



**Final Examination  
Practical Question Paper**

# **MySQL**

Semester: 1

Curriculum Code: 7023

Date:

Duration: 1.5 **Hour**

Total Marks: **20**

**Do not write on this question paper and return it to the Invigilator after the examination.**

## 1. Database Creation (1 mark)

1. Create a database named **LibraryManagement\_MySQL** (0.5 mark)
2. Use the created database (0.5 mark)

## 2. Table Creation (4 marks)

### Members

Column	Data Type	Constraint
MemberID	INT	PRIMARY KEY, AUTO_INCREMENT
FullName	VARCHAR(100)	NOT NULL
Phone	VARCHAR(15)	UNIQUE

### Books

Column	Data Type	Constraint
BookID	INT	PRIMARY KEY, AUTO_INCREMENT
Title	VARCHAR(200)	NOT NULL
Author	VARCHAR(100)	NOT NULL
Quantity	INT	NOT NULL

### BorrowRecords

Column	Data Type	Constraint
BorrowID	INT	PRIMARY KEY, AUTO_INCREMENT

MemberID	INT	NOT NULL
BorrowDate	DATE	NOT NULL

### BorrowDetails

Column	Data Type	Constraint
BorrowID	INT	NOT NULL
BookID	INT	NOT NULL
BorrowQuantity	INT	NOT NULL

Composite Primary Key: (**BorrowID, BookID**)

## 3. Keys and Relationships (3 marks)

1. Define all primary keys (1 mark)
2. Define foreign keys:
  - BorrowRecords.MemberID → Members.MemberID
  - BorrowDetails.BorrowID → BorrowRecords.BorrowID
  - BorrowDetails.BookID → Books.BookID (2 marks)

## 4. Insert Data (3 marks)

### Members

FullName	Phone
Alice Johnson	0911111111
Bob Smith	0922222222
Clara Brown	0933333333

## Books

Title	Author	Quantity
Database Systems	Silberschatz	5
Clean Code	Robert Martin	3
Operating Systems	Tanenbaum	2
Design Patterns	GoF	22

## BorrowRecords

MemberID	BorrowDate
1	2023-08-01
2	2023-08-02

## BorrowDetails

BorrowID	BookID	BorrowQuantity
1	1	1
1	2	1
2	3	1

## 5. Query Operations (3 marks)

- Display all borrow records created after 2023-08-01 **(0.5 mark)**
- Display members whose phone number starts with '091' **(0.5 mark)**
- Display books that have never been borrowed **(1 mark)**
- Display members who borrowed more than one different book **(1 mark)**

Hint: use **CHAR\_LENGTH()** and **GROUP BY**

## 6. Views (2 marks)

a. Create a view named view\_BorrowSummary (1 mark)

The view shows:

- FullName
- BorrowDate
- TotalBooksBorrowed (sum of BorrowQuantity)

b. Execute the view (0.5 mark)

c. Show the view definition of view (0.5 mark)

Hint: SHOW CREATE VIEW

## 7. Stored Procedure (2 marks)

Create a procedure named **sp\_GetBorrowByDate**

Input parameter:

- **p\_BorrowDate DATE**

Functionality:

- Display all borrow records on the given date
- Output:
  - **BorrowID**
  - **FullName**
  - **BorrowDate**

Execute the procedure with date: 2023-08-01

## 8. Triggers (2 marks)

a. INSERT & UPDATE Trigger on BorrowDetails (1 mark)

- Prevent inserting or updating records where BorrowQuantity  $\leq 0$
- Error message:

"BorrowQuantity must be greater than zero"

b. DELETE Trigger on Books **(1 mark)**

- Prevent deleting any book
- Error message: "Deleting books is not allowed"

Hint: use BEFORE INSERT, BEFORE UPDATE, BEFORE DELETE