Q1 (i) EXISTS of an empty set is False. So no tuple is returned.

(ii) Yes column semantics has no influence on union operator.

(iii) Yes, only different syntax.

(iv) Yes A-(A-B) is same as A intersect B

(v) None. An outer join always has matched tuples.

(vi) no. It represent enrolled and unenrolled students. An outer join always has matched tuples.

(vii) It may be written as SELECT distinct 167\*8-78\*3 FROM Student OR SELECT 167\*8-78\*3  From dual; Dual is a temporary table in Oracle by default.

Q2. The following queries provide alternate ways to write queries discussed during practice session.

(i)  List students who are members of all studentgroups

select sid from student s where  
  not exists  
  ((select distinct gid from studentgroup) minus  
  (select distinct groupid from memberof where studentid = s.sid))

(ii) List courses that have a unique number.

Note: Write this query using a self join. Then write it using ANY.

select \* from course R where coursenr !=   
 ANY (select coursenr from course S where coursename != R.coursename)

(iii) For all departments list the highest course number used by that department

Note: Write this query using a group by. Then write this query using ALL.

select department,coursenr from course U where U.coursenr >=   
ALL (select coursenr from course where department = U.department)

(iv) List students who are members of DeFrag but not HerCTI and members of HerCTI but not DeFrag

Note: Identify set operations amongst words. There are 3 set operations. The resulting query is an exclusive-or.

((select SID, Lastname, firstname  
FROM student, memberof, studentgroup  
WHERE studentid = sid and groupid = gid and name = 'DeFrag')  
Minus  
(select SID, Lastname, firstname  
FROM student, memberof, studentgroup  
WHERE studentid = sid and groupid = gid and name = 'HerCTI'))

Union

((select SID, Lastname, firstname  
FROM student, memberof, studentgroup  
WHERE studentid = sid and groupid = gid and name = 'HerCTI')  
Minus  
(select SID, Lastname, firstname  
FROM student, memberof, studentgroup  
WHERE studentid = sid and groupid = gid and name = 'DeFrag'))