ASSIGNMENT

B.Sc. Sem-VI (Operations Research)

Paper — XIII (Group-B)

1) Prove that the set of all convex combinations of a finite no. of linearly independent vectors is a convex set.

2) Solve the following LPP by Graphical Method

max. $Z = 5x_1 + 7x_2$

s.t.

$x_1 + x_2 \leq 4$

$3x_1 + 8x_2 \leq 24$

$10x_1 + 7x_2 \leq 35$

$x_1, x_2 \geq 0$

3) Solve the following LPP by Simplex Method

max. $Z = 7x_1 + 5x_2$

s.t.

$x_1 + 2x_2 \leq 6$

$4x_1 + 3x_2 \leq 12$

$x_1, x_2 \geq 0$

4) Solve the following LPP by Big-M Method

min $Z = 2x_1 + x_2$

s.t.

$3x_1 + x_2 = 3$

$4x_1 + 3x_2 \geq 6$

$x_1 + 2x_2 \leq 3$

$x_1, x_2 \geq 0$

5) write the dual of the problem

min. $Z = 2x_2 + 5x_3$

s.t.

$x_1 + x_2 \geq 2$

$2x_1 + x_2 + 6x_3 \leq 6$

$x_1 - x_2 + 3x_3 = 4$

and $x_1, x_2, x_3 \geq 0$