1. select sid, sname, gpa, email from students where deptname in (select dept\_code from classes where dept\_code not in(select dept\_code from classes where year = 2008 and semester = 'Spring') group by dept\_code);

2. select sname from students where deptname = 'Math' and status = 'graduate' and gpa > 3.4 and sid in ( select sid from enrollments where lgrade = 'B');

3. select sname,email from students where sid in (select sid from enrollments e, classes c where e.cid = c.cid and c.year = 2009 and c.dept\_code = 'CS');

4.select title, credits from courses where (course#) in (select course# from classes where dept\_code = 'CS' and year = 2008);

5. select (dept\_code || course#) as courses\_id, title, credits from courses where course# in (select course# from classes where cid in (select cid from enrollments minus (select cid from enrollments where sid in (select sid from students where status = 'graduate'))))

6. select sid, sname, status, gpa, email from students s1 where 1 = (select count (distinct(gpa)) from students s2 where s2.deptname = ‘CS’ and s2.gpa > s1.gpa);

7. select sid, sname, gpa, status from students where status in ('freshman', 'sophomore', 'junior', 'senior') and sid not in (select sid from enrollments where lgrade in ('C', 'D', 'F', 'I'));

8. select \* from courses where (dept\_code, course#) in (select dept\_code, course# from classes where cid in (select cid from enrollments minus (select cid from enrollments where lgrade = 'A')));

9. select dept\_code, course# from classes where cid in (select cid from enrollments where sid in (select sid from (select sid, total, row\_number() over (order by total desc) rno from (select e.sid, count(lgrade) total from enrollments e where e.lgrade = 'A' group by sid)) where rno =1)) group by dept\_code,course#;

10. select year, semester, limit - class\_size as seats\_available from classes where dept\_code = 'CS' and limit > class\_size;

11. (select distinct s.sid, s.sname, sum(credits) from students s, courses c, classes c1, enrollments e where s.sid = e.sid and c.dept\_code = c1.dept\_code and c.course# = c1.course# and c1.cid = e.cid and e.lgrade is not null group by s.sid, s.sname having sum(credits) < 8) union (select sid, sname, 0 from students where sid not in (select sid from enrollments));

12. select dept\_code, course# from classes group by (dept\_code, course#, year, semester) having sum(class\_size) > 30;

13. select sid, sname, status, gpa, email, deptname from students s where not exists (select \* from courses c where dept\_code = 'Math' and course# like '2\_\_' and not exists (select e.\* from enrollments e, classes c1 where e.sid = s.sid and e.cid = c1.cid and c1.dept\_code = c.dept\_code and c1.course# = c.course#));

14. select cid, dept\_code, course# from classes where cid in (select e.cid from students s, enrollments e where s.sid = e.sid and s.deptname = 'CS' minus(select e.cid from students s, enrollments e where s.sid = e.sid and s.deptname = 'Math'));

15. select sname from students where sid in (select sid from enrollments where cid in ( select cid from enrollments where sid in (select sid from students where sname = 'Anne')));

16. select avg(gpa) from students where sid in (select sid from enrollments where cid in (select cid from classes where dept\_code = 'CS') group by sid);

17. select distinct c.dept\_code, c.course#, c.title from courses c, classes c1 where c.title like '%data%' and c.dept\_code = c1.dept\_code and c.course# = c1.course# and not exists (select \* from students s where s.status in ('junior') and not exists (select \* from enrollments e where e.sid = s.sid and e.cid = c1.cid));

18. select sid, sname from students where sid in (select sid from enrollments e where e.lgrade =some (select min(lgrade) from enrollments where cid = e.cid));

19. select s.sid, s.sname, sum(cr.credits) from students s, classes cl, enrollments e, courses cr where s.deptname = 'Math' and e.sid = s.sid and e.cid = cl.cid and cl.dept\_code = cr.dept\_code and cl.course# = cr.course# and e.lgrade in ('A','B','C','D') group by s.sid, s.sname order by sum(cr.credits);

20. select dept\_code, course# from classes where (dept\_code,course#,year,semester) in (select dept\_code, course#, year, semester from classes minus(select dept\_code, course#, year, semester from classes where sect# > 1)) having count(course#) > 1 group by dept\_code, course#;