Q1.

a)
SELECT gpa
FROM student
WHERE sname = 'Goliath';

b)
SELECT division
FROM program, course
WHERE
course.pname = program.pname
AND
cname = 'Computer Organization';

c)
SELECT cname
FROM student, course, enroll
WHERE
student.sID = enroll.sID AND enroll.cID = course.cID
AND
student.gpa = 4.0;

d)
SELECT sname
FROM student, course, enroll
WHERE
course.cid = enroll.cID AND enroll.sID = student.sID
AND
course.cname = 'Database'
AND
gender = 'female';

e)
SELECT sname
FROM student, course, enroll
WHERE
course.Cid = enroll.cID AND enroll.sID = student.sID
AND
student.gender = 'male'
AND
(course.cname = 'Database' OR course.cname =
'Algorithm');

f)
SELECT sname
FROM student, course, enroll
WHERE
course.cID = enroll.cID AND enroll.sID = student.sID
AND
course.credit = 1;

g)
SELECT sname
FROM student, course, enroll
WHERE
student.sID = enroll.sID AND course.cID = enroll.cID
AND
enroll.grade='F'
AND
course.credit=3;

h)
SELECT s1.sname
FROM
student **AS** s1,
enroll **AS** e1, course **AS** c1, program **AS** p1,
enroll **AS** e2, course **AS** c2, program **AS** p2
WHERE
s1.sID = e1.sID AND e1.cID = c1.cID
AND
c1.pname = p1.pname
AND
s1.sID = e2.sID AND e2.cID = c2.cID
AND
c2.pname = p2.pname
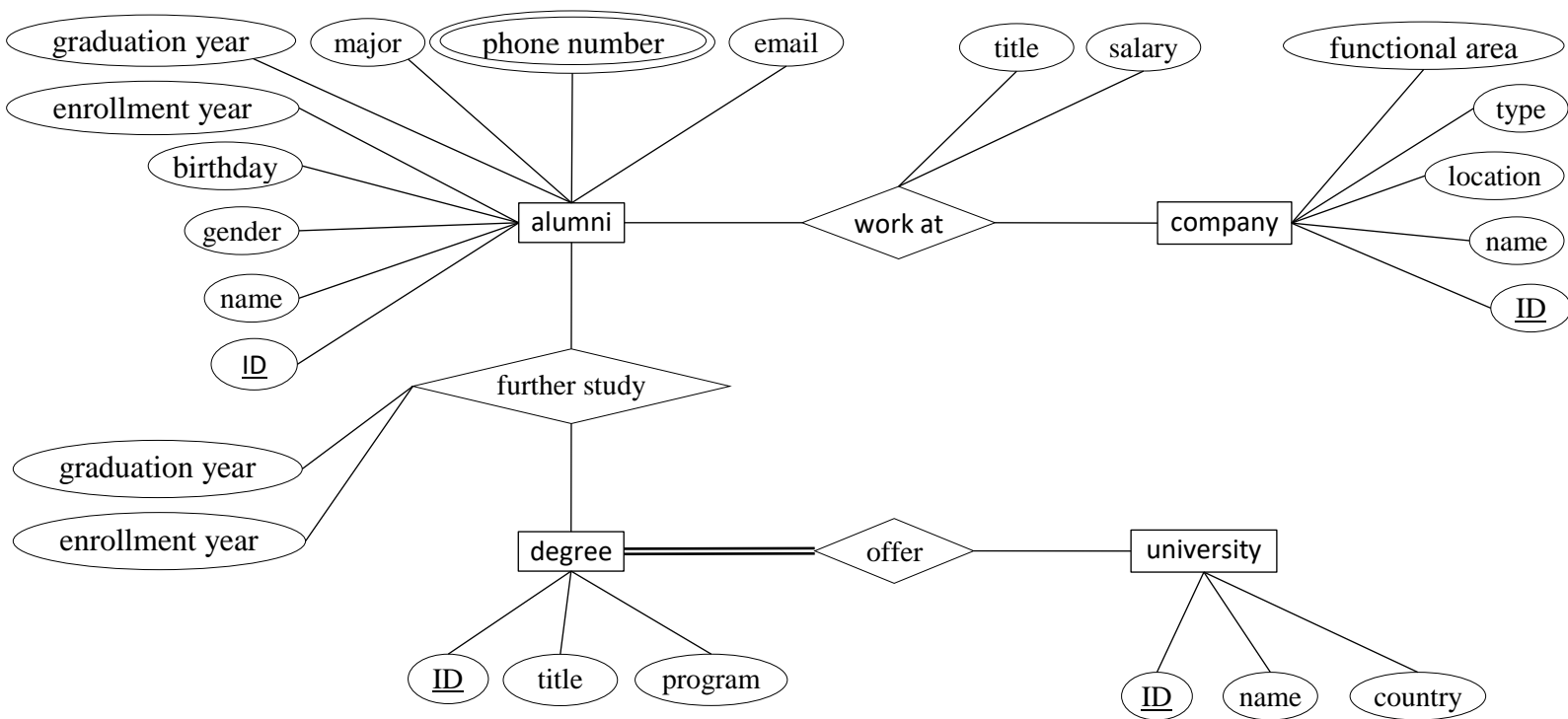AND
p1.division <> p2.division;

Rename table must use **AS**, question not using AS will lose one point.

Q2.

Suppose you are an administration staff at BNBU. You want to design a relational database to manage alumni status. Now, you are at the conceptual design stage. Thus, please design an ER diagram to model alumni, universities, degrees, companies, etc. under the following assumptions. (36 marks)

- Each alumnus is described as ID, name, gender, date of birth, enrollment year, graduation year, major, phone number, and email.
- Every university is described as ID, name, country.
- Each degree is described as ID, title, and program.
- **Degrees are** offered by universities.
- **Some** alumni continue their studies for some degrees. For the further study of each alumnus, you also need to model the enrollment year and the graduation year.
- Each company is described as ID, name, location, type, and functional area.
- **Some** alumni are working at some companies with a title and salary.

You do not need to make more assumptions on your design.

no key (not underlining key): -5

phone number not multivalue: -2