Lab. Expt. No. 1 (Contd..) Date: 14-01-2016

Solve the following LP Problems by Basic Feasible Solution Method:

No1. Max: Z= $5x_1 + 3x_2$

Subject to

$3x_1 + 5x_2 \le 15$

$5x_1 + 3x_2 \le 10$

$x_1, x_2 \ge 0$

No.2 Max: Z= $5x_1 + 7x_2$

Subject to

$x_1 + x_2 \le 14$

$3x_1 + 8x_2 \le 24$

$5x_1 + 7x_2 \le 35$

$x_1, x_2 \ge 0$

No.3 Max: Z= $x_1 + x_2$

Subject to

$6x_1 + 5x_2 \le 1$

$2x_1 + 9x_2 \le 1$

$7x_1 + 3x_2 \le 1$

$x_1, x_2 \ge 0$

No.4 Max: Z= $x_1 + x_2 + x_3$

Subject to

$3x_1 - 2x_2 + 4x_3 \le 1$

$-x_1 + 4x_2 + 2x_3 \le 1$

$2x_1 + 2x_2 + 6x_3 \le 1$

$x_1, x_2, x_3 \ge 0$

No.5 $\max : R = x + y + z$

Subject to

$$\begin{aligned} x - y + 3z &\le 1 \\ 3x + 5y - 3z &\le 1 \\ 6x + 2y - 2z &\le 1 \\ x, y, z &\ge 0 \end{aligned}$$

Is $(\frac{3}{16}, \frac{5}{16}, \frac{3}{8})$ **this point an optimal solution of the LPP ?**

No.6 Max: Z= $3x_1 + 4x_2$

Subject to

$x_1 + 2x_2 \le 8$

$9x_1 + 2x_2 \geq 14$

$3x_1 + 10x_2 \geq 30$

$x_1, x_2 \geq 0$

No.7 Min: Z= $x_1 + x_2 + x_3$

Subject to

$5x_1 + 7x_2 + 10x_3 \geq 1$

$3x_1 + 9x_2 + 6x_3 \geq 1$

$7x_1 + x_2 + 2x_3 \geq 1$

$x_1, x_2, x_3 \geq 0$

No.8 Min: Z= $7x_1 + 3x_2 + 8x_3$

Subject to

$8x_1 + 2x_2 + x_3 \geq 3$

$3x_1 + 6x_2 + 4x_3 \geq 4$

$x_1, x_2, x_3 \geq 0$

Solve all the LP problems manually. Then verify your solution by your developed program.