BRIDGE COURSES FOR MASTER OF COMPUTER APPLICATIONS (MCA_NEW)

ASSIGNMENTS

(July - 2025)

MCS-201 and MCS-208

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

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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 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 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	**:**	**MCS-208**
Course Title	**:**	**Data Structures and Algorithms**
Assignment Number	**:**	**PGDCA_NEW(II)/208/Assign/2025**
Maximum Marks	**:**	**100**
Weightage	**:**	**25%**
Last Date for Submission	**:**	**31th October 2025 (for July Session)**

There are four questions in this assignment, which carry 80 marks. Each question carries 20 marks. Rest 20 marks are for viva voce. All algorithms should be written nearer to C programming language. You may use illustrations and diagrams to enhance the explanation, if necessary. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.

Q1: For each of the Singly Linked List, Circularly Singly Linked List, Doubly Linked List, Circularly Doubly Linked List, write one application that is exclusively suitable for that list. For example, X may be an application for whose implementation, only Circularly Singly Linked List is suitable and others are not suitable. Justify your answer. **(20Marks)**

Q2: We can test whether a node ' m' is a proper ancestor of a node ' n' by testing whether ' m' precedes ' n' in X-order but follows ' n' in Y-order , where X and Y are chosen from {pre, post, in}. Determine all those pairs X and Y for which this statement holds. **(20 Marks)**

Q3: Explain Left Leaning Red Black Trees. What are their advantages and disadvantages? **(20 Marks)**

Q4: Write a short note on the recent developments in the area of finding minimum cost spanning trees. **(20 Marks)**