Example 4.4

Q: $L_r = ?$

Solution $\quad |zI - A_{bb} + L_r A_{ab}|$

$$= |z - 1 + 0.1 L_r| \equiv z - 0.5$$

$$0.1 L_r - 1 = -0.5 \quad \Rightarrow L_r = 5$$

$$\bar{X}_b(k+1) = [A_{bb} - L_r A_{ab}] \bar{X}_b(k) + L_r \, y(k+1)$$

$$+ [A_{ba} - L_r A_{aa}] y(k) + [B_b - L_r B_a] u(k)$$

$$\bar{X}_b(k+1) = 0.5 X_b(k) + 5 \, y(k+1) - 5 \, y(k) - 0.5 \, u(k)$$