

1.

```
mysql> use silpas;
Database changed
mysql> create table department(dept_id int primary key,dname varchar(30),hod varchar(20));
Query OK, 0 rows affected (1.16 sec)

mysql> Desc department;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| dept_id | int           | NO   | PRI | NULL    |       |
| dname   | varchar(30)   | YES  |     | NULL    |       |
| hod     | varchar(20)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.17 sec)
```

2.

```
mysql> create table dept_ph(dept_id int,phno numeric(10),primary key(dept_id,phno));
Query OK, 0 rows affected (0.16 sec)

mysql> desc dept_ph;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| dept_id | int           | NO   | PRI | NULL    |       |
| phno    | decimal(10,0) | NO   | PRI | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

3.

```
mysql> create table professor(empid int primary key,pname varchar(20),sex varchar(7),strt_yr int,dept_id int,foreign key(dept_id)references department(dept_id)on delete cascade);
Query OK, 0 rows affected (0.33 sec)

mysql> desc professor;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| empid | int           | NO   | PRI | NULL    |       |
| pname | varchar(20)   | YES  |     | NULL    |       |
| sex   | varchar(7)    | YES  |     | NULL    |       |
| strt_yr | int          | YES  |     | NULL    |       |
| dept_id | int          | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

4.

```
mysql> create table prof_ph(empid int,phno numeric(10),primary key(empid,phno));
Query OK, 0 rows affected (0.15 sec)

mysql> desc prof_ph;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| empid | int           | NO   | PRI | NULL    |       |
| phno  | decimal(10,0) | NO   | PRI | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

5.

```
mysql> create table student(rollno int primary key,sname varchar(20),degree varchar(20),year int,sex varchar(7),dept_id int,empid int,foreign key(dept_id)references department(dept_id)on delete cascade,foreign key(empid)references professor(empid)on delete cascade);
Query OK, 0 rows affected (0.28 sec)

mysql> desc student;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| rollno | int | NO | PRI | NULL | |
| sname | varchar(20) | YES | | NULL | |
| degree | varchar(20) | YES | | NULL | |
| year | int | YES | | NULL | |
| sex | varchar(7) | YES | | NULL | |
| dept_id | int | YES | MUL | NULL | |
| empid | int | YES | MUL | NULL | |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

6.

```
mysql> create table course(cid int primary key,cname varchar(20),min_cred int,dept_id int,empid int,foreign key(dept_id)references department(dept_id)on delete cascade,foreign key(empid)references professor(empid)on delete cascade);
Query OK, 0 rows affected (0.69 sec)

mysql> desc course;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| cid | int | NO | PRI | NULL | |
| cname | varchar(20) | YES | | NULL | |
| min_cred | int | YES | | NULL | |
| dept_id | int | YES | MUL | NULL | |
| empid | int | YES | MUL | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

7.

```
mysql> create table enrollment(rollno int,cid int,primary key(rollno,cid));
Query OK, 0 rows affected (0.15 sec)

mysql> desc enrollment;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| rollno | int | NO | PRI | NULL | |
| cid | int | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

8.

```
mysql> insert into department values (121,'MCA','Prof. Renee'), (122,'CSE','Prof. Stephenie'), (123,'MBA','Prof. Orton');
Query OK, 3 rows affected (0.27 sec)
Records: 3 Duplicates: 0 Warnings: 0

mysql> select * from departement;
ERROR 1146 (42S02): Table 'silpas.departement' doesn't exist
mysql> select * from department;
+-----+-----+-----+
| dept_id | dname | hod |
+-----+-----+-----+
| 121 | MCA | Prof. Renee |
| 122 | CSE | Prof. Stephenie |
| 123 | MBA | Prof. Orton |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

9.

```
mysql> insert into professor values(1001,'Nikki','Female',1990,121), (1002,'Andrade','Male',2002,121),(1003,'Vikas','Male',2001,122),(1004,'Shalini','Female',1992,123),
(1005,'Susnatha','Female',1998,123),(1006,'Thushar','Male',1998,122);
Query OK, 6 rows affected (0.18 sec)
Records: 6 Duplicates: 0 Warnings: 0

mysql> select * from professor;
+-----+-----+-----+-----+-----+
| empid | pname | sex | strt_yr | dept_id |
+-----+-----+-----+-----+-----+
| 1001 | Nikki | Female | 1990 | 121 |
| 1002 | Andrade | Male | 2002 | 121 |
| 1003 | Vikas | Male | 2001 | 122 |
| 1004 | Shalini | Female | 1992 | 123 |
| 1005 | Susnatha | Female | 1998 | 123 |
| 1006 | Thushar | Male | 1998 | 122 |
+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

10.

```
mysql> insert into student values(1,'Pradnya','BCA',2019,'Female',121,1001), (2,'Shaikh Muhammed','BscCS',2018,'Male',122,1003),(3,'Krishna','BscPh',2019,'Male',121,1002), (4,'Amrisha','BBA',2019,'Male',123,1004);
Query OK, 4 rows affected (0.16 sec)
Records: 4 Duplicates: 0 Warnings: 0

mysql> select * from student;
+-----+-----+-----+-----+-----+-----+
| rollno | sname | degree | year | sex | dept_id | empid |
+-----+-----+-----+-----+-----+-----+
| 1 | Pradnya | BCA | 2019 | Female | 121 | 1001 |
| 2 | Shaikh Muhammed | BscCS | 2018 | Male | 122 | 1003 |
| 3 | Krishna | BscPh | 2019 | Male | 121 | 1002 |
| 4 | Amrisha | BBA | 2019 | Male | 123 | 1004 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

11.

```
mysql> insert into prof_ph values (1001,9999999991), (1002,9999999992), (1003,9999999993), (1004,9999999994),(1005,9999999985), (1006,9999999986);
Query OK, 6 rows affected (0.03 sec)
Records: 6 Duplicates: 0 Warnings: 0

mysql> select * from prof_ph;
+-----+-----+
| empid | phno |
+-----+-----+
| 1001 | 9999999991 |
| 1002 | 9999999992 |
| 1003 | 9999999993 |
| 1004 | 9999999994 |
| 1005 | 9999999985 |
| 1006 | 9999999986 |
+-----+-----+
6 rows in set (0.00 sec)
```

12.

```
mysql> insert into dept_ph values (121,9999999980), (122,9999999981), (123,9999999982);
Query OK, 3 rows affected (0.12 sec)
Records: 3 Duplicates: 0 Warnings: 0

mysql> select * from dept_ph;
+-----+-----+
| dept_id | phno |
+-----+-----+
| 121 | 9999999980 |
| 122 | 9999999981 |
| 123 | 9999999982 |
+-----+-----+
3 rows in set (0.00 sec)
```

13.

```
mysql> insert into course value(201,'Btech CSE',8,122,1003),(202,'Mtech CSE',10,122,1003),(203,'MCA',9,121,1001),(204,'MBA',9,123,1005);
Query OK, 4 rows affected (0.08 sec)
Records: 4 Duplicates: 0 Warnings: 0

mysql> select * from course;
+-----+-----+-----+-----+-----+
| cid | cname | min_cred | dept_id | empid |
+-----+-----+-----+-----+-----+
| 201 | Btech CSE | 8 | 122 | 1003 |
| 202 | Mtech CSE | 10 | 122 | 1003 |
| 203 | MCA | 9 | 121 | 1001 |
| 204 | MBA | 9 | 123 | 1005 |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

14.

```
mysql> insert into enrollment values (1,203), (2,201), (3,203), (4,204);
Query OK, 4 rows affected (0.22 sec)
Records: 4 Duplicates: 0 Warnings: 0

mysql> select * from enrollment;
+-----+-----+
| rollno | cid |
+-----+-----+
|      1 | 203 |
|      2 | 201 |
|      3 | 203 |
|      4 | 204 |
+-----+-----+
4 rows in set (0.00 sec)
```

a.

```
mysql> delete from professor where strt_yr=1992;
Query OK, 1 row affected (0.12 sec)

mysql> select *from professor;
+-----+-----+-----+-----+-----+
| empid | pname  | sex   | strt_yr | dept_id |
+-----+-----+-----+-----+-----+
| 1001  | Nikki  | Female | 1990    | 121     |
| 1002  | Andrade | Male   | 2002    | 121     |
| 1003  | Vikas  | Male   | 2001    | 122     |
| 1005  | Susnatha | Female | 1998    | 123     |
| 1006  | Thushar | Male   | 1998    | 122     |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

b.

```
mysql> update prof_ph set phno=04764567878 where empid in(select empid from professor where dept_id=(select dept_id from department where dname='MCA'));
Query OK, 2 rows affected (0.26 sec)
Rows matched: 2 Changed: 2 Warnings: 0

mysql> select * from prof_ph;
+-----+-----+
| empid | phno |
+-----+-----+
| 1001  | 4764567878 |
| 1002  | 4764567878 |
| 1003  | 0000000003 |
| 1004  | 0000000004 |
| 1005  | 0000000005 |
| 1006  | 0000000006 |
+-----+-----+
6 rows in set (0.00 sec)
```

c.

```
mysql> select * from professor where strt_yr>1990 order by pname;
+-----+-----+-----+-----+-----+
| empid | pname  | sex   | strt_yr | dept_id |
+-----+-----+-----+-----+-----+
| 1002  | Andrade | Male   | 2002    | 121     |
| 1005  | Susnatha | Female | 1998    | 123     |
| 1006  | Thushar | Male   | 1998    | 122     |
| 1003  | Vikas  | Male   | 2001    | 122     |
+-----+-----+-----+-----+-----+
4 rows in set (0.04 sec)
```

d.

```
mysql> select * from professor where strt_yr between 1990 and 2000;
+-----+-----+-----+-----+-----+
| empid | pname  | sex   | strt_yr | dept_id |
+-----+-----+-----+-----+-----+
| 1001  | Nikki  | Female | 1990    | 121     |
| 1005  | Susnatha | Female | 1998    | 123     |
| 1006  | Thushar | Male   | 1998    | 122     |
+-----+-----+-----+-----+-----+
3 rows in set (0.10 sec)
```

e.

```
mysql> select empid,pname from professor where sex='Female' and dept_id=(select dept_id from department where dname='MCA');
+-----+-----+
| empid | pname |
+-----+-----+
| 1001  | Nikki |
+-----+-----+
1 row in set (0.00 sec)
```

f.

```
mysql> select e.empid,e.pname,p.phno from professor e,prof_ph p where e.empid=p.empid and e.strt_yr>2000 and e.dept_id=(select dept_id from department where dname='MCA');
+-----+-----+-----+
| empid | pname  | phno  |
+-----+-----+-----+
| 1002  | Andrade | 4764567878 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

g.

```
mysql> select * from student where empid=(select empid from professor where pname='Nikki');
+-----+-----+-----+-----+-----+-----+-----+
| rollno | sname  | degree | year | sex   | dept_id | empid |
+-----+-----+-----+-----+-----+-----+-----+
| 1      | Pradnya | BCA    | 2019 | Female | 121     | 1001  |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> _
```

h.

```
mysql> select s.rollno,s.sname from student s,professor p where s.empid=p.empid and s.sex=p.sex;
+-----+-----+
| rollno | sname  |
+-----+-----+
| 1      | Pradnya |
| 2      | Shaikh Muhammed |
| 3      | Krishna |
+-----+-----+
3 rows in set (0.00 sec)
```

i.

```
mysql> select empid,pname from professor where empid in(select empid from student where sex='Female');
+-----+-----+
| empid | pname |
+-----+-----+
| 1001  | Nikki |
+-----+-----+
1 row in set (0.01 sec)
```

j.

```
mysql> select empid,pname from professor where strt_yr=(select min(strt_yr) from professor);
+-----+-----+
| empid | pname |
+-----+-----+
| 1001 | Nikki |
+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> select rollno from enrollment where cid in(select cid from course where cname like '%btech%' or cname='MCA');
+-----+
| rollno |
+-----+
| 1 |
| 2 |
| 3 |
+-----+
3 rows in set (0.07 sec)
```

k.

```
mysql> select count(*) from student where dept_id=(select dept_id from department where dname='MCA');
+-----+
| count(*) |
+-----+
| 2 |
+-----+
1 row in set (0.09 sec)
```

l.

```
mysql> select c.cname,p.pname from course c,professor p where c.empid=p.empid;
+-----+-----+
| cname | pname |
+-----+-----+
| Btech CSE | Vikas |
| Mtech CSE | Vikas |
| MCA | Nikki |
| MBA | Susnatha |
+-----+-----+
4 rows in set (0.00 sec)
```

m.

```
mysql> select count(*),cid from enrollment group by cid;
+-----+-----+
| count(*) | cid |
+-----+-----+
| 2 | 203 |
| 1 | 201 |
| 1 | 204 |
+-----+-----+
3 rows in set (0.00 sec)
```

n.

```
mysql> create view employee as select e.empid,e.pname,p.phno from professor e,prof_ph as p where e.dept_id=(select dept_id from department where dname='CSE') and e.empid=p.empid and e.strt_yr>=1990;
Query OK, 0 rows affected (0.18 sec)

mysql> select * from employee;
+-----+-----+-----+
| empid | pname | phno |
+-----+-----+-----+
| 1003 | Vikas | 9999999993 |
| 1006 | Thushar | 9999999986 |
+-----+-----+-----+
2 rows in set (0.13 sec)
```

o.

```
mysql> select * from employee where pname like 'M%' or pname like '%n';
Empty set (0.00 sec)
```

p.

```
mysql> select d.dname,c.* from department as d join(select count(cid),dept_id from course group by dept_id) c using (dept_id);
+-----+-----+-----+
| dname | count(cid) | dept_id |
+-----+-----+-----+
| MCA   | 1          | 121     |
| CSE   | 2          | 122     |
| MBA   | 1          | 123     |
+-----+-----+-----+
3 rows in set (0.01 sec)
```

q.

```
mysql> select s.rollno,s.sname,p.pname,c.cname from student s,professor p,course c where s.empid=p.empid and c.cid in(select cid from enrollment where s.rollno=rollno)
and s.dept_id=(select dept_id from department where dname='MCA');
+-----+-----+-----+-----+
| rollno | sname  | pname  | cname |
+-----+-----+-----+-----+
| 1      | Pradnya | Nikki  | MCA   |
| 3      | Krishna | Andrade | MCA   |
+-----+-----+-----+-----+
2 rows in set (0.11 sec)
```

Q2.

```
mysql> create database Bank;
Query OK, 1 row affected (0.16 sec)

mysql>
mysql> show databases;
+-----+
| Database |
+-----+
| bank     |
| information_schema |
| mysql    |
| performance_schema |
| silpas   |
| sys      |
+-----+
6 rows in set (0.24 sec)

mysql> use Bank;
Database changed
mysql> _
```