1. Create the database named CYBERCOLLEGE and the above tables in the CYBERCOLLEGE database; include the Primary Key Constraint, Referential Integrity Constraints, and Check Constraints.

```
mysql> use cybercollege;
Database changed
mysql> CREATE TABLE Student(Stud_no CHAR(9) PRIMARY KEY,Stud_lname CHAR(20),Stud_fname CHAR(20),Stud_address char(50),St
ud_city char(30),Stud_state Char(2),Stud_post char(9));
Query OK, 0 rows affected (0.13 sec)
```

```
mysql> desc student;
+--------------+----------+------+-----+---------+-------+
| Field        | Type     | Null | Key | Default | Extra |
+--------------+----------+------+-----+---------+-------+
| Stud_no      | char(9)  | NO   | PRI | NULL    |       |
| Stud_lname   | char(20) | YES  |     | NULL    |       |
| Stud_fname   | char(20) | YES  |     | NULL    |       |
| Stud_address | char(50) | YES  |     | NULL    |       |
| Stud_city    | char(30) | YES  |     | NULL    |       |
| Stud_state   | char(2)  | YES  |     | NULL    |       |
| Stud_post    | char(9)  | YES  |     | NULL    |       |
+--------------+----------+------+-----+---------+-------+
7 rows in set (0.08 sec)
```

```
mysql> CREATE TABLE Instructor(Inst_id char(5) PRIMARY KEY,Inst_lname char(20),Inst_fname char(20),Inst_ph char(10));
Query OK, 0 rows affected (0.06 sec)

mysql> desc Instructor;
+------------+----------+------+-----+---------+-------+
| Field      | Type     | Null | Key | Default | Extra |
+------------+----------+------+-----+---------+-------+
| Inst_id    | char(5)  | NO   | PRI | NULL    |       |
| Inst_lname | char(20) | YES  |     | NULL    |       |
| Inst_fname | char(20) | YES  |     | NULL    |       |
| Inst_ph    | char(10) | YES  |     | NULL    |       |
+------------+----------+------+-----+---------+-------+
4 rows in set (0.02 sec)
```

```
mysql> CREATE TABLE Section(Sec_id char(7) PRIMARY KEY,Time_off char(10),Days_off char(10),Sec_room char(8),Class_size numeric(3,0) CHECK(Class_size
c(3,0) CHECK(Num_enrolled>=0),Inst_id char(5) REFERENCES Instructor(Inst_id),Course_code char(6) REFERENCES Course(Course_code));
Query OK, 0 rows affected (0.04 sec)

mysql> desc Section;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Sec_id      | char(7)     | NO   | PRI | NULL    |       |
| Time_off    | char(10)    | YES  |     | NULL    |       |
| Days_off    | char(10)    | YES  |     | NULL    |       |
| Sec_room    | char(8)     | YES  |     | NULL    |       |
| Class_size  | decimal(3,0)| YES  |     | NULL    |       |
| Num_enrolled| decimal(3,0)| YES  |     | NULL    |       |
| Inst_id     | char(5)     | YES  |     | NULL    |       |
| Course_code | char(6)     | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
8 rows in set (0.04 sec)
```

```
mysql> CREATE TABLE Course(Course_code char(6) PRIMARY KEY,Course_title char(25),Course_hour Numeric(2,0),Semester char(20));
Query OK, 0 rows affected (0.05 sec)

mysql> desc Course;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Course_code | char(6)     | NO   | PRI | NULL    |       |
| Course_title| char(25)    | YES  |     | NULL    |       |
| Course_hour | decimal(2,0)| YES  |     | NULL    |       |
| Semester    | char(20)    | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.03 sec)
```

2. Add a field Country to the STUDENT table with the default value set to ‘India’.

```
mysql> alter table student add country char(20) default 'INDIA';
Query OK, 0 rows affected (0.13 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc student;
+-------------+---------+------+-----+---------+-------+
| Field       | Type    | Null | Key | Default | Extra |
+-------------+---------+------+-----+---------+-------+
| Stud_no     | char(9) | NO   | PRI | NULL    |       |
| Stud_lname  | char(20)| YES  |     | NULL    |       |
| Stud_fname  | char(20)| YES  |     | NULL    |       |
| Stud_address| char(50)| YES  |     | NULL    |       |
| Stud_city   | char(30)| YES  |     | NULL    |       |
| Stud_state  | char(2) | YES  |     | NULL    |       |
| Stud_post   | char(9) | YES  |     | NULL    |       |
| country     | char(20)| YES  |     | INDIA   |       |
+-------------+---------+------+-----+---------+-------+
8 rows in set (0.04 sec)
```

3. Add a constraint to the Grade field in the ENROLMENT table that accepts only the values 'A', 'B' , 'C' and ‘D’.

```
mysql> alter table enroll add constraint check_grade check(grade='A' or grade='B' or grade='C' or grade='D');
Query OK, 0 rows affected (0.10 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

4. Modify the ENROLMENT table by changing the width of the field Grade to 2

```
mysql> alter table enroll modify grade varchar(2);
Query OK, 3 rows affected (0.14 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> desc enroll;
+--------+------------+------+-----+---------+-------+
| Field  | Type       | Null | Key | Default | Extra |
+--------+------------+------+-----+---------+-------+
| stu_no | char(9)    | YES  |     | NULL    |       |
| sec_id | char(7)    | YES  |     | NULL    |       |
| grade  | varchar(2) | YES  |     | NULL    |       |
+--------+------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

5. Add a new column, salary to the INSTRUCTOR table and display its modified schema.

```
mysql> alter table Instructor add salary varchar(10);
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Instructor;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| Inst_id    | char(5)     | NO   | PRI | NULL    |       |
| Inst_lname | char(20)    | YES  |     | NULL    |       |
| Inst_fname | char(20)    | YES  |     | NULL    |       |
| Inst_ph    | char(10)    | YES  |     | NULL    |       |
| salary     | varchar(10) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```

6. Drop the column Country from the STUDENT table.

```
mysql> alter table student drop country;
Query OK, 0 rows affected (0.12 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc student;
+--------------+----------+------+-----+---------+-------+
| Field        | Type     | Null | Key | Default | Extra |
+--------------+----------+------+-----+---------+-------+
| Stud_no      | char(9)  | NO   | PRI | NULL    |       |
| Stud_lname   | char(20) | YES  |     | NULL    |       |
| Stud_fname   | char(20) | YES  |     | NULL    |       |
| Stud_address | char(50) | YES  |     | NULL    |       |
| Stud_city    | char(30) | YES  |     | NULL    |       |
| Stud_state   | char(2)  | YES  |     | NULL    |       |
| Stud_post    | char(9)  | YES  |     | NULL    |       |
+--------------+----------+------+-----+---------+-------+
7 rows in set (0.01 sec)
```

7. Create a view for instructors to display the courses taught by an instructor. Display the personal details but by hiding salary information.

```
mysql> create view ins as select i.inst_id,i.inst_lname,i.inst_ph,c.course_title from instructor i join course c join section s where i.inst_id=s.inst_id and s.course_code=
c.course_code;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from ins;
+---------+------------+------------+--------------+
| inst_id | inst_lname | inst_ph    | course_title |
+---------+------------+------------+--------------+
| 202     | Ashna      | 8237688843 | ADS          |
| 201     | Asha       | 8237676543 | ASE          |
+---------+------------+------------+--------------+
2 rows in set (0.00 sec)
```

8. Insert details of you and your 5 friends in STUDENT table and the details of 5 instructors with names (Asha, Ashna, Sandeep, Asifa, George) in INSTRUCTOR table.

```
mysql> insert into student values(101,'Kiran','Karthikeyan','Manghat','Thrissur','Kerala',680306);
Query OK, 1 row affected (0.01 sec)

mysql> insert into student values(101,'Karthik','Karthikeyan','Manghat','Palakkad','Kerala',780906);
ERROR 1062 (23000): Duplicate entry '101' for key 'student.PRIMARY'
mysql> insert into student values(102,'Karthik','Karthikeyan','Manghat','Palakkad','Kerala',780906);
Query OK, 1 row affected (0.01 sec)

mysql> insert into student values(103,'Dheeraj','Govind','Ottapath','Ernakulam','Kerala',800906);
Query OK, 1 row affected (0.01 sec)

mysql> insert into student values(104,'Sarath','Ravi','Chittatill','Idukki','Kerala',900906);
Query OK, 1 row affected (0.01 sec)

mysql> insert into student values(105,'Gokul','Ravi','Chittatill','Kannur','Kerala',100200);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from student;
+---------+------------+-------------+--------------+-----------+------------+-----------+
| Stud_no | Stud_lname | Stud_fname  | Stud_address | Stud_city | Stud_state | Stud_post |
+---------+------------+-------------+--------------+-----------+------------+-----------+
| 101     | Kiran      | Karthikeyan | Manghat      | Thrissur  | Kerala     | 680306    |
| 102     | Karthik    | Karthikeyan | Manghat      | Palakkad  | Kerala     | 780906    |
| 103     | Dheeraj    | Govind      | Ottapath     | Ernakulam | Kerala     | 800906    |
| 104     | Sarath     | Ravi        | Chittatill   | Idukki    | Kerala     | 900906    |
| 105     | Gokul      | Ravi        | Chittatill   | Kannur    | Kerala     | 100200    |
+---------+------------+-------------+--------------+-----------+------------+-----------+
5 rows in set (0.00 sec)
```

```
mysql> insert into instructor values(201,'Asha','Krish',8237676543,20000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into instructor values(202,'Ashna','S',8237688843,30000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into instructor values(203,'Sandeep','KK',9435674320,40000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into instructor values(204,'Asifa','KK',9435674111,50000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into instructor values(205,'George','Kuriyan',7435674111,60000);
Query OK, 1 row affected (0.01 sec)

mysql> select * from instructor;
+---------+------------+------------+------------+--------+
| Inst_id | Inst_lname | Inst_fname | Inst_ph    | salary |
+---------+------------+------------+------------+--------+
| 201     | Asha       | Krish      | 8237676543 | 20000  |
| 202     | Ashna      | S          | 8237688843 | 30000  |
| 203     | Sandeep    | KK         | 9435674320 | 40000  |
| 204     | Asifa      | KK         | 9435674111 | 50000  |
| 205     | George     | Kuriyan    | 7435674111 | 60000  |
+---------+------------+------------+------------+--------+
5 rows in set (0.01 sec)
```

9. Add details of the first and second semester courses. Also add a new course for

Data Mining with a course code of 20MCA260 worth with credit of 4 hours

```
mysql> INSERT into Course VALUES('20MCA201','Digital',6,1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT into Course VALUES('20MCA202','Maths',4,1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT into Course VALUES('20MCA203','ADS',8,1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT into Course VALUES('20MCA204','ASE',4,1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT into Course VALUES('20MCA205','AI',5,2);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT into Course VALUES('20MCA206','Data Mining',7,2);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT into Course VALUES('20MCA207','Networks',8,2);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT into Course VALUES('20MCA208','ADBMS',8,2);
Query OK, 1 row affected (0.01 sec)

mysql> select * from course;
+-------------+--------------+-------------+----------+
| Course_code | Course_title | Course_hour | Semester |
+-------------+--------------+-------------+----------+
| 20MCA201    | Digital      |           6 | 1        |
| 20MCA202    | Maths        |           4 | 1        |
| 20MCA203    | ADS          |           8 | 1        |
| 20MCA204    | ASE          |           4 | 1        |
| 20MCA205    | AI           |           5 | 2        |
| 20MCA206    | Data Mining  |           7 | 2        |
| 20MCA207    | Networks     |           8 | 2        |
| 20MCA208    | ADBMS        |           8 | 2        |
+-------------+--------------+-------------+----------+
```

10. Add a new section for this new course with section ID as 301.The section should meet in 2-4 on MW in BLGNG102. The class size should be 35, and number enrolled should be 0. The instructor should be 3, and the course is 20MCA260.

Also add sections 302 and 303 for the courses AOS and OB and enrol 5 students each to these courses.

```
mysql> insert into section values(301,2-4,'MW','BLGNG102',35,0,3,'20MCA260');
Query OK, 1 row affected (0.01 sec)

mysql> insert into section values(302,2,'MW','BLGNG102',35,5,202,'20MCA203');
Query OK, 1 row affected (0.01 sec)

mysql> insert into section values(303,2,'MW','BLGNG102',35,5,201,'20MCA204');
Query OK, 1 row affected (0.01 sec)

mysql> select * from section;
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| Sec_id | Time_off | Days_off | Sec_room | Class_size | Num_enrolled | Inst_id | Course_code |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| 301    | -2       | MW       | BLGNG102 |         35 |            0 | 3       | 20MCA260    |
| 302    | 2        | MW       | BLGNG102 |         35 |            5 | 202     | 20MCA203    |
| 303    | 2        | MW       | BLGNG102 |         35 |            5 | 201     | 20MCA204    |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
3 rows in set (0.00 sec)
```

```
mysql> update section set Inst_id=203 where sec_id=301;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from section;
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| Sec_id | Time_off | Days_off | Sec_room | Class_size | Num_enrolled | Inst_id | Course_code |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| 301    | 2.4      | MW       | BLGNG102 |         35 |            0 | 203     | 20MCA260    |
| 302    | 2        | MW       | BLGNG102 |         35 |            5 | 202     | 20MCA203    |
| 303    | 2        | MW       | BLGNG102 |         35 |            5 | 201     | 20MCA204    |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
3 rows in set (0.00 sec)
```

11. Register yourself along with your 3 friends for this new course by adding a row to the ENROLMENT table. The grade should be null.

```
mysql> insert into enroll values(101,301,'');
Query OK, 1 row affected (0.01 sec)

mysql> insert into enroll values(102,302,'');
Query OK, 1 row affected (0.01 sec)

mysql> insert into enroll values(103,303,'');
Query OK, 1 row affected (0.01 sec)

mysql> select * from enroll;
+--------+--------+-------+
| stu_no | sec_id | grade |
+--------+--------+-------+
| 101    | 301    |       |
| 102    | 302    |       |
| 103    | 303    |       |
+--------+--------+-------+
3 rows in set (0.00 sec)
```

12. Update the 301 section, and increase the class sizes by 10%.

```
mysql> update section set Class_size=Class_size +(Class_size * 10/100) where sec_id=301;
Query OK, 1 row affected, 1 warning (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 1

mysql> select * from section;
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| Sec_id | Time_off | Days_off | Sec_room | Class_size | Num_enrolled | Inst_id | Course_code |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| 301    | 2.4      | MW       | BLGNG102 |         39 |            0 | 203     | 20MCA260    |
| 302    | 2        | MW       | BLGNG102 |         35 |            5 | 202     | 20MCA203    |
| 303    | 2        | MW       | BLGNG102 |         35 |            5 | 201     | 20MCA204    |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
3 rows in set (0.00 sec)
```

13. Give a 10% increment in salary for all instructors.

```
mysql> update instructor set salary=salary +(salary * 10/100);
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5  Changed: 5  Warnings: 0

mysql> select * from instructor;
+---------+------------+------------+------------+--------+
| Inst_id | Inst_lname | Inst_fname | Inst_ph    | salary |
+---------+------------+------------+------------+--------+
| 201     | Asha       | Krish      | 8237676543 | 22000  |
| 202     | Ashna      | S          | 8237688843 | 33000  |
| 203     | Sandeep    | KK         | 9435674320 | 44000  |
| 204     | Asifa      | KK         | 9435674111 | 55000  |
| 205     | George     | Kuriyan    | 7435674111 | 66000  |
+---------+------------+------------+------------+--------+
5 rows in set (0.00 sec)
```

14. Delete Section 302and verify for the rows in ENROLMENT table for that section.

```
mysql> delete from section where sec_id=302;
Query OK, 1 row affected (0.01 sec)

mysql> select * from section;
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| Sec_id | Time_off | Days_off | Sec_room | Class_size | Num_enrolled | Inst_id | Course_code |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
| 301    | 2.4      | MW       | BLGNG102 |         39 |            0 | 203     | 20MCA260    |
| 303    | 2        | MW       | BLGNG102 |         35 |            5 | 201     | 20MCA204    |
+--------+----------+----------+----------+------------+--------------+---------+-------------+
2 rows in set (0.00 sec)
```

15. Undo the previous delete operation

```
mysql> rollback;
Query OK, 0 rows affected (0.00 sec)
```

16. Save all the transactions to the database.

```
mysql> commit;
Query OK, 0 rows affected (0.00 sec)
```

17. Grant the privilege to read and delete from the ENROLMENT table to the User U1.

```
mysql> create user 'U1' identified by '1234';
Query OK, 0 rows affected (0.04 sec)

mysql> select user from mysql.user;
+------------------+
| user             |
+------------------+
| U1               |
| mysql.infoschema |
| mysql.session    |
| mysql.sys        |
| root             |
+------------------+
5 rows in set (0.00 sec)

mysql> grant select,update on enroll to U1;
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> show grants for 'U1';
+-------------------------------------------------------------------+
| Grants for U1@%                                                   |
+-------------------------------------------------------------------+
| GRANT USAGE ON *.* TO `U1`@`%`                                    |
| GRANT SELECT, UPDATE ON `cybercollege`.`enroll` TO `U1`@`%`       |
+-------------------------------------------------------------------+
2 rows in set (0.00 sec)
```

18. Revoke the delete privilege from U1

```
mysql> revoke update on enroll from U1;
Query OK, 0 rows affected (0.01 sec)

mysql> show grants for 'U1';
+-----------------------------------------------------+
| Grants for U1@%                                     |
+-----------------------------------------------------+
| GRANT USAGE ON *.* TO `U1`@`%`                      |
| GRANT SELECT ON `cybercollege`.`enroll` TO `U1`@`%` |
+-----------------------------------------------------+
2 rows in set (0.00 sec)
```

19. Display the full name and contact details of students living in Kochi.

```
mysql> select * from student;
+---------+-----------+-------------+-------------+-----------+------------+-----------+
| Stud_no | Stud_lname | Stud_fname  | Stud_address | Stud_city | Stud_state | Stud_post |
+---------+-----------+-------------+-------------+-----------+------------+-----------+
| 101     | Kiran      | Karthikeyan | Manghat      | Thrissur  | Kerala     | 680306    |
| 102     | Karthik    | Karthikeyan | Manghat      | Palakkad  | Kerala     | 780906    |
| 103     | Dheeraj    | Govind      | Ottapath     | Ernakulam | Kerala     | 800906    |
| 104     | Sarath     | Ravi        | Chittatill   | Idukki    | Kerala     | 900906    |
| 105     | Gokul      | Ravi        | Chittatill   | Kannur    | Kerala     | 100200    |
| 106     | Ram        | Kumar       | Ottapath     | Kochi     | Kerala     | 709090    |
+---------+-----------+-------------+-------------+-----------+------------+-----------+
6 rows in set (0.00 sec)

mysql> select stud_lname,stud_fname,stud_address from student where stud_city='Kochi';
+------------+------------+--------------+
| stud_lname | stud_fname | stud_address |
+------------+------------+--------------+
| Ram        | Kumar      | Ottapath     |
+------------+------------+--------------+
1 row in set (0.00 sec)
```

20. List the student details who has longest first name

```
mysql> select * from student where length(stud_fname)=(select max(length(stud_fname)) from student);
+---------+------------+-------------+--------------+-----------+------------+-----------+
| Stud_no | Stud_lname | Stud_fname  | Stud_address | Stud_city | Stud_state | Stud_post |
+---------+------------+-------------+--------------+-----------+------------+-----------+
| 101     | Kiran      | Karthikeyan | Manghat      | Thrissur  | Kerala     | 680306    |
| 102     | Karthik    | Karthikeyan | Manghat      | Palakkad  | Kerala     | 780906    |
+---------+------------+-------------+--------------+-----------+------------+-----------+
2 rows in set (0.01 sec)
```

21. Display the name and phone number of the instructors who is handling the courses AOS and ADBMS.

```
mysql> select inst_lname,inst_ph from instructor i join course c join section s where i.inst_id=s.inst_id and s.course_code= c.course_code and  c.course_title ='ADS'or'DBMS
';
+------------+------------+
| inst_lname | inst_ph    |
+------------+------------+
| Ashna      | 8237688843 |
+------------+------------+
1 row in set, 1 warning (0.00 sec)
```

22. List the codes, titles, and credit hours for courses worth 4 hours. Order the results in descending order of course code.

```
mysql> select * from course;
+-------------+--------------+-------------+----------+
| Course_code | Course_title | Course_hour | Semester |
+-------------+--------------+-------------+----------+
| 20MCA201    | Digital      |           6 | 1        |
| 20MCA202    | Maths        |           4 | 1        |
| 20MCA203    | ADS          |           8 | 1        |
| 20MCA204    | ASE          |           4 | 1        |
| 20MCA205    | AI           |           5 | 2        |
| 20MCA206    | Data Mining  |           7 | 2        |
| 20MCA207    | Networks     |           8 | 2        |
| 20MCA208    | ADBMS        |           8 | 2        |
+-------------+--------------+-------------+----------+
8 rows in set (0.01 sec)

mysql> select course_code,course_title,course_hour from course where course_hour=4 order by course_code desc;
+-------------+--------------+-------------+
| course_code | course_title | course_hour |
+-------------+--------------+-------------+
| 20MCA204    | ASE          |           4 |
| 20MCA202    | Maths        |           4 |
+-------------+--------------+-------------+
2 rows in set (0.00 sec)
```

23. Display the names of the students in the descending order along with their phone

number.

```
mysql> select stud_fname,stud_lname from student order by stud_fname desc;
+--------------+-------------+
| stud_fname   | stud_lname  |
+--------------+-------------+
| Ravi         | Sarath      |
| Ravi         | Gokul       |
| Kumar        | Ram         |
| Karthikeyan  | Kiran       |
| Karthikeyan  | Karthik     |
| Govind       | Dheeraj     |
+--------------+-------------+
6 rows in set (0.00 sec)
```

24. List the student's name, course code and section id grouping the students by their grade.

```
mysql> select student.stud_lname,student.stud_fname,section.course_code,enroll.sec_id from student inner join section inner join enroll on student.stud_no=enroll.stu_no and
 section.sec_id=enroll.sec_id group by enroll.grade;
+------------+-------------+-------------+--------+
| stud_lname | stud_fname  | course_code | sec_id |
+------------+-------------+-------------+--------+
| Kiran      | Karthikeyan | 20MCA260    | 301    |
+------------+-------------+-------------+--------+
1 row in set (0.00 sec)

mysql> select student.stud_lname,student.stud_fname,section.course_code,enroll.sec_id from student inner join section inner join enroll on student.stud_no=enroll.stu_no and
 section.sec_id=enroll.sec_id ;
+------------+-------------+-------------+--------+
| stud_lname | stud_fname  | course_code | sec_id |
+------------+-------------+-------------+--------+
| Kiran      | Karthikeyan | 20MCA260    | 301    |
| Karthik    | Karthikeyan | 20MCA203    | 302    |
| Dheeraj    | Govind      | 20MCA204    | 303    |
+------------+-------------+-------------+--------+
3 rows in set (0.00 sec)
```

25. Use an inner join between the STUDENT and ENROLMENT tables for showing the full name, Section id and Grade.

```
mysql> select student.stud_fname,student.stud_lname,enroll.sec_id,enroll.grade from student inner join enroll on student.stud_no=enroll.stu_no;
+-------------+------------+--------+-------+
| stud_fname  | stud_lname | sec_id | grade |
+-------------+------------+--------+-------+
| Karthikeyan | Kiran      | 301    |       |
| Karthikeyan | Karthik    | 302    |       |
| Govind      | Dheeraj    | 303    |       |
+-------------+------------+--------+-------+
3 rows in set (0.00 sec)
```

26. Use an outer join between the STUDENT and ENROLMENT tables for showing the full name, Section id and Grade. Include all the students regardless of whether they

have a matching section.

```
mysql> select student.stud_fname,student.stud_lname,enroll.sec_id,enroll.grade from student left join enroll on student.stud_no=enroll.stu_no;
+-------------+------------+--------+-------+
| stud_fname  | stud_lname | sec_id | grade |
+-------------+------------+--------+-------+
| Karthikeyan | Kiran      | 301    |       |
| Karthikeyan | Karthik    | 302    |       |
| Govind      | Dheeraj    | 303    |       |
| Ravi        | Sarath     | NULL   | NULL  |
| Ravi        | Gokul      | NULL   | NULL  |
| Kumar       | Ram        | NULL   | NULL  |
+-------------+------------+--------+-------+
6 rows in set (0.01 sec)
```

27. Give a 7% salary raise to instructors whose salary is less than the average.

```
mysql> update instructor set salary=salary+(salary*7/100) where salary<(select avg(salary));
Query OK, 0 rows affected (0.01 sec)
Rows matched: 0  Changed: 0  Warnings: 0
```

28. List full name and salary of instructors whose last name ends with ‘a’ and earns highest salary.

```
mysql> select *from instructor;
+---------+-----------+------------+------------+--------+
| Inst_id | Inst_lname | Inst_fname | Inst_ph    | salary |
+---------+-----------+------------+------------+--------+
| 201     | Asha       | Krish      | 8237676543 | 75000  |
| 202     | Ashna      | S          | 8237688843 | 33000  |
| 203     | Sandeep    | KK         | 9435674320 | 44000  |
| 204     | Asifa      | KK         | 9435674111 | 55000  |
| 205     | George     | Kuriyan    | 7435674111 | 66000  |
+---------+-----------+------------+------------+--------+
5 rows in set (0.00 sec)

mysql> select inst_lname,salary from instructor where salary = (select max(salary) from instructor) and inst_lname in (select inst_lname from instructor where inst_lname li
ke '%a');
+------------+--------+
| inst_lname | salary |
+------------+--------+
| Asha       | 75000  |
+------------+--------+
1 row in set (0.00 sec)
```

29. Display the details of instructor who draws lowest salary.

```
mysql> select * from instructor where salary=(select min(salary) from instructor);
+---------+------------+------------+------------+--------+
| Inst_id | Inst_lname | Inst_fname | Inst_ph    | salary |
+---------+------------+------------+------------+--------+
| 202     | Ashna      | S          | 8237688843 | 33000  |
+---------+------------+------------+------------+--------+
1 row in set (0.00 sec)
```

30. List the students details who lived in Kochi, Kerala or in Bangalore, Karnataka or both.

```
ala' , bangalore' ) at line 1
mysql> select * from student where stud_city='kochi' and 'kerala' or 'bangalore' and 'karnataka' or stud_city in('kochi','karnataka','kerala','bangalore');
+---------+-----------+-----------+-------------+----------+-----------+----------+
| Stud_no | Stud_lname | Stud_fname | Stud_address | Stud_city | Stud_state | Stud_post |
+---------+-----------+-----------+-------------+----------+-----------+----------+
| 106     | Ram        | Kumar      | Ottapath     | Kochi     | Kerala     | 709090    |
+---------+-----------+-----------+-------------+----------+-----------+----------+
1 row in set, 2 warnings (0.00 sec)
```