_no));

Table created.

SQL> desc aadil_emp
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 EMP_NO                                    NOT NULL NUMBER(38)
 ENAME                                     NOT NULL VARCHAR2(10)
 JOB                                                VARCHAR2(9)
 MGR                                                NUMBER(38)
 HIREDATE                                           DATE
 SAL                                                NUMBER(7,2)
 COMM                                               NUMBER(38)
 DEPT_NO                                            NUMBER(38)

SQL>
```