1.

1) $\prod_{ID,\ person\_name} (\sigma_{company\_name = \text{“}Big\ Bank\text{”}} (works))$
2) $\prod_{ID,\ person\_name,\ city} (\sigma_{company\_name = \text{“}Big\ Bank\text{”}} (works \times employee))$
3) $\prod_{ID,\ person\_name,\ street,\ city} (\sigma_{company\_name = \text{“}Big\ Bank\text{”} \wedge salary > 10000\$} (works \times employee))$
4) $\prod_{ID,\ pname} (\sigma_{company\_name = city} (works \times employee \times company))$

2.

1) $\prod_{ID,\ person\_name} (\sigma_{company\_name \neq \text{“}Big\ Bank\text{”}} (works))$
2) $\prod_{ID,\ person\_name} (\sigma_{salary \geq MIN\ salary} (works \times employee))$

3.

Example of Inserting: (Hawking, Physics, 200.000) into the instructor table, where the department table does not have the department Physics, would violate the foreign key constraint.

Example of deleting: (Galileo, Astronomy, 145.000) from the department table, where at least one student or instructor tuple has dept name as Astronomy, would violate the foreign key constraint.

4.

The primary key is *street* or *ID*.