1 Part I

6.10

- (a)

  SELECT Fname, Minit, Lname
  FROM ((EMPLOYEE **JOIN** WORKS_ON **ON** Ssn=Essn)
  JOIN PROJECT **ON** Pno=Pnumber)
  WHERE Dno = 5 and Hours > 10 and Pname = 'ProductX';

- (b)

  SELECT Fname, Minit, Lname
  FROM (EMPLOYEE **JOIN** DEPENDENT **ON** Ssn = Essn)
  WHERE Fname = Dependent_name;

- (c)

  SELECT Fname, Minit, Lname
  FROM EMPLOYEE **AS** E, EMPLOYEE **AS** S
  WHERE E.Supper_ssn = S.ssn **AND** S.Fname = 'Franklin' **AND** S.Lname = 'Wong';

6.12

- (b)

  SELECT DISTINCT C.Course_name
  FROM COURSE **AS** C **JOIN** SECTION **AS** S **ON** C.Course_number = S.Course_number
  WHERE S.Instructor = 'King' **AND** (S.Year = 2007 **OR** S.Year = 2008);

- (d)

  SELECT C.Course_name, C.Course_number, C.Credit_hours, SE.Semester, SE.YEAR, G.Grade
  FROM STUDENT **AS** S **JOIN** GRADE_REPORT **AS** G **ON** S.Student_number = G.Student_number
  JOIN SECTION **AS** SE **ON** G.Section_identifier = SE.Sectio_identifier
  JOIN COURSE **AS** C **ON** SE.Course_number = C.Course_number
  WHERE S.Class = 4 **AND** S.Major = 'CS';

2 PART II

```
CREATE TABLE Employee (
    SIN INT PRIMARY KEY,
    name VARCHAR(256),
    age INT,
    sex CHAR(1),
    phone VARCHAR(20),
    city_name VARCHAR(255),
    FOREIGN KEY (city_name) REFERENCES City(name)
);


   CREATE TABLE Kid (
    SIN INT PRIMARY KEY,
    name VARCHAR(256),
    age INT,
    p1_sin INT,
    p2_sin INT,
    playground_name VARCHAR(256),
    FOREIGN KEY (p1_sin) REFERENCES Employee(SIN)
    FOREIGN KEY (p2_sin) REFERENCES Employee(SIN)
    FOREIGN KEY (playground_name) REFERENCES Playground(name)
);


   CREATE TABLE Playground (
    name VARCHAR(256) PRIMARY KEY,
    street_no VARCHAR(40),
    city_name VARCHAR (256),
    zip_code VARCHAR(10),
    FOREIGN KEY (city_name) REFERENCES City(name)
);


   CREATE TABLE Playground (
    name VARCHAR(256) PRIMARY KEY,
    street_no VARCHAR(40),
    city_name VARCHAR (256),
    zip_code VARCHAR(10),
    FOREIGN KEY (city_name) REFERENCES City(name)
);


   CREATE TABLE City (
    name VARCHAR(256) PRIMARY KEY,
    area DECIMAL (10, 2),
    population INT,
    province VARCHAR(256),
    country VARCHAR(256),
    FOREIGN KEY (city_name) REFERENCES City(name)
);
```

3 PART III

- (a)

```
SELECT C.name
FROM City as C
WHERE NOT EXISTS (
        SELECT P.city_name
        FROM Playground as P
        WHERE P.city_name = C.name
);
```

- (b)

```
SELECT name, population
FROM City
WHERE population = (
        SELECT MIN(population)
        FROM City
);
```

- (c)

```
SELECT DISTINCT E.SIN, E.name
FROM EMPLOYEE AS E JOIN KID AS K ON (E.SIN = K.p1_sin OR E.SIN = K.p2_sin)
WHERE EXISTS (
        SELECT P.name
        FROM Playground AS P
        WHERE K.playground_name = P.name
);
```

- (d)

```
SELECT DISTINCT P.name
FROM Playground AS P
WHERE NOT EXISTS (
        SELECT K.SIN
        FROM Kid AS K JOIN Employee AS E ON (K.p1_sin = E.SIN OR K.p2_sin = E.SIN)
        WHERE K.playground_name = P.name AND E.city_name <> P.city_name
);
```

- (e)

```
SELECT *
FROM Employee AS E
WHERE NOT EXISTS (
        SELECT P.name
        FROM Playground AS P
        WHERE NOT EXISTS (
                SELECT K.SIN
                FROM Kid AS K
                WHERE K.playground_name = P.name AND (K.p1_sin = E.SIN OR K.p2_sin = E.SIN
        )
);
```