Условие

$$\varphi = -x_1 - 6x_2 + 6x_3 + 2x_4 + x_5 \to max$$

$$\begin{cases} x_1 + 2x_2 = 4 \\ -2x_2 + 3x_3 = 6 \\ -x_1 + 2x_4 + 3x_5 = 2 \end{cases}$$

$$\begin{cases} 2 \le x_1 \le 4 \\ -1 \le x_2 \le 3 \\ 1 \le x_3 \le 4 \\ 2 \le x_4 \le 5 \\ 0 \le x_5 \le 4 \end{cases}$$

Решение Возьмём как начальный базис $J_{\text{Б}} = \{2, 3, 5\}$

$$\left[\begin{array}{rrr|r} 2 & -2 & 0 & -6 \\ 0 & 3 & 0 & 6 \\ 0 & 0 & 3 & 1 \end{array}\right] \implies u = \begin{pmatrix} -1 \\ 2 \\ \frac{1}{3} \end{pmatrix}$$

$$\delta_1 = \frac{1}{3}$$

$$\delta_4 = \frac{4}{3}$$

$$æ_1 = 4$$

$$æ_4 = 5$$

$$\left[\begin{array}{rrr|r} 2 & 0 & 0 & 0 \\ -2 & 3 & 0 & 6 \\ 0 & 0 & 3 & -4 \end{array}\right] \implies \begin{array}{l} æ_2 = 0 \\ æ_3 = 2 \\ æ_5 = -\frac{4}{3} \end{array}$$

$$j_* = 5$$

$$\left[\begin{array}{rrr|r} 2 & -2 & 0 & 0 \\ 0 & 3 & 0 & 6 \\ 0 & 0 & 3 & -4 \end{array}\right] \implies p_u = \begin{pmatrix} 0 \\ 0 \\ \frac{1}{3} \end{pmatrix}$$

$$p_{\delta_1} = \frac{1}{3}$$

$$p_{\delta_4} = \frac{-2}{3}$$

$$\begin{matrix} \sigma_1 = \infty \\ \sigma_5 = 2 \end{matrix} \quad \Longrightarrow \quad \begin{matrix} \sigma = 2 \\ j_0 = 5 \end{matrix}$$

$$J_{\text{Б}} = \{2, 3, 4\}$$

$$\left[\begin{array}{ccc|c} 2 & -2 & 0 & -6 \\ 0 & 3 & 0 & 6 \\ 0 & 0 & 2 & 2 \end{array}\right] \Longrightarrow u = \begin{pmatrix} -1 \\ 2 \\ 1 \end{pmatrix}$$

$$\delta_1 = 1$$

$$\delta_5 = -4$$

$$æ_1 = 4$$

$$æ_5 = 0$$

$$\left[\begin{array}{ccc|c} 2 & 0 & 0 & 0 \\ -2 & 3 & 0 & 6 \\ 0 & 0 & 2 & 6 \end{array}\right] \Longrightarrow \begin{matrix} æ_2 = 0 \\ æ_3 = 2 \\ æ_5 = 3 \end{matrix}$$

Критерий оптимальности выполняется

Ответ: $x = (4, 0, 2, 3, 0)$