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National Institute of Open Schooling (NIOS)
Senior Secondary Course
Lesson – 37: Linear Programming
Worksheet – 37

1. Formulate any two Linear programming problems and express them in terms of algebraic symbols such as $x_1, x_2, x_3 \ldots\ldots\ldots\ldots$.

2. Distinguish between feasible solution and optimal solution in Linear programming problems.

3. Write different steps in order to solve Linear programming problem through graphically.

4. Solve Linear programming problem graphically as:

Maximize $Z = 1000x + 600y,$ subjects to constraints

$x + 3y \leq 60,$

$x + y \geq 10,\ x \leq y, x \,\&\, y \geq 0.$

5. A small firm manufactures gold rings and chains. The combined number of rings and chains manufactured per day is almost 30. It takes one hours to make a ring and half anhour for a chain. The maximum number of hours available per day is 16. If the profit on a ring is Rs. 300 and on a chain is 200, how many of each should be manufactured daily, so as to maximize the profit?

6. Solve maximize $Z = 8x + 9y$ subject to constraint

$2x + 3y \leq 6, 3x - 2y \leq 6$ and $y \leq 1, x, y > 0$

7. If the objective function of on LPP is $Z = 3x - 4y,$ and the corner points of feasible region are (0, 0), (5, 0) (6, 5), (6, 8) (4, 10) and (0, 8), then the find minimum value of Z.

8. Minimize and maximize, $Z = 5 + 2y$ subject to constraints

$x - xy \leq 2$

$3x + 2y \leq 12,\ \ x \geq 0\ \&\ y \geq 0$

$-3x + 2y \leq 3,$

9. Find out the vertex of a feasible region by the linear constraints $3x + 4y \leq 18$, $2x + 3y \geq 3$ and $x, y \geq 0$.

10. A firm makes pants and shirts. A shirt takes 2 hours on machine and 3 hours of man labour while a pent takes 3 hours on machine and 2 hours of man labour. In a week there are 70 hours machine and 75 hours of man labour available. If the firm determine to make x shirts and y pants per week, then find the linear constraints .