

Question Bank for PG Course

অঙ্ক (Mathematics)

নবম (ক ২) পত্র (Paper - IXA(ii))

Operations Research : PGMT-IXA(ii)

1. State a sufficient condition for a stationery point x_0 to be an extremum of $f(x)$.
2. State the conditions for sufficiency of the Kuhn-Tucker conditions.
3. Solve the following LPP by Dual simplex method:
 $x_1 + 2x_2 \geq 2$, $x_1 + 2x_2 \leq -1$, $x_1, x_2 \geq 0$
4. In post optimality analysis, how does the optimal solution change due to discrete change in the requirement vector?
5. State the advantages of Revised simplex method over regular simplex method.
6. What are the assumptions for the optimal solution of a quadratic programming problem to be global in nature?
7. Which method is used to solve both pure and mixed Integer Programming Problem?
8. Solve the following Integer Programming Problem by Gomory's cutting plane method:
Maximize $z = x_1 + 2x_2$
Subject to the constraints
 $x_1 + x_2 \leq 7$, $2x_1 \leq 11$, $2x_2 \leq 7$, $x_1, x_2 \geq 0$ & are integers.
9. What property is used by Steepest Descent method for minimizing a function of n variables?
10. Minimize $f(x_1, x_2, x_3) = x_1^2 + 2x_2^2 + x_3^2$
Subject to $2x_1 + 4x_2 + 3x_3 = 9$
 $4x_1 + 8x_2 + 5x_3 = 17$
Using method of constrained variation.
11. What is the necessary condition for a function $f(x_1, x_2, \dots, x_n)$ subject to the constraints $g_j(x_1, x_2, \dots, x_n) = 0$, $j = 1, 2, 3, \dots, m$ to have a relative minimum at a point $(x_1^*, x_2^*, \dots, x_n^*)$?
12. What are the differences of the procedure of revised simplex method from simplex method?
13. What is the nature of the initial solution in dual simplex method?
14. By dual simplex method solve the following LPP:
Minimize $z = 2x_1 + x_2$
Subject to the constraints
 $3x_1 + x_2 \geq 3$, $4x_1 + x_2 \geq 6$, $x_1 + 2x_2 \geq 3$, $x_1, x_2 \geq 0$.
15. What is the effect of addition of a single variable x_{n+1} to a L.P.P. solved by simplex method?