Computer Science and Engineering Department
Motillal Nehru National Institute of Technology Allahabad
B.Tech V Semester
DBMS Lab (CSN15401)
Assignment-6

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1. Consider a **Employee Project Assignments** in a company:

EmployeeID	EmployeeName	ProjectID	ProjectName	DepartmentID	DepartmentName	HoursWorked
101	John Doe	P001	Alpha	D10	IT	30
102	Jane Smith	P002	Beta	D20	HR	40
103	Bob Brown	P001	Alpha	D10	IT	35
104	Alice Green	P003	Gamma	D30	Marketing	20
101	John Doe	P002	Beta	D20	HR	25

a) List all functional dependencies satisfied by the above instance of a relation.
b) Determine all the super key(s), candidate key(s) and primary key in the relation.
c) Write SQL statements to create the corresponding relation with suitable primary key.

2. Consider **Student Course Enrollments** in a university:

StudentID	StudentName	CourseID	CourseName	InstructorID	InstructorName	Grade
201	Alice Brown	C101	Databases	I01	Dr. Smith	A
202	Bob Green	C102	Networking	I02	Dr. Adams	B
201	Alice Brown	C103	Algorithms	I03	Dr. Lee	A-
203	Carol White	C101	Databases	I01	Dr. Smith	B+
204	David Black	C102	Networking	I02	Dr. Adams	A

a) List all functional dependencies satisfied by the above instance of a relation.
b) Determine all the super key(s), candidate key(s) and primary key in the relation.
c) Write SQL statements to create the corresponding relation with suitable primary key.

3. You are provided with the following information about a **Library Management System (LMS)**:

- LMS consists of books and each book has a unique ISBN, a title, an author, and a publisher. Multiple copies of the same book are available in the library.
- LMS has library members and each library member has a unique MemberID, a name, and a contact number.
- Members can borrow multiple books, and each borrowed book is recorded with the date of borrowing and the return date.

a) Based on the given information, identify and list all possible functional dependencies.
b) Write SQL statements to design a relational schema for the Library Management System.
c) Clearly define the attributes for each relation and indicate primary and foreign key(s) where applicable.

Note: Ensure that your relational schema is logically consistent and avoids data redundancy based on the functional dependencies.