Assignment 2 – SQL

Question 1:

1)

```
FOREIGN KEY (did) REFERENCES Dept
```

2)

```
CREATE TABLE Emp(
        eid INTEGER,
        ename CHAR(10),
        age INTEGER,
        salary REAL,
        PRIMARY KEY (eid))

CREATE TABLE Dept(
        did INTEGER,
        dname CHAR(10),
        budget REAL,
        managerid INTEGER,
        PRIMARY KEY (did),
        FOREIGN KEY (managerid) REFERENCES Emp ON DELETE SET NULL)

CREATE TABLE Works(
        eid INTEGER,
        did INTEGER,
        pet_time INTEGER,
        PRIMARY KEY (eid, did),
        FOREIGN KEY (eid) REFERENCES Emp ON DELETE CASCADE,
        FOREIGN KEY (did) REFERENCES Dept)
```

3)

```
CREATE TABLE Dept(
        did INTEGER,
        dname CHAR(10),
        budget REAL,
        managerid INTEGER NOT NULL,
        PRIMARY KEY (did) ,
        FOREIGN KEY (managerid) REFERENCES Emp)
```

4)

```
INSERT INTO Emp (eid, ename, age, salary)
VALUES (101, 'John Doe', 32, 15000)
```

5)

```
UPDATE Emp
        SET salary = salary * 1.10
```

6)

```
DELETE FROM Dept
        WHERE dname = 'Toy'
```

Question 2:

1)

```
SELECT DISTINCT P.pname
FROM Parts P, Suppliers S, Catalog C
WHERE P.pid = C.cid AND C.sid = S.sid
```

2)

```
SELECT S.sname
FROM Suppliers S
WHERE NOT EXISTS
        ((SELECT P.pid
          FROM Parts P)
          EXCEPT
```

```
                (SELECT C.pid
                 FROM Catalog C
                 WHERE C.sid = S.sid))
```

3)

```
SELECT S.sname
FROM Suppliers S
WHERE NOT EXISTS
          ((SELECT P.pid
            FROM Parts P
            WHERE P.color = 'red')
            EXCEPT
           (SELECT C.pid
            FROM Catalog C, Parts P
            WHERE C.sid = S.sid AND C.pid = P.pid AND P.color = 'red'))
```

4)

```
SELECT P.pname
FROM Parts P, Catalog C, Suppliers S
WHERE P.pid = C.pid AND C.sid = S.sid
GROUP BY P.pname
HAVING EVERY (S.sname = 'Acme Widget Suppliers')
```

5)

```
SELECT S.sid
FROM Parts P, Catalog C, Suppliers S
WHERE P.pid = C.pid AND C.sid = S.sid
GROUP BY S.sid
HAVING EVERY (P.color = 'red')
```

6)

```
SELECT S.sid
FROM Parts P, Catalog C, Suppliers S
```

```
WHERE P.pid = C.pid AND C.sid = S.sid
GROUP BY S.sid
HAVING ANY (P.color = 'red') AND ANY (P.color = 'green')
```

7)

```
SELECT S.sid
FROM Parts P, Catalog C, Suppliers S
WHERE P.pid = C.pid AND C.sid = S.sid
GROUP BY S.sid
HAVING ANY (P.color = 'red') OR ANY (P.color = 'green')
```

Question 3:

1)

```
SELECT E.eid, MAX(A.crusingrange)
FROM Aircraft A, Employee E, Certified C
WHERE A.aid = C.aid AND C.eid = E.eid
GROUP BY E.eid
HAVING COUNT(*) > 3
```

2)

```
SELECT E.ename
FROM Employee E
WHERE E.salary < (SELECT MIN(F.price)
                  FROM Flights F
                  WHERE F.from = 'Los Angeles' AND F.to = 'Honolulu')
```

3)

```
SELECT A.aid
FROM Aircraft A
WHERE A.crusingrange >= (SELECT MAX(F.distance)
                         FROM Flights F
                         WHERE F.from = 'Los Angeles' AND F.to = 'Chicago')
```

4)

```
SELECT E.ename
FROM Employee E, Aircraft A, Certified C
WHERE E.eid = C.eid and C.aid = A.aid
GROUP BY E.ename
HAVING EVERY (A.cruisingrange > 1000)
```