**HOMEWORK 1 - Relational Data Model**

a/ No constraint violations

b/ Violates referential integrity because the DEPARTMENT relation with DNUMBER=2 does not include a tuple.

1. Deny the insertion
2. Change the value of DNUM
3. (iii) Insert a new DEPARTMENT with DNUMBER=2

c/ Violates key constraint because there already exists DNUMBER=4.

1. Reject the insertion
2. Change the DNUMBER

Violates the integrity of references because the EMPLOYEE relation with SSN = "943775543" does not contain a tuple.

1. Reject the insertion
2. Change the value of MGRSSN
3. (iii) Insert a new EMPLOYEE with SSN='943775543'

d/ Entity integrity is violated because PNO, a component of WORKS ON's primary key, is null.

1. Reject the insertion
2. Change the value of PNO.

Violates referential integrity because the EMPLOYEE relation with SSN='677678989' does not contain a tuple.

1. Reject the insertion
2. Change the value of ESSN
3. Inserting a new EMPLOYEE tuple with SSN='677678989'

e/ No constraint violations

f/ No constraint violations

g/ Violates referential integrity because the value being deleted from EMPLOYEE is referenced by tuples in the WORKS ON, DEPENDENT, DEPARTMENT, and EMPLOYEE tables.

1. Reject the deletion
2. Delete all tuples in the WORKS\_ON, DEPENDENT, DEPARTMENT, and EMPLOYEE whose values for ESSN, ESSN, MGRSSN, and SUPERSSN is '987654321'

h/ Because there are two tuples in the WORKS ON that reference the tuple being deleted, this violates referential integrity.

1. Reject the deletion

(ii) Delete the tuples in the WORKS\_ON where value for PNO=1.

i/ No constraint violations

j/ There is no tuple in the EMPLOYEE relation with the SSN = "943775543," which violates referential integrity.

1. Reject the deletion
2. (ii) Insert a new EMPLOYEE with SSN = '943775543'

k/ No constraint violations