Answer Keys for Assignment 2 (based on the version provided by Paea LePendu)
Database Processing CIS 451/551

1.

a)

```
update works set salary = salary * 1.04
where name in (select distinct(manager_name) from manages)
and salary >= 10,000

update works set salary = salary * 1.05
where name in (select distinct(manager_name) from manages)
and salary < 10,000

update works set salary = salary * 1.02
where name NOT in
        (select distinct(manager_name) from manages
        where manager_name is not null)      *EXTRA CREDIT if add this line
```

b)

```
create view startup_managers as
 select employee_name
 from works, manages
 where works.employee_name = manages.manager_name
         and works.company_name = ‘Startup Corp’
          and salary >= 50,000

 delete from employee
      where employee_name in startup_managers

 delete from works
       where employee_name in startup_managers

 delete from manages
      where employee_ name in startup_managers
```

EXTRA CREDIT: clean up foreign key dependencies in manages
(students can cascade delete, or otherwise deal with it in their own way)

2.

```
create view all_workers(name) as
        select name from salaried_worker
        union
        select name from hourly_worker
```

Updates shouldn’t be allowed through this view because of the union. Two tables may share same names. Updates on this view are problematic – which underlying table should you update the name into? Also, there will necessarily be null values no matter which table you chose, which we like to avoid.

3. a)

```
select E.name
from A.employee as E
union
select W.name
from B.all_workers as W        * this assumes the view in #2 otherwise elaborate
```

b)

```
select E.name
from A.employee as E
where E.name not in
        (select W.name from B.all_workers as W
        where W.name is not null)     * EXTRA CREDIT if add this line
```

4. Some comparisons of different approaches to do multi-valued foreign key dependencies. Any of these or some different but meaningful comparison is fine for grading.

Solution 1	***Solution 2***
ˇ can short-circuit evaluate (stop once true) ˇ fast if the evaluation favors the "better" relation first ˇ no extra space needed ˇ on-the-fly evaluation needed ˇ can be time consuming if we have to sequentially search both relations for key	ˇ implementation is transparent ˇ view can be materialized or on-the-fly ˇ materialized takes space ˇ indexed view can be speedy ˇ on-the-fly view does not necessarily allow short-circuit evaluation ˇ modular, clean, clear, reusable

5. a) company(fame, minit, lname, ssn, bdate, address, sex, salary, superssn, dno)

b) 0 (zero) records

c) * Asterisk means they are a manager.

John Smith
* Franklin Wong
Alicia Zelaya
* Jennifer Wallace
Ramesh Narayan
Joyce English
Ahmad Jabbar
* James Borg

d)

John Smith
Alicia Zelaya
Ramesh Narayan
Joyce English
Ahmad Jabbar

e) James Borg is the problem, his supperssn is null. add: where superssn is not null

f) unknown (false is ½ points)

6.

```
 select r1.x, r2.y, r2.z, 3
 from R as r1, R as r2, R as r3
 where r1.x = r3.z AND
 r1.y = r2.x AND
 r1.z = r2.y AND
 r1.y = r3.y AND
r2.z = r3.y*1.05 AND
r3.x = 3
```