Practical 1: Study of Data Definition Language Statement

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)

```
Select Run SQL Command Line

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SQL> connect system/jovial
Connected.
SQL> create table student(sid int primary key, sname varchar(10) not null, gender varchar(10) not null, dob date
 not null, marks int check(marks>50),class varchar(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> create table course(cid int primary key, cname varchar(10) not null, credits int not null);

Table created.

SQL> desc course
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CID                                       NOT NULL NUMBER(38)
 CNAME                                     NOT NULL VARCHAR2(10)
 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(20)
  3  ;

Table altered.

SQL> desc course
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CID                                       NOT NULL NUMBER(38)
 CNAME                                     NOT NULL VARCHAR2(20)
 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(20)
 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(20)
 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 studnt
ERROR:
ORA-04043: object studnt does not exist


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>
```

B. 1. Create a table EMPLOYEE with following attributes and specific data types and constraints required (Emp_no, E_n
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(20),E_
ph_no int, Dept_no int not null, Dept_name varchar(10),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(20)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                          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(20)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                          VARCHAR2(10)
 JOB_ID                                             NUMBER(38)
 SALARY                                             NUMBER(38)
 HIREDATE                                           DATE

SQL>
```

alter

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(20)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                          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(20)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                          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(20)
 E_PH_NO                                            NUMBER(38)
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                          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 d

```
SQL> create table Department(Department_Id varchar(20) primary key, Department_Name varchar(25));

Table created.

SQL> alter table Department
  2  modify Department_Name varchar(25) not null;

Table altered.

SQL> desc Department
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPARTMENT_ID                             NOT NULL VARCHAR2(20)
 DEPARTMENT_NAME                           NOT NULL VARCHAR2(25)

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 ‘F’ or ‘M’,
varchar(10) default value must be ‘MUMBAI’.

```
SQL>  create table Instructor(Instructor_id varchar(20) primary key, Department_Id varchar(20) references Depa
rtment(Department_Id), Last_name varchar(20),First_name varchar(200) not null, Telephone varchar(20) unique,ge
nder char(1) check(gender='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(200)
 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 DEPT(Dept_no int primary key, Dname varchar(14) not null, Loc Varchar(13));

Table created.

SQL> desc DEPT
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPT_NO                                   NOT NULL NUMBER(38)
 DNAME                                     NOT NULL VARCHAR2(14)
 LOC                                                VARCHAR2(13)

SQL>

SQL> create table 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 DEPT(Dept_no));

Table created.

SQL> desc 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>
```