1.
```sql
select snum, sname from S where age>=18 and age<=20 and sex='女';
```

2.
```sql
select sname from S join SC on S.snum = SC.snum
and SC.cnum = 'C2' and SC.grade >= 90;
```

3.
```sql
select cname from C, S, SC
where S.sname = '李强' and S.snum = SC.snum
and SC.cnum = C.cnum
```

4.
```sql
select cnum from C
where cnum not in (select cnum from SC
where snum = (select snum from S
where sname = '李强'));
```

5.
```sql
select snum from S where snum
not in (select snum from SC where cnum = (select cnum
from C where cname = '多媒体'))
and snum in (select snum from SC where cnum = (
select cnum from C where cname = '数据库'))
```

6.
```sql
select sname from S where snum
not in (select snum from SC where cnum =(
select cnum from C where cname = '数据库'))
```

7.
```sql
select distinct snum from SC
where cnum
in (select cnum from SC where snum =(select snum
from S where sname = '李强'))
```

8.
```sql
select sname from S
where snum
in (select snum from SC where cnum = 'c1')
and snum
in (select snum from SC where cnum = 'c2')
```

9.
```sql
select sname from S
where snum
in (select snum from SC where cnum
in (select cnum from C where teacher = '程军'))
```

10.
```
select sname from S
where snum
in (select snum from SC where cnum = 'c1')
or snum
in (select snum from SC where cnum = 'c2')
```

关系代数:

1.

$\Pi_{snum, sname} (\sigma_{age >= 18 \wedge age <= 20 \wedge sex = '女'} (S))$

2.

$\Pi_{sname} (S \bowtie \sigma_{cnum = 'c2' \text{ and } grade >= 90} (SC))$

3.

$\Pi_{cname} (\sigma_{sname = '李强'} (S \bowtie SC \bowtie C))$

4.

$\Pi_{cnum} (C) - \Pi_{cnum} (\sigma_{sname = '李强'} (S \bowtie SC))$

5.

$\Pi_{snum} (\sigma_{cname = '数据库'} (SC \bowtie C)) - \Pi_{snum} (\sigma_{cname = '多媒体'} (SC \bowtie C))$

6.

$$\Pi_{sname}(S) - \Pi_{sname}(\sigma_{cname='数据库'}(S \bowtie SC \bowtie C))$$

7.

$$\Pi_{sname}(S \bowtie SC \div \Pi_{cnum}(\sigma_{sname='李勇'}(S \bowtie SC)))$$

8.

$$\Pi_{sname}((\sigma_{cnum='C1'}(SC)) \cap (\sigma_{cnum='C2'}(SC)) \bowtie S)$$

9.

$$\Pi_{sname}(S \bowtie \sigma_{teacher='程军'}(SC \bowtie C))$$

10.

$$\Pi_{sname}((\sigma_{cnum='C1' \text{ or } cnum='C2'}(SC)) \bowtie S)$$