



2. (20) Answer each of the following questions briefly. The questions are based on the following relational schema:

Faculty(fid: integer, fname: string, dept: string, salary: real)

Class(cid: integer, cname: string, time: string, room: string, teacherid integer)

a) (10) Write the SQL statements required to create the above relations, including appropriate definitions of all primary and foreign key integrity constraints.

b) (10) Which of the following database modifications are legal?

i. INSERT

```
INTO Faculty (fid, fname, dept, salary)
VALUES (1234, 'John', 'Art', 4323.2)
```

ii. INSERT

```
INTO Faculty (fid, fname, dept, salary)
VALUES (null, 'John', 'Art', 4323.2)
```

iii. INSERT

```
INTO Class (cid, cname, time, room, teacherid)
VALUES (301, 'Music 101', 'TTH 4', 'PGH 303', null)
```

iv. UPDATE Faculty F

```
SET F.dept=1234
WHERE F.name='Mike'
```

v. UPDATE Class C

```
SET C.room='PGH 201'
WHERE C.teacherid=1234
```





5. (20) Write the following queries in SQL using the schema from problem 4.

a) Find the *enames* of pilots certified for some Airbus aircraft.

---

(5)

b) Find the *eids* of employees who make the highest salary.

---

(5)

c) Find the *eids* of employees who make the second highest salary.

---

(5)

d) Find the *eids* of employees who are certified for the largest number of aircraft.

---

(5)

