BHAGWAN
MAHAVIR
UNIVERSITY

BHAGWAN MAHAVIR COLLEGE OF COMPUTER APPLICATIONS
WEB DEVELOPMENT-III 1CA301T

TYBCA SEM 5
PROBLEMSHEET 3
Submission Date: 20/10/2025

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1. Create **five different collections** inside a single database named <Your_College_Name>.
   Collections:
   - Students
     - studentId
     - name
     - email
     - marks
     - courseEnrolled
     - admissionDate
   - faculty
     - facultyId
     - name
     - department
     - email
     - experienceYears
     - subjects
   - courses
     - courseId
     - courseName
     - credits
     - durationMonths
     - department
   - departments
     - deptId
     - deptName
     - totalFaculty
     - coursesOffered
     - location
   - library
     - bookId
     - title
     - author
     - category
     - isAvailable
     - issuedTo
     - issueDate

2. Insert a minimum of 5 documents into each collection created in Question 1.
   Use Mongoose Schema validations such as:
   required, unique, min, max, enum, and match (for regex-based validation).

3. Queries to retrieve specific data from the database.
    - Find all students who scored more than 75 marks.
    - Find students enrolled in the "BCA" course and show only their **name** and **marks**.
    - Find faculty members who have more than 5 years of experience **and** belong to the “Computer Science” department.
    - Find all faculty whose names start with the letter “R” (use regex).
    - Find all courses that have more than 4 credits.
    - Find all active courses and sort them by duration (ascending).
    - Find departments where totalFaculty is less than 10 or located in "Block A".
    - Find all departments and show only deptName and coursesOffered.
    - Find all available books in the "Computer Science" category.
    - Find the latest 3 books issued (sorted by issueDate descending).

4. Perform at least **5 update or delete operations** across any of the collections created in Question 1.
   Examples:

    - Update a student’s marks or course enrolment.
    - Update a faculty member’s contact details.
    - Delete inactive library members or outdated course records.

5. Perform structural modifications to your database:

    - **Rename** courses to courseList.
    - **Drop (delete)** library collection.

6. Server Creation and API Integration
    - Create a basic Node.js server (without Express) using only core http module.
    - Integrate all CRUD operations (from Q1–Q5) as API endpoints that can be accessed through the browser or Postman.

    Example endpoints:

    - GET /students → Retrieve all students
    - POST /students → Add a new student
    - PUT /students/:id → Update student record
    - DELETE /students/:id → Delete student record

7. **Javascript Course Completion Certificate**