

Practical 1: Study of Data Definition Language Statement

A) Write the query for the following

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

a) Student (sid, sname, gender, dob, remark, marks, class, email)

```
SQL> create table students(sid int primary key,sname varchar(10) not null,gender varchar(6) not null,dob varchar(10) not null,remark varchar(10) default 'good',marks int constraint chkmarks check(marks>=0),class varchar(10) not null,email varchar(15) unique);

Table created.

SQL> desc students
+-----+-----+-----+
Name                               Null?    Type
+-----+-----+-----+
SID                                NOT NULL NUMBER(38)
SNAME                             NOT NULL VARCHAR2(10)
GENDER                             NOT NULL VARCHAR2(6)
DOB                                NOT NULL VARCHAR2(10)
REMARK                             VARCHAR2(10)
MARKS                              NUMBER(38)
CLASS                             NOT NULL VARCHAR2(10)
EMAIL                             VARCHAR2(15)

SQL>
```

b) Course (cid, cname, credits)

```
Run SQL Command Line

SQL> create table course(cid varchar(10) primary key,cname varchar(10) not null
,credits int not null);

Table created.

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

SQL> █
```

2) Alter the structure of the Course table

a) Modify datatype of cname

```
SQL> alter table course
2 modify cname varchar(10);

Table altered.
```

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

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

Table altered.

SQL> desc course
Name                                     Null?    Type
-----
CID                                     NOT NULL VARCHAR2(10)
CNAME                                  NOT NULL CHAR(10)
CREDITS                                NOT NULL NUMBER(38)
COURSEHOURS                            NUMBER(38)
```

c) Add a column cdesc

```
Run SQL Command Line

SQL> alter table course
  2 add cdesc varchar(100) ;

Table altered.

SQL> desc course
Name                                         Null?    Type
-----
CID                                         NOT NULL VARCHAR2(10)
CNAME                                       NOT NULL CHAR(10)
CREDITS                                    NOT NULL NUMBER(38)
COURSEHOURS                                NUMBER(38)
CDISC                                       VARCHAR2(100)

SQL> █
```

3) Alter the structure of Student Table

a) Add column age with minimum age as 17

```
SQL> alter table students
  2 add age int constraint chkage check(age>=17);

Table altered.

SQL> desc students
Name                                         Null?    Type
-----
SID                                         NOT NULL NUMBER(38)
SNAME                                       NOT NULL VARCHAR2(10)
GENDER                                    NOT NULL VARCHAR2(6)
DOB                                         NOT NULL VARCHAR2(10)
REMARK                                     VARCHAR2(10)
MARKS                                      NUMBER(38)
CLASS                                    NOT NULL VARCHAR2(10)
EMAIL                                     VARCHAR2(15)
AGE                                         NUMBER(38)
```

b) Delete the column dob

```
Run SQL Command Line

SQL> alter table students
  2 drop column dob;

Table altered.
```

c) Add a column phoneno.

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

Table altered.

SQL> desc students
Name Null? Type
-----
SID NOT NULL NUMBER(38)
SNAME NOT NULL VARCHAR2(10)
GENDER NOT NULL VARCHAR2(6)
REMARK VARCHAR2(10)
MARKS NUMBER(38)
CLASS NOT NULL VARCHAR2(10)
EMAIL VARCHAR2(15)
AGE NUMBER(38)
PHONENO NUMBER(38)

SQL> █
```

d) Rename phoneno to contactno

```
Run SQL Command Line
SQL> alter table students
2 rename column phoneno to contactno;

Table altered.

SQL> desc students
Name Null? Type
-----
SID NOT NULL NUMBER(38)
SNAME NOT NULL VARCHAR2(10)
GENDER NOT NULL VARCHAR2(6)
REMARK VARCHAR2(10)
MARKS NUMBER(38)
CLASS NOT NULL VARCHAR2(10)
EMAIL VARCHAR2(15)
AGE NUMBER(38)
CONTACTNO NUMBER(38)

SQL> █
```

4) Rename Student table as Student_details.

```
Run SQL Command Line
SQL> rename students to Student_details;

Table renamed.

SQL>
```

5) Describe the structure of both the tables

```
Run SQL Command Line

SQL> desc course
Name                                     Null?   Type
-----
CID                                     NOT NULL VARCHAR2(10)
CNAME                                   NOT NULL CHAR(10)
CREDITS                                NOT NULL NUMBER(38)
COURSEHOURS                            NUMBER(38)
CDESC                                  VARCHAR2(100)

SQL> desc Student_details
Name                                     Null?   Type
-----
SID                                     NOT NULL NUMBER(38)
SNAME                                   NOT NULL VARCHAR2(10)
GENDER                                 NOT NULL VARCHAR2(6)
REMARK                                VARCHAR2(10)
MARKS                                  NUMBER(38)
CLASS                                  NOT NULL VARCHAR2(10)
EMAIL                                  VARCHAR2(15)
AGE                                    NUMBER(38)
CONTACTNO                             NUMBER(38)

SQL> █
```

6) Drop the table student_details and Course.

```
Run SQL Command Line

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_name,E_address,E_ph_no,Dept_no,Dept_name,Job_id,Salary)

```
Run SQL Command Line
SQL> create table employee(emp_no int primary key,e_name varchar(10) not null,e_address varchar(40) not null,e_ph_no int
unique,dept_no int not null,dept_name char(15) not null,job_id char(10) unique,salary int not null);

Table created.

SQL> desc employee
Name                                     Null?      Type
-----
EMP_NO                                 NOT NULL   NUMBER(38)
E_NAME                                NOT NULL   VARCHAR2(10)
E_ADDRESS                             NOT NULL   VARCHAR2(40)
E_PH_NO                               NOT NULL   NUMBER(38)
DEPT_NO                                NOT NULL   NUMBER(38)
DEPT_NAME                             NOT NULL   CHAR(15)
JOB_ID                                NOT NULL   CHAR(10)
SALARY                                NOT NULL   NUMBER(38)

SQL>
```

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

```
Run SQL Command Line
SQL> alter table employee
2 add hiredate varchar(10) not null;

Table altered.

SQL>
```

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

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

Table altered.

SQL>
```

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

```
Run SQL Command Line
SQL> alter table employee
  2  rename column emp_no to e_no;
Table altered.
```

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

```
Run SQL Command Line
SQL> alter table employee
  2  modify job_id varchar(20);
Table altered.
SQL>
```

C) Create the following tables with specified attributes and constraints.

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

```
Run SQL Command Line
SQL> create table department(department_id varchar(20) primary key,department_name varchar(25) not null);
Table created.
SQL> desc department
Name                                Null?    Type
-----
DEPARTMENT_ID                      NOT NULL VARCHAR2(20)
DEPARTMENT_NAME                     NOT NULL VARCHAR2(25)
SQL>
```

Instructor Table: Instructor_Id varchar2(20) primary key, Department_Id varchar2(20) Foreign key, Last_Name varchar2(25), First_Name varchar2(200) must have value, Telephone varchar2(20) must be unique, gender char(1) must be either 'F' or 'M', city varchar(10) default value must be 'MUMBAI'.

```

Run SQL Command Line
SQL> create table instructor(instructor_id varchar(20) primary key,department_id varchar(20), foreign key(department_id) references department(department_id),last_name varchar(25),first_name varchar(200) not null,telephone varchar(20) unique,gender char(1) check(gender in ('F','M')),city varchar(10) default 'MUMBAI');

Table created.

SQL> desc instructor
Name                                     Null?    Type
-----
INSTRUCTOR_ID                          NOT NULL VARCHAR2(20)
DEPARTMENT_ID                          NOT NULL VARCHAR2(20)
LAST_NAME                              NOT NULL VARCHAR2(25)
FIRST_NAME                             NOT NULL VARCHAR2(200)
TELEPHONE                              NOT NULL VARCHAR2(20)
GENDER                                 NOT NULL CHAR(1)
CITY                                    NOT NULL VARCHAR2(10)

```

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	-	-	-	-	✓

