**Makerere University Business School**

**Faculty of Computing and Informatics**
**Diploma in Computer Science**
**Course: Computer Literacy**
**Course Code: DCS1105**
**Year: I – Semester I**

**PRACTICE QUESTIONS**

**Conceptual Questions**

1. Explain the difference between a **primary key** and a **foreign key** in MS Access.
2. Why are relationships important in a relational database? State **two benefits**.
3. Differentiate the following relationship types in MS Access:
a) One-to-One
b) One-to-Many
c) Many-to-Many
4. What is **referential integrity**, and why is it important?
5. Describe a scenario in a university database where a **cascade update** and **cascade delete** would be useful.

**Practical Application Questions**

**QUESTION 1: University Database:**
Design the following tables with appropriate primary keys:

* **Students** (StudentID, FirstName, LastName, Faculty, PhoneNumber)
* **Courses** (CourseID, CourseName, CreditHours, Faculty)
* **Enrollments** (EnrollmentID, StudentID, CourseID, Semester, Grade)

**Task:**
a) Define the relationships among these tables.
b) Identify the type of relationship between **Students–Enrollments** and **Courses–Enrollments**.

**c)** Suppose the Faculty table contains (FacultyID, FacultyName).

1. Modify the database above to include this table.
2. Establish the correct relationships so that each student and course belong to a faculty.
3. Using the **Students–Courses–Enrollments** database, design a query to list all students and the courses they are enrolled in for **“2025 Semester I.”**
4. Create a query that retrieves the names of students who have **not enrolled** in any course.

**QUESTION 2: Library Database:**
In a **Library Management Database** with:

* **Books** (BookID, Title, Author, Publisher)
* **Borrowers** (BorrowerID, Name, Contact)
* **Loans** (LoanID, BorrowerID, BookID, LoanDate, ReturnDate)

**Task:**
a) Establish the relationships among these tables.
b) Create a query that lists each borrower and the titles of books they have borrowed.

**QUESTION 3 Lecturer Management Database:**
A university wants to track lecturers and the courses they teach. Create:

* **Lecturers** (LecturerID, Name, Department)
* **Courses** (CourseID, CourseName, CreditHours)
* **LecturerCourse** (LecturerCourseID, LecturerID, CourseID, Semester)

**Questions:**
a) Create a relationship that exists between Lecturers and Courses?
b) Why is a junction (associative) table necessary in this case?

**CALCULATIONS IN ACCESS**
In Question 1(University Database): the **Students–Courses–Enrollments** database, design queries to:
a) Display all courses with the **total number of students enrolled**.
b) Display the **average grade per course**.
c) Display the list of students enrolled in **more than 3 courses**.