

2019年数据库系统期末考试野生答案

一、选择题

1	2	3	4	5	6	7	8	9	10
D	B	C	D	B	B	D	A	B	C

二、语句题

1.

```
select rName, count(*)
from (Room join Shelf on Room.rID=Shelf.rID) join Book on Shelf.sID=Book.sID
group by rName
having count(*)>2000
```

2.

```
select pName
from Press
where not exists (
    select bID
    from (Room join Shelf on Room.rID=Shelf.rID) join Book on Shelf.sID=Book.sID
    where Book.pID=Press.pID and rName='FICTION'
)
```

3.

```
select pName, (
    select count(*)
    from Book
    where Press.pID=Book.pID
)
from Press
```

4.

```

select r1.rName,(
    select count(distinct pID)
    from (Room r2 join Shelf on r2.rID=Shelf.rID) join Book on
Shelf.SID=Book.SID
    where r1.rID=r2.rID
), (
    select sum(nSal)
    from (
        select distinct nID
        from Room r2 join Shelf on r2.rID=Shelf.rID
        where r1.rID=r2.rID
    ) natural join Librarian
)
from Room r1

```

5.

```

delete from Book
where pID in (
    select pID
    from Press
    where pName='IBM'
)

```

6.

```

select pName
from Press
where not exists (
    select rID from Room
    except
    select distinct rID
    from (Room join Shelf on Room.rID=Shelf.rID) join Book on Shelf.SID=Book.SID
    where Press.pID=Book.pID
)

```

7.

$$\Pi_{nName, nSal}(Librarian)$$

8.

$$\Pi_{bID, rName, sID}(\sigma_{bPrice > 50}(Book \bowtie Shelf \bowtie Room))$$

9.

$$\Pi_{pName}(\sigma_{rName \neq 'SCI' \vee rName \neq 'FICTION'}(Book \bowtie Shelf \bowtie Room \bowtie Press))$$

10.

$$nID, nName \mathcal{G}_{count(*)}(Book \bowtie Shelf \bowtie Librarian)$$

三、分析题

$$(1) A^+ = \{A, B, C, D, E, F\}$$

$$B^+ = \{A, B, C, D\}$$

(2)在 R 中，易知 E 、 F 一定不属于候选码

$$A^+ = B^+ = D^+ = \{A, B, C, D, E, F\}$$

$$C^+ = \{C\}$$

$\therefore R$ 的候选码为 A 、 B 、 D

在 S 中，易知 A 、 D 一定不属于候选码

$$B^+ = \{A, B, C, D\}$$

$$C^+ = \{A, C, D\}$$

$\therefore S$ 的候选码为 B

(3) R 属于 $BCNF$ 、 S 不属于 $BCNF$

(4) $\because C^+ \neq S, C \rightarrow D$

\therefore 将 $S(A, B, C, D)$ 分解为 $S_1(C, D)$ 和 $S_2(A, B, C)$

$\because C^+ \neq S_2, C \rightarrow A$

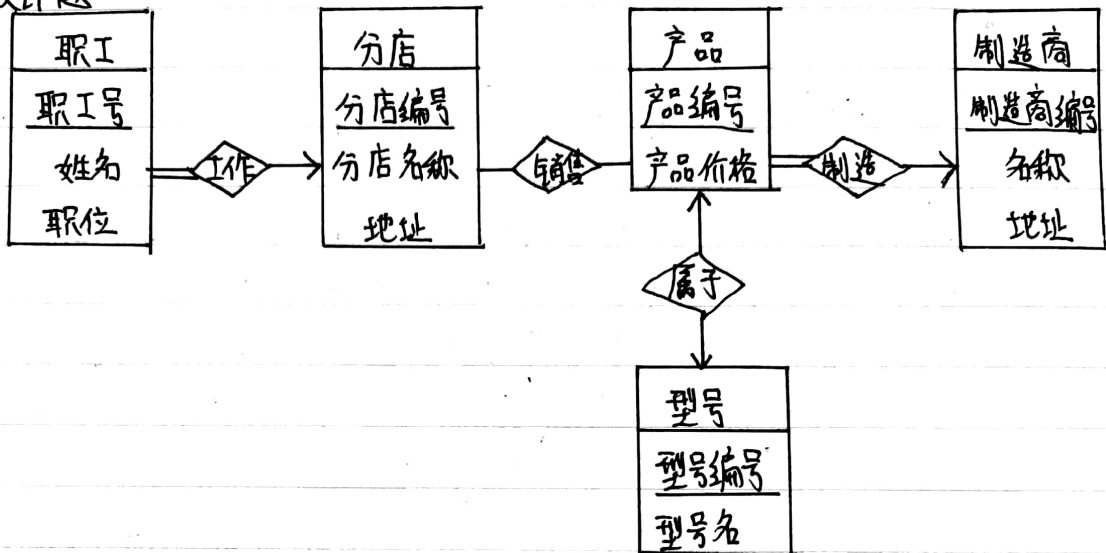
\therefore 将 $S_2(A, B, C)$ 分解为 $S_3(A, C)$ 和 $S_4(B, C)$

\therefore 将 S 分解为 $BCNF$ 后得到 $S_1(C, D)$ 、 $S_3(A, C)$ 、 $S_4(B, C)$

四、设计题

四、设计题

(1)



(2) 职工(职工号, 姓名, 职位)

分店(分店编号, 分店名称, 地址)

产品(产品编号, 产品价格)

制造商(制造商编号, 名称, 地址)

型号(型号编号, 型号名)

工作(职工号, 分店编号)

销售(分店编号, 产品编号)

制造(产品编号, 制造商编号)

属于(产品编号, 型号编号)

} 全是外码