POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS PGDCA-(NEW)

PGDCA-NEW/ASSIGN/SEMESTER-II

ASSIGNMENTS

(July – 2026 & January – 2027)

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

SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
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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/2026-27**
Maximum Marks	**:**	**100**
Weightage	**:**	**30%**
Last Date of Submission	**:**	**31st October, 2026 (for July session)** **30th April, 2027 (for January session)**

Note: This assignment has two sections. Answer all questions in each section. Each Section is of 20 marks. Also, your Lab Records will carry 40 Marks (20 Marks for each section). The remaining 20 marks are for viva voce (10 marks for each section). 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 destination management company provides an online reservation facility for custom tour packages. This system maintains a relational database tracking Tour Packages (including package categories, base pricing, and specialised discounts for premium corporate partners and frequent regular customers), Travellers (classified into *Standard Class* and *Premium Class*), Bookings, and Itinerary Line Items.

To confirm any itinerary, travellers must complete a profile registration by providing their primary dispatch address, contact details, a verified email ID, and a mobile number. To manage corporate premium status and loyalty discounts, an organisational subscription fee is billed to the account. An individual booking can aggregate multiple distinct tour packages as per their choice, and a traveller can manage multiple active bookings simultaneously. The system processes transactions via online payment gateways or deferred Cash-on-Arrival (COA) vouchers at the destination terminal.

Question 1: **(8 Marks)**

List the entities, their attributes and relationships for the description given above and make an ER-diagram for this system. You may use the concept of keys, aggregation, generalisation, cardinality etc. as per need. Design 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 and list them wherever required.

Question 2: **(5 Marks)**

Implement the database design (create tables) that you have created in Question 1 using an RDBMS with proper integrity constraints. Enter about 8- 10 meaningful records in each of your tables.

Question 3: **(7 Marks)**

Write and run the following queries for your database using SQL commands:

Query 1: List all travellers whose PIN code is "110068" and who possess corporate premium status.

Query 2: List the booking ID and aggregate invoice amount of reservations confirmed during 01-06-2026 to 30-08-2026.

Query 3: Display traveller profiles who finalised the bookings on 10-8-2026 with an aggregate invoice threshold amount exceeding Rs. 25,000.

Query 4: Filter traveller records whose names begin with the alphabetical character 'A' and operate under standard non-corporate accounts.

Query 5: Identify tour package records that have zero booking entries during the initial week of July 2026.

Query 6: Find the total number of packages booked by corporate premium customers between 01-07-2026 and 31-07-2026.

Query 7: Find the average cost of packages booked during July 2026.

Section 2: Java Lab

Question 1: **(3 Marks)**

Write a Java program to demonstrate data access control. Use two separate classes to show/display the visibility levels of private, default, protected, and public data members.

Question 2: **(6 Marks)**

Write a Java program to simulate a hospitality/tourism application scenario to demonstrate constructor overloading, method overloading (compile-time polymorphism), and method overriding (runtime polymorphism). Make necessary assumptions.

Question 3: **(5 Marks)**

Write a Java program to create a custom exception *InvalidAgeException* to validate traveller registration profiles for a hospitality/tourism application scenario. Make necessary assumptions.

Question 4: **(6 Marks)**

Develop a standalone hospitality/tourism application using JDBC. This standalone application implements full *Create, Read, Update, and Delete* operations on database tables created by you. Make necessary assumptions.