



**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)

- a. Display all borrow records created after 2023-08-01 (**0.5 mark**)
- b. Display members whose phone number starts with '091' (**0.5 mark**)
- c. Display books that have never been borrowed (**1 mark**)
- d. 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