Assignment 3 Solution

The following is one possible solution for Assignment 3 -- remember there is more than one valid way to solve each of these problems.

1. (10 points) Find the catalog number, description, and number of units for all courses that are more than 3 units.

RESULT ← $\pi_{\text{catnum, desc, units}}$ ($\sigma_{\text{units > 3}}$ (COURSE))

2. (15 points) Find the first and last name of all students who received a grade of F in Spring 2020.

RESULT ← $\pi_{\text{first, last}}$ ($\sigma_{\text{grade = 'F' AND semester = 'Spring 2020'}}$ (STUDENT $\bowtie_{\text{ID = studentid}}$ ENROLLED))

3. (20 points) Find the catalog number, description, and section number of all course sections taught by a professor named Alice Cooper in Fall 2020.

ALICE ← $\sigma_{\text{fname = 'Alice' AND lname = 'Cooper'}}$ (PROFESSOR)

ALICE_FALL_SECTIONS ← $\sigma_{\text{semester = 'Fall 2020'}}$ (SECTION $\bowtie_{\text{prof\_ID = ID}}$ ALICE)

RESULT ← $\pi_{\text{catnum, desc, sectnum}}$ (COURSE * ALICE_ FALL _SECTIONS)

4. (25 points) Find the catalog number, section number, semester, and ratings left by students for all sections taught by a professor named Marilyn Manson.

MARILYN ← $\sigma_{\text{fname = 'Marilyn' AND lname = 'Manson'}}$ (PROFESSOR)

MARILYN_SECTIONS $\leftarrow$ SECTION $\bowtie_{prof\_ID = ID}$ MARILYN

MARILYN_RATINGS $\leftarrow$ MARILYN_SECTIONS * ENROLLED

RESULT $\leftarrow$ $\pi_{catnum, sectnum, semester, rating}$ (MARILYN_RATINGS)

5. (30 points) List the student ID, first and last names of all students who do not have an email address.

HAS_EMAIL $\leftarrow$ STUDENT * STUDENT_EMAIL

RESULT $\leftarrow$ $\pi_{ID, first, last}$ (STUDENT) - $\pi_{ID, first, last}$ (HAS_EMAIL)