CS 540
Database Management System

Midterm Exam Submission

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A. Πaddr((σcbrand=”Coava”(Sells▷◁Sells.sname=CoffeeShop.snameCoffeeShop)

B. result(A) :- CoffeeShop(S, A, Sells(S, 'Coava', P),not (Sells(S, C, P), C != 'Coava')

C.
```
SELECT DISTINCT c.producer
FROM Coffee c
INNER JOIN Sells s
ON c.cbrand = s.cbrand
WHERE s.price = (
   SELECT MAX(price)
   FROM Sells
);
```

D.
```
SELECT cs.addr
FROM CoffeeShop cs
INNER JOIN Sells s ON cs.sname = s.sname
GROUP BY cs.sname
HAVING COUNT(DISTINCT s.cbrand) = (SELECT COUNT(DISTINCT cbrand) FROM Coffee);
```

E.

```
SELECT t1.addr, t2.addr
FROM CoffeeShop t1
JOIN Sells s1 ON t1.sname = s1.sname
JOIN CoffeeShop t2
JOIN Sells s2 ON t2.sname = s2.sname
WHERE t1.sname < t2.sname
GROUP BY t1.addr, t2.addr
HAVING COUNT(DISTINCT s1.cbrand) = COUNT(DISTINCT s2.cbrand)
  AND COUNT(DISTINCT s1.cbrand) = SUM(s1.cbrand = s2.cbrand);
```

F.

```
SELECT DISTINCT cs.addr
FROM CoffeeShop cs
WHERE cs.sname IN (
   SELECT s1.sname
   FROM Sells s1
   WHERE s1.cbrand = 'Coava'
   AND NOT EXISTS (
      SELECT s2.sname
      FROM Sells s2
      WHERE s2.sname = s1.sname
      AND s2.cbrand <> 'Coava’
   )
)
```