LAB 1 Kipshakbaev Sanzhar

1.

1) $\Pi_{\text{id, person\_name}}(\sigma_{\text{employee.person\_name = works.person\_name} \wedge \text{company\_name=“BigBank”}}(\text{employee} \bowtie \text{works}))$

2) $\Pi_{\text{id, person\_name, pCity}}(\sigma_{\text{employee.person\_name = works.person\_name} \wedge \text{company\_name=“BigBank”}}(\text{employee} \bowtie \text{works}))$

3) $\Pi_{\text{id, person\_name, street, pCity}}(\sigma_{\text{employee.person\_name = works.person\_name} \wedge \text{company\_name=“BigBank”} \wedge \text{salary>10000\$}}(\text{employee} \bowtie \text{works}))$

4) $\Pi_{\text{id, person\_name}}(\sigma_{\text{employee.person\_name = works.person\_name} \wedge \text{works.company\_name = company.company\_name} \wedge \text{ cCity=pCity}}(\text{employee} \bowtie \text{works} \bowtie \text{company}))$

2. 1) $\Pi_{\text{id, person\_name}}(\sigma_{\text{employee.person\_name = works.person\_name} \wedge \text{ company\_name} \neq \text{“BigBank”}}(\text{employee} \bowtie \text{works}))$

2) $\Pi_{\text{id, person\_name}}(\sigma_{\text{employee.person\_name = works.person\_name} \wedge \text{ salary} > \text{avg(salary)}}(\text{employee} \bowtie \text{works}))$

3. • Inserting a tuple:

(20B030346, Baykonur, Medicine, 330000)

into the instructor table, where the department table does not have the department Medicine, would violate the foreign key constraint.

• Deleting the tuple:

(Geography, Akezhan, 15000)

from the department table, where at least one student or instructor tuple has dept name as Geograpy, would violate the foreign key constraint.

4. employee (<u>person name</u>, street, city)

works (<u>person name</u>, company name, salary)

company (<u>company name</u>, city)