1.a

π (id, name, post.title, Current\_staff) (researcher\_institute)

1.b

π (id, transaction\_date, transaction\_type, amount) (institute\_financial\_Records)

1.c

π (research\_activity\_id, specialized\_fields\_id)(specialized\_fields\_of\_research\_activity)

1.d

π (institute\_id, research\_activity\_id, agreement\_start\_time, agreement\_end\_time)(agreement)

2.a

π (reasercher.\*, reasercher\_researchActivity\_institute.\*, research\_Areas\_Of\_Interest\_researcher.\*, academic\_Records\_Of\_A\_Researcher.\*)

(reasercher ⨝reasercher.id = academic\_Records\_Of\_A\_Researcher.researcherId

(reasercher ⨝reasercher.id = research\_Areas\_Of\_Interest\_researcher.researcherId

(reasercher ⨝reasercher.id = reasercher\_researchActivity\_institute.reasercher\_Id

(σ (reasercher\_Id = 1) (reasercher\_researchActivity\_institute)))))

2.b

σ (agrement\_end\_time < '2021-5-6' AND agrement\_start\_time > '2018-5-6') (agreement)

2.c

π (reasercher\_Id, wage, case\_Payments) (agreement)

3.a

π (research\_Activity\_Id) ((agreement ⨝ (σ (reasercher\_Id = 2) (agreement))) ⨝ (σ (reasercher\_Id = 1) (agreement)))

3.b

π (research\_Activity\_id) ((σ (reasercher\_Id = 1) (agreement)) ⨝ (π (research\_Activity\_id) ((σ (reasercher\_Id = 2) (agreement))) ⨝ (σ (reasercher\_researchActivity\_institute.research\_Activity\_Id = research\_Activity.id) (research\_Activity))) ⨝ (σ (r1.research\_Activity\_Id = research\_Activity.id) (specialized\_Fields\_Of\_ReasechActivity)))

4.a

π (reasercher\_Id) (σ (agrement\_end\_time < '2021-5-6' AND agrement\_start\_time > '2018-5-6') (agreement))

4.b

π (reasercher\_Id, case\_Payments, wage, act) (agreement)