Faculty of Computers and Information **Department of Information Systems**
Course IS211 **Database Systems 1**
Midterm Examination
Time Allowed: 1 Hour

NAME: **ID:**

Question 1 [14 Grades]:

A. Given the following schema, Write the following queries in SQL

Employee(Ename , SSN, Bdate, City, Dnumber)

Department (Dname, Dumber, Dmgr_SSN)

Project(Pname, Pnumber, PCity, Dnumber)

WorksON(SSN,Pnumber,Hours)

1- Get the employee names and the project names that they work on. [2 Grades]

```
Select Ename, Pname
From Employee, Project, WorkON
Where Employee.SSN= WorksOn.SSN
And Project. Pnumber = WorksOn.Pnumber
```

2- Get employee names who working in projects located in the same city they live in. [2 Grades]

```
Select Ename, Pname
From Employee, Project, WorkON
Where Employee.SSN= WorksOn.SSN
And Project. Pnumber = WorksOn.Pnumber
And Project.PCity = Employee.City
```

3- List all department numbers that aren't assigned to any project.[2 Grades]

```
Select Dnumber from Department
Except
Select distinct Dnumber from Project
```

4- List the employees who are assigned to all the projects of department "Contractors" [2 Grades]

```
Select e1.SSN
From Employee e1
Where not exists
{
Select Pnumber
From WorksOn,Projects,Department,
And Project. Pnumber = WorksOn.Pnumber
And Project.Dnumber = Department.Dnumber
 And DName = 'Contractors'
Except
Select Pnumber
From WorksOn
Where WorksOn.SSN= e1.SSN
}
```

5- Write a create statement for the table **WorksON** with the appropriate constraints. [2 Grades]

```
Create table WorksOn
{
        SSN int references SSN(Employee)
        Pnumber int references Pumber(Project)
        Hours int
        Primarykey( SSN, Pnumber)
};
```

6- Write an insert statement that violates Entity Integrity Constraint on the table **Employee** [2 Grades]

```
Insert into Employee values ('ahmed',null,'3/5/2016',cairo, 3)
```

B. Correct the mistakes in the following queries if there is any (1 Grades for each query):

1. **SELECT ContactName , Count (ProductID)**
   FROM Products INNER JOIN Suppliers
   WHERE Products.SupplierID = Suppliers.SupplierID and Count (ProductID) > 3

   SELECT ContactName , Count (ProductID)
   FROM Products INNER JOIN Suppliers
   WHERE Products.SupplierID = Suppliers.SupplierID a
   Group by ContactName
   Count Count (ProductID) > 3

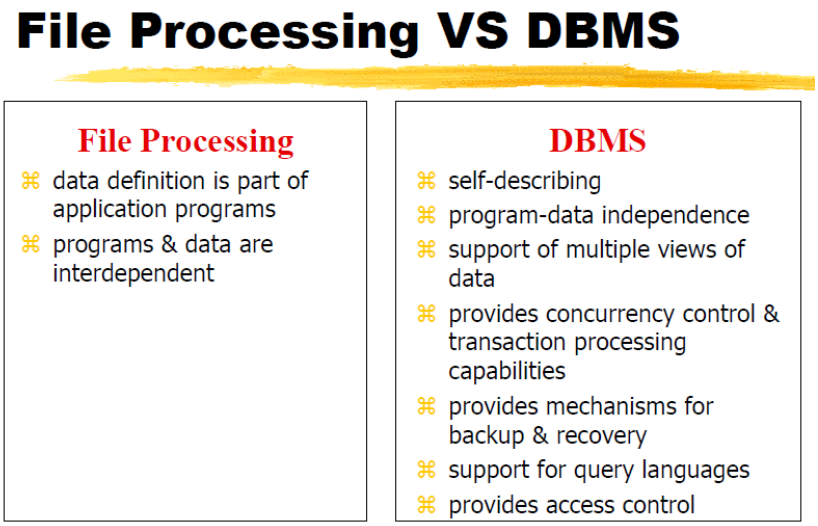
2. **SELECT Student.Name, Student.ID**
   FROM Student, Registered
   WHERE Registered.Crscode = 'CS%'
   EXCEPT
   SELECT Student.Name
   FROM Student
   WHERE Student.Major = 'CS'

   SELECT Student.Name, Student.ID
   FROM Student, Registered
   WHERE Registered.Crscode like 'CS%'
   And Student.ID= registered.ID
   EXCEPT
   SELECT Student.Name , Student.ID
   FROM Student
   WHERE Student.Major = 'CS'

Question 2 [6 Grades]

1. Mention one disadvantage for the File Processing Systems and how it was solved using DBMS [1 Grades]

   One disadvantage for file system and one advantage for dbms is enough (0.5 for each)



2. Write the relational algebra expressions to express the queries in Questions 1A and 2A.