MS - 51

Management Programme (MP) Post Graduate Diploma in Operations Management (PGDOM)

ASSIGNMENT
For
January 2024 and July 2024 Sessions

MS - 51: Operations Research

(Last date of submission for January 2024 session is 30th April, 2024 and for July 2024 sessions is 31st October, 2024)

School of Management Studies
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068

ASSIGNMENT

Course Code	**:**	**MS - 51**
Course Title	**:**	**Operations Research**
Assignment Code	**:**	**MS - 51/TMA/JAN/2024**
Coverage	**:**	**All Blocks**

Note: Attempt all the questions and submit this assignment to the Coordinator of your study centre. Last date of submission for January 2024 session is 30th April, 2024 and for July 2024 session is 31st October, 2024.

1. A company manufactures two products, X and Y, using machines A, B, and C. Machine A has 4 hours of capacity available during the coming week. Similarly, the available capacity of machines B and C during the coming week is 24 hours and 35 hours, respectively. One unit of product X requires one hour of Machine A, 3 hours of machine B and 10 hours of Machine C. Similarly, one unit of product Y requires 1 hour, 8 hours and 7 hours of machine A, B and C, respectively. When one unit of X is sold in the market, it yields a profit of Rs. 5/- per product, and that of Y is Rs. 7/- per unit. Formulate a linear programming model and solve this problem using the graphical method to find the optimal product mix.
2. *'Linear programming is one of the most frequently and successfully employed Operations Research techniques to managerial and business decisions'*. Elucidate this statement with some examples.
3. Explain, by taking an illustration, the North-West Corner rule, the Least Cost Method and the Vogel's Approximation Method to obtain the initial feasible solution to a transportation problem.
4. What is a *stage* in dynamic programming? Explain the steps involved in solutions to dynamic programming problems.
5. Discuss the assumptions underlying the basic EOQ formula. Also, state the economic order quantity model, discuss its sensitivity, and explain its significant extensions.