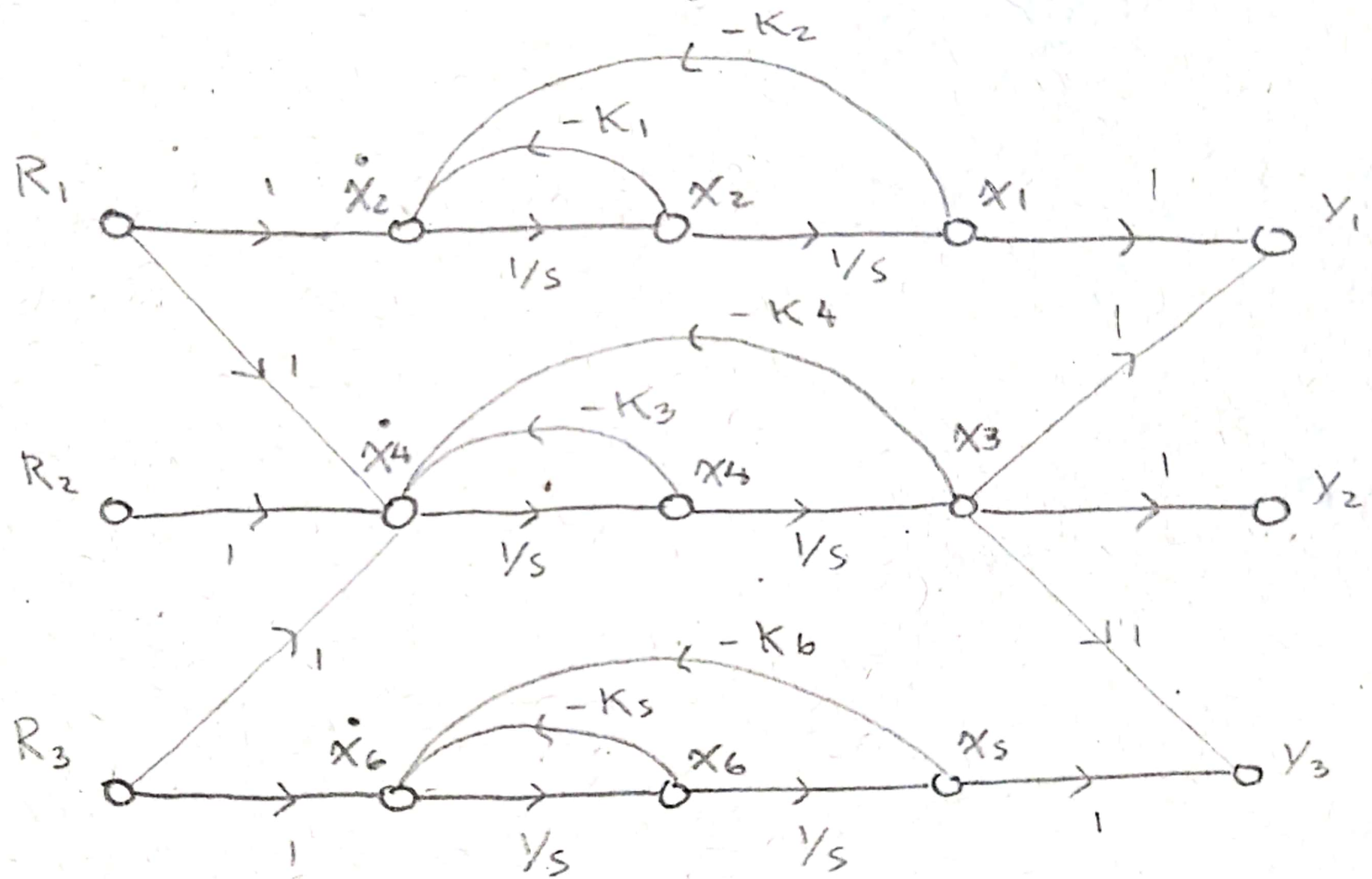


2-



$$3.1. L_1 = -\frac{K_1}{s}$$

$$L_4 = -\frac{K_2}{s^2}$$

$$\frac{Y_3}{R_1} = T(s) = \frac{\sum P_k \Delta_k}{\Delta}$$

$$L_2 = -\frac{K_3}{s}$$

$$L_5 = -\frac{K_4}{s^2}$$

$$P_1 = \frac{1}{s^2}$$

$$L_3 = -\frac{K_5}{s}$$

$$L_6 = -\frac{K_6}{s^2}$$

$$\Delta_1 = 1 - (L_1 + L_4 + L_3 + L_6)$$

$$\begin{aligned} \Delta = & 1 - (L_1 + L_2 + L_3 + L_4 + L_5 + L_6) + (L_1 L_2 + L_1 L_3 + L_1 L_5 + L_1 L_6 + L_2 L_3 \\ & + L_2 L_4 + L_2 L_6 + L_3 L_4 + L_3 L_5 + L_4 L_5 + L_4 L_6 + L_5 L_6) - (L_1 L_2 L_3 \\ & + L_1 L_2 L_6 + L_1 L_5 L_3 + L_1 L_5 L_6 + L_4 L_2 L_3 + L_4 L_2 L_6 + L_4 L_5 L_3 + L_4 L_5 L_6) \end{aligned}$$

$$T(s) = \frac{P_1 \Delta_1}{\Delta}$$

$$3.2 - \dot{x}_1 = x_2$$

$$\dot{x}_2 = -k_1 x_2 - k_2 x_1 + R_1$$

$$\dot{x}_3 = x_4$$

$$\dot{x}_4 = -k_3 x_4 - k_4 x_3 + R_1 + R_2 + R_3$$

$$\dot{x}_5 = x_6$$

$$\dot{x}_6 = -k_5 x_6 - k_6 x_5 + R_3$$

$$y_1 = x_1 + x_3$$

$$y_2 = x_3$$

$$y_3 = x_3 + x_5$$