1.

1.1

$\prod_{ID,\ person\_name} (\sigma_{company\_name=\text{“BigBank”}} (works))$

1.2

$\prod_{ID,\ person\_name,\ city} (employee \bowtie_{company\_name=\text{”BigBank”} \wedge\ person.id = works.id} works)$

1.3

$\prod_{ID,\ person\_name,\ street,\ city} (employee \bowtie_{company\_name=\text{”BigBank”} \wedge\ salary > 10000 \wedge\ person.id = works.id} works)$

1.4

$\prod_{ID,\ person\_name} (works \bowtie_{works.city = company.city} company)$

2.

2.1

$\prod_{ID,\ person\_name} (\sigma_{\neg company\_name=\text{“BigBank”}} (works))$

3.

If we want to delete from relation *department* any *dept_name* for example “History”, we will get an error, because it’s foreign key to the relation *instructor*. So, in order to do it, we

have to delete in *instructor* all tuples where *dept_name* = “History”.

If we want to insert into the *instructor* relation, new tuple, in order to do it, we have to make sure *dept_name* that you insering is exists in the *department* relation. For example, if we create new tuple in *instructor* with *dept_name* = “Psychology” and there’s no *dept_name* = “Psychology” in the *department* relation, we will get an error.

4.

ID is a appropriate primary key for a *employee* relation, because value of ID is sufficient to find a unique tuple in the *employee*.