**--一**

**--1**

select sNo,sName

from student

where age >= 20

**--2**

select sNo,sName,2022-age

from student

where sName like '钱%' and sex = '男'

**--3**

select cName

from course

where credit > 3

**--4**

select sName

from student

where dNo is null

**--5**

select dName

from department

where homepage is null

**--二**

**--1**

select dName,round(avg(age),2) as avg\_age

from department,student

where student.dNo = department.dNo

group by department.dNo

**--2**

select student.sNo,sName,round(avg(score),2) as avg\_score

from student,sc

where student.sNo = sc.sNo

group by student.sNo

**--3**

select course.cNo,cName,round(avg(score),2) as avg\_score

from course,sc

where course.cNo = sc.cNo

group by course.cNo

**--4**

select dName,count(\*) as courseNum

from course,department

where course.dNo = department.dNo

group by department.dNo

**--5**

select cName,count(\*) as num

from course,sc

where course.cNo = sc.cNo

group by course.cNo

**--三**

**--1**

select sNo,sName

from student

where student.dNo = (select dNo

from department

where dName = '信息学院')

**--2**

select cNo,cName

from course

where course.dNo = (select dNo

from department

where dName = '软件学院')

**--3**

select sNo,sName

from student

where dNo in (select dNo

from student

where sName = '陈丽')

and sName != '陈丽'

**--4**

select sNo,sName

from student

where age in (select age

from student

where sName = '张三')

**--5**

select sNo,sName

from student

where age in (select age

from student

where sName = '张三')

and dNo not in (select dNo

from student

where sName = '张三')

**--6**

select cName

from course

where credit > (select credit

from course

where cName = '离散数学')

**--7**

select count(sNo)

from sc

where cNo = (select cNo

from course

where cName = '组合数学')

**--8**

select sName

from student

where student.sNo not in (select sNo

from sc

where cNo = (select cNo

from course

where cName = '离散数学'))

**--9**

select cName

from course

where credit not in (select credit

from course

where cName = '算法设计与分析' or cName = '移动计算')

**--10**

select cName

from course,sc

where course.cNo = sc.cNo

group by course.cNo

having avg(score) >= 90

select cName

from course

where cNo in (select cNo

from sc

group by cNo

having avg(score) >= 80)

**--11**

select sName,score

from student,sc,course

where student.sNo = sc.sNo and sc.cNo = course.cNo

and cName = '离散数学'

select sName,score

from student,sc

where student.sNo = sc.sNo and sc.cNo = (select cNo

from course

where cName = '离散数学')

**--12**

select cName,score

from course,sc,student

where student.sNo = sc.sNo and sc.cNo = course.cNo

and sName = '王兵'

select distinct cName,score

from course,sc

where course.cNo = sc.cNo and sc.sNo in (select sNo

from student

where sName = '王兵')

**--13**

select distinct sName,cName,score

from student,course,sc

where student.sNo = sc.sNo and sc.cNo = course.cNo and score < 60

**--14**

select distinct sName

from student,sc,course

where student.sNo = sc.sNo and course.cNo = sc.cNo

and course.dNo = (select dNo

from department

where dName = '文学院')

select sName

from student

where sNo in (select sNo

from sc

where cNo in (select cNo

from course

where dNo = (select dNo

from department

where dName = '文学院')))

**--15**

select distinct sName,cName

from student,course,sc,department

where student.sNo = sc.sNo and course.cNo = sc.cNo

and student.dNo in (select dNo

from department

where dName = '信息学院')

and course.dNo in (select dNo

from department

where dName = '信息学院')

select distinct sName,cName

from student,course,sc

where student.sNo = sc.sNo

and sc.cNo = course.cNo

and sc.sNo in (select student.sNo

from student

where dNo =(select dNo

from department

where dName = '信息学院'))

and sc.cNo in (select course.cNo

from course

where dNo = (select dNo

from department

where dName = '信息学院'))

**--四**

**--1**

select \*

from student,course,sc

where student.sNo = sc.sNo and course.cNo = sc.cNo

**--2**

select cName

from course

where cNo in (select cPno

from course

where cName = '形式语言与自动机')

**--3**

select cName

from course

where cNo in (select cPno

from course

where cNo in (select cPno

from course

where cName = '形式语言与自动机'))

**--4**

select cName

from course

where cPno = (select cNo

from course

where cName = '编译原理数学')

**--5**

select cName

from course

where cPno in (select cNo

from course

where cPno = (select cNo

from course

where cName = '离散数学'))

**--6**

select cName

from course

where cPno is null

**--7** **两种写法**

select sName

from student

where student.sNo not in (select sNo

from sc

where cNo = (select cNo

from course

where cName = '形式语言与自动机'))

select distinct sName

from student,sc

where student.sNo = sc.sNo and student.sNo not in (select sNo

from sc

where cNo = (select cNo

from course

where cName = '形式语言与自动机'))

SELECT sName

FROM student

WHERE sNo NOT IN (

SELECT sNo

FROM sc

WHERE cNo = (

SELECT cNo

FROM course

WHERE cName = '形式语言与自动机'

)

)

**--8**

select distinct sName

from student

where student.sNo in (select sNo

from sc

group by sc.sNo

having count(\*) = 1)

and student.sNo in (select sNo

from sc,course

where sc.cNo = course.cNo and cName= '离散数学')

select sName

from student,sc

where student.sNo = sc.sNo and sc.sNo not in (select sNo

from sc

where cNo != (select cNo

from course

where cName = '高等数学'))

**--9**

select sName

from student

where student.sNo in (select sNo

from sc,course

where sc.cNo = course.cNo and course.cName = '形式语言与自动机')

and student.sNo not in(select sNo

from sc,course

where sc.cNo = course.cNo

and course.cNo in (select cPno

from course

where cName = '形式语言与自动机'))

**--10**

select sName,sum(credit)

from student,sc,course

where student.sNo = sc.sNo and sc.cNo = course.cNo

group by student.sNo

having sum(credit) >= 28

**--11**

select student.sNo,sName

from student,sc

where student.sNo = sc.sNo

group by student.sNo

having count(\*) > 3 and min(score) > 85

**--12**

select student.sName

from student,sc

where student.sNo = sc.sNo

group by student.sNo

having count(\*) = 3 and min(score) >= 60

**--13**

select dName,count(\*)

from department,student

where student.dNo = department.dNo

group by department.dNo

having count(\*) > 6

**--14 两种写法**

select sName

from student

where sNo in (select sNo

from sc

group by sNo

having avg(score) > (select avg(score)

from sc,student

where sc.sNo = student.sNo and student.sName = '王兵'))

select sName

from student,sc

where student.sNo = sc.sNo

group by student.sNo

having avg(score) > (select avg(score)

from sc

where sNo in (select sNo

from student

where sName = '王兵'))

**--15**

select sName

from student

where sNo in (select sNo

from sc

where cNo = (select cNo

from course

where cName = '离散数学'))

and sNo in (select sNo

from sc

where cNo = (select cNo

from course

where cName = '编译原理'))

**--16**

select avg(score)

from sc

where sNo in (select sNo

from student

where dNo = (select dNo

from department

where dName = '软件学院'))

and cNo = (select cNo

from course

where cName = '离散数学')

select round(avg(score),2) as avg\_score

from sc

where sNo in (select sNo

from student

where dNo = (select dNo

from department

where dName = '软件学院'))

and cNo = (select cNo

from course

where cName = '离散数学')

**--17**

select sName,age,dName

from student,department

where student.dNo = department.dNo

and age != ALL(select age

from student

where dNo = (select dNo

from department

where dName = '软件学院'))

select sName,age,dName

from student,department

where student.dNo = department.dNo and age not in( select age

from student

where dNo = (select dNo

from department

where dName = '软件学院'))

**--18**

select cName,count(\*),max(dName)

from course,department,sc

where sc.cNo = course.cNo and course.dNo = department.dNo

group by course.cNo

having count(\*)>4

**--19**

select sName

from student,sc

where student.sNo = sc.sNo and sc.sNo not in (select sNo

from sc

where cNo != (select cNo

from course

where cName = '高等数学'))

select sName

from student

where sNo in (select sNo

from sc

where cNo = (select cNo

from course

where cName = '高等数学'))

and sNo in(select sNo

from sc

group by sNo

having count(\*) = 1)

**--20**

select sName

from student,sc,course

where student.sNo = sc.sNo and course.cNo = sc.cNo

group by student.sNo

having (sum(credit\*score)/sum(credit))<70

**--21-1**

select sName

from student

where not exists (select \*

from course

where not exists (select \*

from sc

where sc.sNo = student.sNo and sc.cNo = course.cNo)

and dNo = (select dNo

from department

where dName = '信息学院'))

**--21-2**

select sName

from student

where not exists (select \*

from course

where not exists(select \*

from sc

where student.sNo = sc.sNo and course.cNo = sc.cNo)

and cNo in(select cNo

from sc

where sNo in (select sNo

from student

where sName = '杨佳伟')))

and student.sName != '杨佳伟'

SELECT sname

FROM student s

WHERE NOT EXISTS (

SELECT \*

FROM sc sc2

WHERE sc2.sno = (

SELECT sno

FROM student

WHERE sname = '杨佳伟'

)

AND NOT EXISTS (

SELECT \*

FROM sc sc3

WHERE s.sno = sc3.sno

AND sc2.cno = sc3.cno

)

)

AND s.sname != '杨佳伟';

**--五**

**--1**

--（1）

create table publisher(

p\_no varchar(20) not null unique,

p\_name varchar(100) not null,

p\_address varchar(100),

p\_tel varchar(20),

primary key(p\_no)

);

create table book(

b\_no varchar(20) not null unique,

b\_name varchar(100) not null,

b\_author varchar(50) not null,

b\_ISBN varchar(100) not null unique,

p\_no varchar(20),

b\_version varchar(20),

b\_date date,

primary key(b\_no),

foreign key(p\_no) references publisher(p\_no)

);

--(2)

drop table publisher cascade

drop table book cascade

--(3)

create table publisher(

p\_no varchar(20) not null,

p\_name varchar(100) not null,

p\_address varchar(100),

p\_tel varchar(20)

);

create table book(

b\_no varchar(20) not null,

b\_name varchar(100) not null,

b\_author varchar(50) not null,

b\_ISBN varchar(100) not null,

p\_no varchar(20),

b\_version varchar(20),

b\_date date

);

alter table publisher add primary key(p\_no)

alter table publisher add unique(p\_no)

alter table book add primary key(b\_no)

alter table book add unique(b\_no)

alter table book add unique(b\_IBSN)

alter table book foreign key(p\_no) references publisher(p\_no)

drop table publisher cascade

drop table book cascade

--2

insert

into publisher

values('01','西北工业大学出版社','西安','123')

insert

into publisher

values('02','高等教育出版社','西安','456')

insert

into book

values('01','高等数学','A','001','01','1.01',to\_date('2001-01-08','yyyy-mm-dd'))

insert

into book

values('02','数据库系统概论','B','002','02','1.01',to\_date('2010-11-11','yyyy-mm-dd'))

select \*

from publisher

select \*

from book

**--3**

update publisher

set p\_address = '北京'

where p\_no = '01'

**--4**

delete

from publisher cascade

delete

from book cascade

**--5**

create view software\_lisan

as

select student.sNo,student.sName

from student

where student.sNo in (select sNo

from sc

where sc.cNo = (select cNo

from course

where cName = '离散数学'))

and student.dNo = (select dNo

from department

where dName = '软件学院')

insert

into software\_lisan

values('123456','王五')

select \*

from software\_lisan

select \*

from student

delete

from student

where sNo = '123456'

drop view software\_lisan cascade

**--6**

create view avg\_coursescore

as

select round(avg(score),2) as avg\_coursescore

from course left join sc on course.cNo = sc.cNo

where sc.score is not null

group by course.cNo

select \*

from avg\_coursescore

drop view avg\_coursescore cascade

**--7**

create view avg\_studentscore

as

select student.sNo,student.sName,round(avg(score), 2) as avg\_studentscore

from student left join sc on student.sNo = sc.sNo

where sc.score is not null

group by student.sNo

select \*

from avg\_studentscore

drop view avg\_studentscore cascade

**--DCL**

begin transaction;

select \*

from student;

select \*

from sc,course

where sc.cNo = course.cNo;

insert

into student

values('123456','ABC');

commit;

--rollback;