

**MS - 51**

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

**ASSIGNMENT  
for  
January 2026 and July 2026 Sessions**

**(Last date of submission for January 2026 session is 30<sup>th</sup> April, 2026  
and for July 2026 sessions is 31<sup>st</sup> October, 2026)**

**MS - 51: Operations Research**



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

## ASSIGNMENT

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<b>Course Code</b>	<b>:</b>	<b>MS - 51</b>
<b>Course Title</b>	<b>:</b>	<b>Operations Research</b>
<b>Assignment Code</b>	<b>:</b>	<b>MS - 51/TMA/JAN/2026</b>
<b>Coverage</b>	<b>:</b>	<b>All Blocks</b>

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**Note: Attempt all the questions and submit this assignment to the Coordinator of your study centre. Last date of submission for January 2026 session is 30<sup>th</sup> April, 2026 and for July 2026 session is 31<sup>st</sup> October, 2026.**

1. Define Operations Research and explain its scope. Discuss the limitations of Operations Research and enumerate the major techniques used in OR for managerial decision-making.
2. What constitutes inventory ordering costs, carrying costs and stock out costs? Explain the behaviour and relationship of these costs.
3. An agriculturist has a 125-acre farm. He produces radish, muttar (Peas) and potato. Whatever he raises is fully sold in the market. He gets Rs. 5 for radish per kg, Rs 4 for muttar (Peas) and Rs 5 for potato per kg. The average per acre yield is 1500 kg of radish, 1800 kg of muttar (Peas) and 1200 kg of potato. To produce each 100 kg of radish and muttar (Peas) and 80 kg of potato, a sum of Rs 12.50 has to be used for manure. Labour required for each acre to raise the crop is 6 man-days for radish and potato each and 5 man-days for muttar (Peas). A total of 500 man-days for labour at a rate of Rs 40 per man-day are available. Formulate this as a linear programming model to maximize the agriculturist's total profit.
4. "When it becomes difficult to use an optimization technique for solving a problem, one has to resort to simulation technique." Discuss.
5. Using the following cost matrix, determine (a) optimal job assignment and (b) the cost of assignments

Job/ Machines	1	2	3	4	5
A	10	3	3	2	8
B	9	7	8	2	7
C	7	5	6	2	4
D	3	5	8	2	4
E	9	10	9	6	10