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 $\bowtie$reasercher.id = academic_Records_Of_A_Researcher.researcherId

   (reasercher $\bowtie$reasercher.id = research_Areas_Of_Interest_researcher.researcherId

      (reasercher $\bowtie$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 $\bowtie$ (σ (reasercher_Id = 2) (agreement))) $\bowtie$ (σ (reasercher_Id = 1) (agreement)))

3.b

π (research_Activity_id) ((σ (reasercher_Id = 1) (agreement)) $\bowtie$ (π (research_Activity_id) ((σ (reasercher_Id = 2) (agreement))) $\bowtie$ (σ (reasercher_researchActivity_institute.research_Activity_Id = research_Activity.id) (research_Activity))) $\bowtie$ (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)