Query1:

```
mysql> select D.department_name,count(I.department_name) as total_professors from department as D,instructor as I where I.department_name=D.depar
tment_name group by department_name;
+-----------------+------------------+
| department_name | total_professors |
+-----------------+------------------+
| BIO             |              877 |
| CHM             |              825 |
| CSE             |              855 |
| ECE             |              806 |
| HUM             |              837 |
| MTH             |              770 |
| PSY             |              818 |
| SWE             |              842 |
+-----------------+------------------+
8 rows in set (0.04 sec)
```

Query2:

MySQL 5.7 Command Line Client   — □ X

```
mysql> select p.i_id,p.name,p.department_name,p.salary from instructor as p,instructor as q where p.department_name=q.department_name group by q.
department_name having p.salary<(0.35*max(q.salary));
+------+-----------+-----------------+----------+
| i_id | name      | department_name | salary   |
+------+-----------+-----------------+----------+
|    5 | PANKGRRTK | SWE             | 49478.00 |
+------+-----------+-----------------+----------+
1 row in set (24.68 sec)

mysql>
```

Query3:

```
mysql> select count(*) as num_instructors from department as d1,instructor as i,department as d2 where d1.department_name=i.department_name and d
2.department_name='MTH' and d2.building=d1.building;
+-----------------+
| num_instructors |
+-----------------+
|             770 |
+-----------------+
1 row in set (0.08 sec)

mysql>
```

Query4:


```
MySQL 5.7 Command Line Client                                                              —    □    ×

mysql> Select distinct course_id from section where semester = 'fall' and years = '2009' and course_id in (select course_id  from section where s
emester = 'spring' and years = '2010');
+-----------+
| course_id |
+-----------+
|         2 |
|         9 |
|        10 |
|        12 |
|        13 |
|        15 |
|        17 |
|        26 |
|        35 |
|        36 |
|        44 |
|        45 |
|        48 |
|        50 |
|        51 |
|        64 |
|        69 |
|        71 |
|        72 |
|        79 |
|        83 |
|        87 |
|        94 |
|       102 |
|       104 |
|       111 |
|       112 |
|       115 |
|       117 |
|       126 |
|       131 |
|       139 |
|       143 |
|       144 |
|       145 |
|       150 |
|       158 |
|       164 |
|       165 |
|       167 |
|       168 |
|       174 |
```

```
MySQL 5.7 Command Line Client                                                              —    □    ×
|      1185 |
|      1186 |
|      1187 |
|      1190 |
|      1195 |
|      1199 |
|      1200 |
|      1203 |
|      1205 |
|      1211 |
|      1213 |
|      1226 |
|      1230 |
|      1234 |
|      1235 |
|      1236 |
|      1244 |
|      1248 |
|      1249 |
|      1250 |
|      1258 |
|      1261 |
|      1266 |
|      1272 |
|      1276 |
|      1280 |
|      1281 |
|      1282 |
|      1283 |
|      1286 |
|      1288 |
|      1290 |
|      1293 |
|      1295 |
|      1297 |
|      1299 |
|      1300 |
|      1303 |
|      1308 |
|      1312 |
|      1315 |
|      1316 |
+-----------+
319 rows in set (7.78 sec)

mysql>
```

Query5:

```
mysql> select department_name,max(salary),min(salary),avg(salary) from instructor group by department_name;
+-----------------+-------------+-------------+--------------+
| department_name | max(salary) | min(salary) | avg(salary)  |
+-----------------+-------------+-------------+--------------+
| BIO             |   149722.00 |    30042.00 | 90408.586089 |
| CHM             |   149733.00 |    30039.00 | 86951.111515 |
| CSE             |   149851.00 |    30061.00 | 89573.830409 |
| ECE             |   149991.00 |    30315.00 | 91265.820099 |
| HUM             |   149762.00 |    30292.00 | 90625.215054 |
| MTH             |   149763.00 |    30353.00 | 91004.206494 |
| PSY             |   149813.00 |    30091.00 | 91069.045232 |
| SWE             |   149844.00 |    30049.00 | 89622.046318 |
+-----------------+-------------+-------------+--------------+
8 rows in set (0.05 sec)

mysql>
```

Query6:

```
mysql> use edu
Database changed
mysql> select i_id from teaches where sec_id in(select sec_id from section where building in(select building from department where department_nam
e='CHM'));
+------+
| i_id |
+------+
|  333 |
| 3573 |
| 5604 |
| 1618 |
|  971 |
|  490 |
| 3584 |
| 2273 |
| 4080 |
| 2188 |
| 4945 |
| 3970 |
| 4886 |
| 1054 |
| 5668 |
| 5142 |
| 2010 |
|  435 |
|  863 |
| 5080 |
|  906 |
| 3471 |
| 3209 |
| 3201 |
| 3343 |
| 4975 |
```

```
| 5101 |
| 5203 |
| 3391 |
| 3121 |
| 1441 |
| 2604 |
| 4208 |
| 1689 |
|  293 |
| 1284 |
| 5418 |
| 5872 |
|   15 |
| 6436 |
| 6228 |
| 3088 |
| 2586 |
|  193 |
|  393 |
| 3785 |
| 6320 |
|  653 |
| 1595 |
| 2241 |
| 3153 |
| 5242 |
| 3455 |
| 2056 |
| 4079 |
| 5489 |
|  644 |
| 1473 |
| 2471 |
| 4116 |
| 2685 |
| 4560 |
| 6401 |
|  774 |
| 4169 |
|  519 |
| 2133 |
| 3140 |
+------+
1048575 rows in set (15.04 sec)

mysql>
```

Query7:

```
mysql> select d.department_name,d.budget from department as d,instructor as i where i.department_name=d.department_name group by department_name
having avg(salary)>90000;
+-----------------+---------+
| department_name | budget  |
+-----------------+---------+
| BIO             | 1233401 |
| ECE             | 1459659 |
| HUM             |  920337 |
| MTH             | 1783422 |
| PSY             |  949777 |
+-----------------+---------+
5 rows in set (0.05 sec)

mysql>
```

Query#	Running Time	Additional Comments
Query1	0.04sec	
Query2	24.68sec	
Query3	0.08sec	
Query4	7.78sec	
Query5	0.05sec	
Query6	15.04sec	
Query7	0.05sec	

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