Part 1)

1.

T1.A	T2.A	B	C	Q	R
20	20	b	6	a	5
20	20	b	5	a	5

2.

T1.A	T2.A	B	C	Q	R
25	20	b	6	b	8
25	20	b	5	b	8

3.

T1.A	T2.A	B	C	Q	R
20	20	b	6	a	5
20	20	b	5	a	5

4.

T1.A	T2.A	B	C	Q	R
20	20	b	5	a	5

Part 2)

Find the names of any player with an Elo rating of 2850 or higher.

$\pi_{Name}(\sigma_{ELO > 2850}(Players))$

Find the names of any player who has ever played a game as white.

$\pi_{Name}(\sigma_{wpID == pID}(Players \times Games))$

Find the names of any player who has ever won a game as white.

$\pi_{Name}(\sigma_{wpID == pID \wedge Result == \text{“1-0”}}$ (Players x Games))

Find the names of any player who played any games in 2018.

$\pi_{Name}(\sigma_{wpID == pID \vee bpID == pID}$ (Players x $\pi_{Games}(\sigma_{Event.Eid == Game.Eid \wedge year == 2018}$ (Events x Games))))

Find the names and dates of any event in which Magnus Carlsen lost a game

$\rho_{MCpID}(\pi_{pID}(\sigma_{name = \text{“Magnus Carlsen”}}$ (Players)))

$\rho_{lossEID}(\pi_{eID}(\sigma_{(wpID == MCpID \wedge result == \text{“0-1”}) \vee (bpID == MCpID \wedge result == \text{“1-0”})}$ (Games)))

$\pi_{name,date}(\sigma_{eID == lossEID}$ (Events))

Find the names of all opponents of Magnus Carlsen. An opponent is someone who he has played a game against.

ρ(MCpID, $\pi_{pID}(\sigma_{name = \text{“Magnus Carlsen”}}$ (Players)))

ρ(opponentBlack $_{pID/bpID}$, $\pi_{bpID}(\sigma_{wpID == pID}$ (Games x MCpID)))

ρ(opponentWhite $_{pID/wpID}$, $\pi_{wpID}(\sigma_{bpID == pID}$ (Games x MCpID)))

ρ(opponents, π_{pID} ((opponentBlack - opponentWhite) $\cup$ opponentWhite))

$\pi_{name}(\sigma_{opponents.pID == Players.pID}$ (opponents x Players))

Part 3)

3.1)

name
Hermione
Harry

Pulls out the names of the students who don't have any C grades

3.2)

name
Hermione

Pulls out the names of any students who were born in the same year as Ron, Ron not included

3.3)

courseName

Pulls out all of the course names that has every student enrolled in it

Part 4)

$$\rho(3xxxCourses, \pi_{cID}(\ \sigma_{cId >= 3000 \wedge cID <= 4000}\ (Courses)))$$
$$\rho(3xxxSIDs, \pi_{cID,\ sID}(Enrolled) / 3xxxCourses)$$
$$\pi_{name}(\sigma_{3xxxSID.sID = Students.sID}(3xxxSIDs \times Students))$$