B.S.A College of Engineering & Technology, Mathura

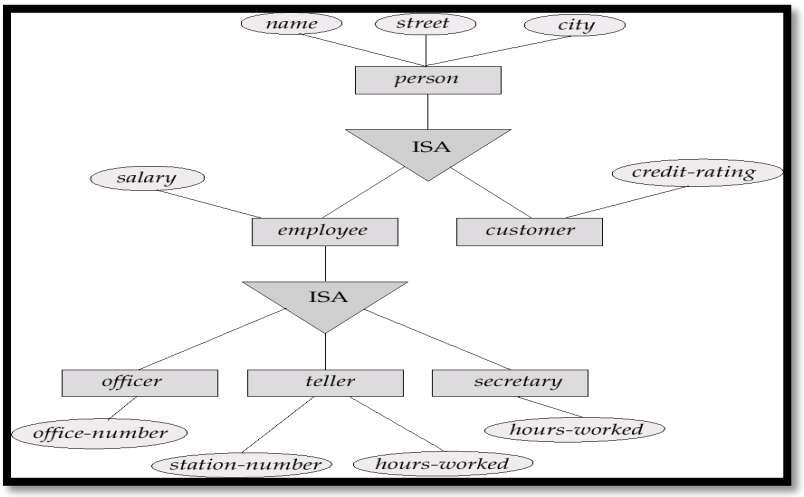
(Established & Governed by Shri Agrawal Shiksha Mandal (Regd.), Mathura)

ASSIGNMENT # 1

CS 3RD yr DBMS (BCS-501)

Given Date: 23rd Sep 24 **Submission Date: 23rd Oct 24**

1. Consider the following scenario for a college database. 1. Students enroll for a course. 2. There are some departments. 3. Departments have faculty members. 4. Each department runs some courses. Draw an E-R diagram. Convert the E-R Diagram into relational model.
2. A table named EMP (Empid, Name, DOB, Address, Passport_No, Lisence_No, SSN) is there. Find out the following: Alternative Keys, Non-key Attributes, Non-Prime attributes, Prime Attribute.
3. Convert the following E-R Diagrams into relational model.



4. What is the difference between TRUNCATE, DROP and DELETE command?
5. Consider the relations:

   PROJECT (proj#, proj_name, chief_architect)
   EMPLOYEE (emp#, emp_name)
   ASSIGNED (proj#, emp_name)

   Use relational algebra to express the following queries:
   1. Get the details of employees working on project.
   2. Get the employee number of employees who work on all projects.
   3. Get the details of project on which employee with name 'RAM' is working.

6. **Consider the following schema for a company database:**

   Employee (Name, SSN, Salary, DNo, SuperSSN)
   Department (DName, DNos, MGRSSN)
   Works on (ESSN, Dependent_name, Sex)

   Write the queries in relational algebra to
   a. List the name of all employees with at least two dependents.
   b. Find the name of employees who work on all the projects controlled by department 5.
   c. Retrieve the name of managers who do not have female dependents.
7. Explain the following with example
   a. Generalization
   b. Specialization
   c. Aggregation
   d. A Recursive relationship set.
8. Which relational algebra operations require the participating tables to be union compatible? Give the Reason in detail.