**Part 1**

1. Select title

From course

Where dept\_name = ‘Comp. Sci.’ and credits = 3

1. Select distinct takes.ID

From takes, instructor, teaches

Where takes.course\_id = teaches.course\_id and

Takes.sec\_id = teaches.sec\_id and

Takes.semester = teaches.semester and

Takes.year = teaches.year and

Teaches.id = instructor.id and

Instructor.name = ‘Einstein’

1. Select max(salary)

From instructor

1. Select id,name

From instructor

Where salary = (select max(salary) from instructor)

1. Select course\_id, sec\_id,

( select count(ID)

From takes

Where takes.year = section.year

And takes.semester = section.semester

And takes.course\_id = section.course\_id

And takes.sec\_id = section.sec\_id)

As enrollment

From section

Where semester = ‘Fall’

And year = 2017

1. Select max(enrollment)

From ( select count(ID) as enrollment

From section, takes

Where takes.year = section.year

And takes.semester = section.semester

And takes.course\_id = section.course\_id

And takes.sec\_id = section.sec\_id

And takes.semester = ‘Fall’

And takes.year = 2017

Group by takes.course\_id, takes.sec\_id)

1. With sec\_enrollment as (

Select takes.course\_id,takes.sec\_id, count(ID) as enrollment

From section, takes

Where takes.year = section.year

And takes.semester = section.semester

And takes.course\_id = section.course\_id

And takes.sec\_id = section.sec\_id

And takes.semester = ‘Fall’

And takes.year = 2017

Group by takes.course\_id, takes.sec\_id)

Select course\_id, sec\_id

From sec\_enrollment

Where enrollment = (select max(enrollment) from sec\_enrollment)

2. Select sum(credits \* points)

From takes, course, grade\_points

Where takes.grade = grade\_points.grade

And takes.course\_id = course.course\_id

And ID = ‘12345’

1. Select sum( credits \* points)/ sum (credits) as GPA

From takes, course, grade\_points

Where takes.grade = grade\_points.grade

And takes.course\_id = course.course\_id

And ID = ‘12345’

Union

(select null as GPA

From student

Where ID = ‘12345’ and

Not exists ( select \* from takes where ID = ‘12345’))

1. Select ID, sum(credits \* points)/ sum(credits) as GPA

From takes, course, grade\_points

Where takes.grade = grade\_points.grade

And takes.course\_id = course.course\_id

Group by ID

Union

( select ID, null as GPA

From student

Where not exists ( select \* from takes where takes.ID = student. ID))

2. Update instructor

Set salary = salary \* 1.10

Where dept\_name = ‘Comp. Sci.’

1. Delete from course

Where course\_id not in

(select course\_id from section)

1. Insert into instructor

Select ID, name, dept\_name, 10000

From student

Where tot\_cred>100

2. Select ID,

Case

When score < 40 then ‘F’

When score < 60 then ‘C’

When score < 80 then ‘B’

Else ‘A’

End

From marks

1. With grades as

(

Select ID,

Case

When score < 40 then ‘F’

When score < 60 then ‘C’

When score < 80 then ‘B’

Else ‘A’

End as grade

From marks

)

Select grade, count (ID)

from grades

group by grade

**Part 2**

**Question 1: What does char(n) indicate?**

a) variable length character string

b) fixed length character string

c) floating point number

d) small integer

Answer: (b) fixed length character string

**Question 2: The select clause is equivalent to which relational algebra operation?**

a) selection

b) join

c) project

d) union

Answer: (c) project

|  |
| --- |
| 0 |
| 4 |

**Question 3: (4 = some ) = true yields which result?**

a) true

b) false

c) null

d) not null

Answer: (a) true

**Question 4: Which best describes what an aggregate function can do?**

a) present special problems in relational operations

b) automatically eliminates duplicates

c) specifies that the null value is not allowed for that attribute

d) take a collection of values as input and return a single value.

Answer: (d) take a collection of values as input and return a single value

**Question 5: Which does not belong for : WHERE SALARY LIKE ‘200%’?**

a) 200134

b) 2001

c) 20021

d) 21200

Answer: (d) 21200