**Homework Assignment 1**

Due: 11:59PM April 12, 2021

1. Fill in the blanks.

Sol)

(a) DDL

(b) DML

(c) nonull, unique

(d) foreign key

(e) scalar subqueries

(f) order by

(g) with

2. The SQL LIKE operator is case sensitive (in most systems), but the LOWER() function on strings can be used to perform case-insensitive matching. Show how to write a query that finds departments whose names contain the string “sci” as a substring, regardless of the case.

Sol)

SELECT dept\_name

FROM department

WHERE lower(dept\_name) like ‘%sci%’;

3. (4 pt.; Exercise problem 3.20) Show that, in SQL, <> ALL is identical to NOT IN.

Sol)

SELECT isbn

FROM book

WHERE isbn <>ALL (1);

=

SELECT isbn

FROM book

WHERE isbn NOT IN (1);

4. (4 pt.; Exercise problem 3.19) List two reasons why null values might be introduced into the database.

Sol)

Firstly, we don’t know about the values.

Secondly, there doesn’t exist the values.

5. (2 pt. each; based on Exercise problems 3.9, 3.10, 3.16, and 3.17) Consider the relational database of Figure 3.19, where the primary keys are underlined. Given an expression in SQL for each of the following queries.

a) Find the ID of each employee who does not work for “First Bank Corporation”.

SQL Query)

SELECT e.ID, e.person\_name, e.city

FROM employee as e, works as w

WHERE e.ID = w.ID AND w.company\_name = ‘First Bank Corporation’;

b) Find the ID, name, and city of residence of each employee who works for “First Bank Corporation” and earns more than $10,000.

SQL Query)

SELECT e.ID, e.person\_name, e.city

FROM employee as e, work as w

WHERE e.ID = w.ID AND w.company\_name = ‘First Bank Corporation’ AND w.salary > 10,000;

c) Find the ID of each employee who earns more than every employee of “Small Bank Corporation”.

SQL Query)

SELECT e.ID

FROM employee

WHERE