POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS PGDCA-(NEW)

PGDCA-NEW/ASSIGN/SEMESTER-II

ASSIGNMENTS

(July – 2025 & January – 2026)

MCS-206, MCS-207, MCS-208, MCSL-209, MCSL-210

**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068**

CONTENTS

Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date.

2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to PGDCA Programme Guide.

3. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the PGDCA Programme Guide.

4. The viva voce is compulsory for the assignments. For any course, if a student submitted the assignment and not attended the viva-voce, then the assignment is treated as not successfully completed and would be marked as ZERO.

Course Code	:	MCSL-210
Course Title	:	DBMS and Java Lab
Assignment Number	:	PGDCA_NEW(II)/L-210/Assignment/2025-26
Maximum Marks	:	100
Weightage	:	30%
Last Date of Submission	:	31st October, 2025 (for July session)
		30th April, 2026 (for January session)

Note: This assignment has two sections. Answer all questions in each section. Each Section is of 20 marks. Your Lab Records will carry 40 Marks (20 Marks for each section). Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. You must execute the program and submit the program logic, sample input and output along with the necessary documentation. Assumptions can be made wherever necessary. Please go through the guidelines regarding assignments given in the programme guide for the format of presentation.

Section 1: DBMS Lab

A Payroll management is a critical component, ensuring timely and accurate payment of salaries, benefits, and allowances to the employees of an organization. A construction company which undertakes various infrastructure projects such as buildings, roads, and bridges wants to develop payroll management system for covering various employee categories and associated payroll details. The company employs a diverse workforce consisting of both technical and non-technical staff. The database records manage **details of Employees and their associations with Departments, Basic Salary, Attendance, Allowances/Incentives and Deductions, Leave Records, Employee type** (Contract Details /Permanent/Part time etc.)

Question 1: List the entities, their attributes and relationships for the description given **(10 Marks)** above and make an ER-diagram for this Payroll Management System. You may use the concept of keys, aggregation, generalization, cardinality etc. as per need. Design the suitable RDBMS tables for the ER-diagram you have created. The database design should include keys, foreign keys, constraints and referential integrity constraints. Your database design should be normalized up to 3rd Normal Form. Make necessary assumptions wherever require.

Question 2: Implement the database design (create tables) that you have created in question **(4 Marks)** 1 using a RDBMS with proper integrity constraints. Enter about 8- 10 meaningful records in each of your table.

Question 3: **(6 Marks)**

1. List all permanent employees with their department name
2. Show the June 2025 salary details of all employees who are working in Maintenance Department
3. Get employee names along with their basic salary and employee type
4. Find top 5 highest paid employee (highest basic salary) in August 2025
5. Show average allowances per employee for July 2025
6. Show employees whose tax deductions exceed ₹20,000 in July 2025

7. Count the number of employees in each department
8. Find employees who were absent between June 10, 2025 and Jule 15, 2025
9. List engineers with net salary > ₹75,000 in August 2025
10. Find the sum of net salary paid to all the employees
11. Find average salary of employees in July 2025 for maintenance department
12. Find total number of employees working in the company in May 2025.

Section 2: Java Lab

Question 1: Write a program to demonstrate use of different data types in Java.   **(2 Marks)**

Question 2: Write java programs to demonstrate use of abstract class and interface. **(6 Marks)**
Make necessary assumptions.

Question 3: Write a java program to demonstrate interthread communications.   **(4 Marks)**

Question 4: Write java program to demonstrate useJavaFX in GUI development.   **(2 Marks)**

Question 5: Write a program using JDBC for simple CRUD application for billing **(6 Marks)**
of a general store. Make necessary assumptions.