EECS 341 Assignment #6 Keys; Spring'2009

Consider the Customers-Agents-Products (CAP) database with schema below.

CUSTOMERS (cid, cname, city, discnt)   AGENTS (aid, aname, city, percent)
PRODUCTS (pid, pname, city, quantity, price)   ORDERS (ordno, month, cid, aid, pid, qty, dollars)

Write in SQL the four queries listed below.

Q1: For each of Cleveland and Pittsburgh, list the average monthly order dollar amounts by all customers from these cities.

        SELECT   O.month, C.city, AVG(O.dollars)
        FROM   ORDERS AS O,CUSTOMERS C
        WHERE   O.cid = C.cid AND (C.city = 'Cleveland' OR C.city = 'Pittsburgh')
        GROUP BY C.city, O.month

Q2: List customer cities where
     (a) the total number of orders placed in January from that city is less than 1,000, and
     (b) the total dollar amount of orders placed in January from that city is more than 1 Billion dollars, and
     (c) all January orders from that city are ordered by agents a012 and a013.

```
SELECT   DISTINCT C.city
FROM     CUSTOMERS AS C
WHERE      (SELECT    COUNT(O.ordno)
              FROM      ORDERS O ,CUSTOMERS C1
              WHERE   O.cid = C1.cid AND O.month = "January" AND C1.city = C.city) < 1000
        AND
              (SELECT    SUM(O.dollars)
               FROM       ORDERS O ,CUSTOMERS C2
               WHERE    O.cid = C2.cid AND O.month = 'January' AND C2.city = C.city) >1000000000
        AND
              (SELECT   COUNT(O.ordno)
                FROM  ORDERS O , CUSTOMERS C3
                WHERE O.month = 'January' AND O.cid = C3.cid AND C.city=C3.city
                        AND (O.aid = 'a012' OR O.aid = 'a013') )
               =
               (SELECT   COUNT(O.ordno)
                FROM  ORDERS O, CUSTOMERS C4
                WHERE O.month = 'January' AND  O.cid = C4.cid AND C.city =C4.city )
```

Q3: For each customer city, list the names of those customers who have average order amounts less than half the average order amount for that city.

```
SELECT    C.cname,C.city
FROM      CUSTOMERS C
WHERE    (SELECT AVG(dollars)
            FROM ORDERS O
            WHERE O.cid=C.cid)
```

```
                <
                (SELECT 0.5*AVG(dollars)
                 FROM ORDERS O, CUSTOMERS C1
                 WHERE O.cid=C1.cid AND C1.city=C.city)
```

Q4: List the names of customers who
   (a) have discounts less than 5%, and
   (b) for at least one month, placed orders totaling more than $10 millions, and
   (c) for at least one month, placed at least 5 orders.

```
SELECT      C.cname
FROM        CUSTOMERS C
WHERE       C.dscnt<0.05  AND
            C.cid IN (SELECT C1.cid
                        FROM CUSTOMERS C1, ORDERS O
                        WHERE  O.cid=C1.cid AND C1.cid=C.cid
                        GROUP BY C1.cid, O.month
                        HAVING COUNT(*) >= 5
                        )
            AND
            C.cid IN ( SELECT TEMP.cid
                         FROM  (SELECT       C2.cid, SUM(dollars) AS SumDollars
                                FROM         CUSTOMERS C2, ORDERS O
                                WHERE        O.cid=C2.cid AND C2.cid=C.cid
                                GROUP BY     C2.cid, O.month) AS TEMP
                       WHERE TEMP.SumDollars>10000000
                       )
```