

Multiple Input/Output System. Find C_1 & C_2 .

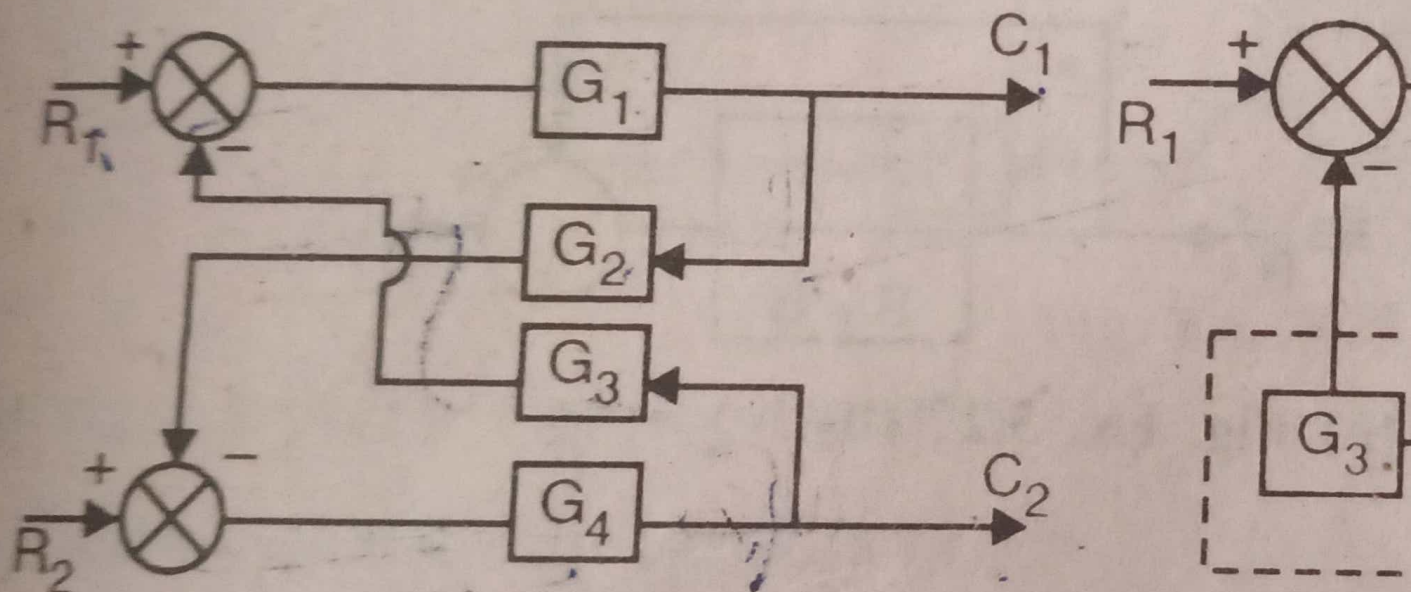


Fig. Ex. 3.26

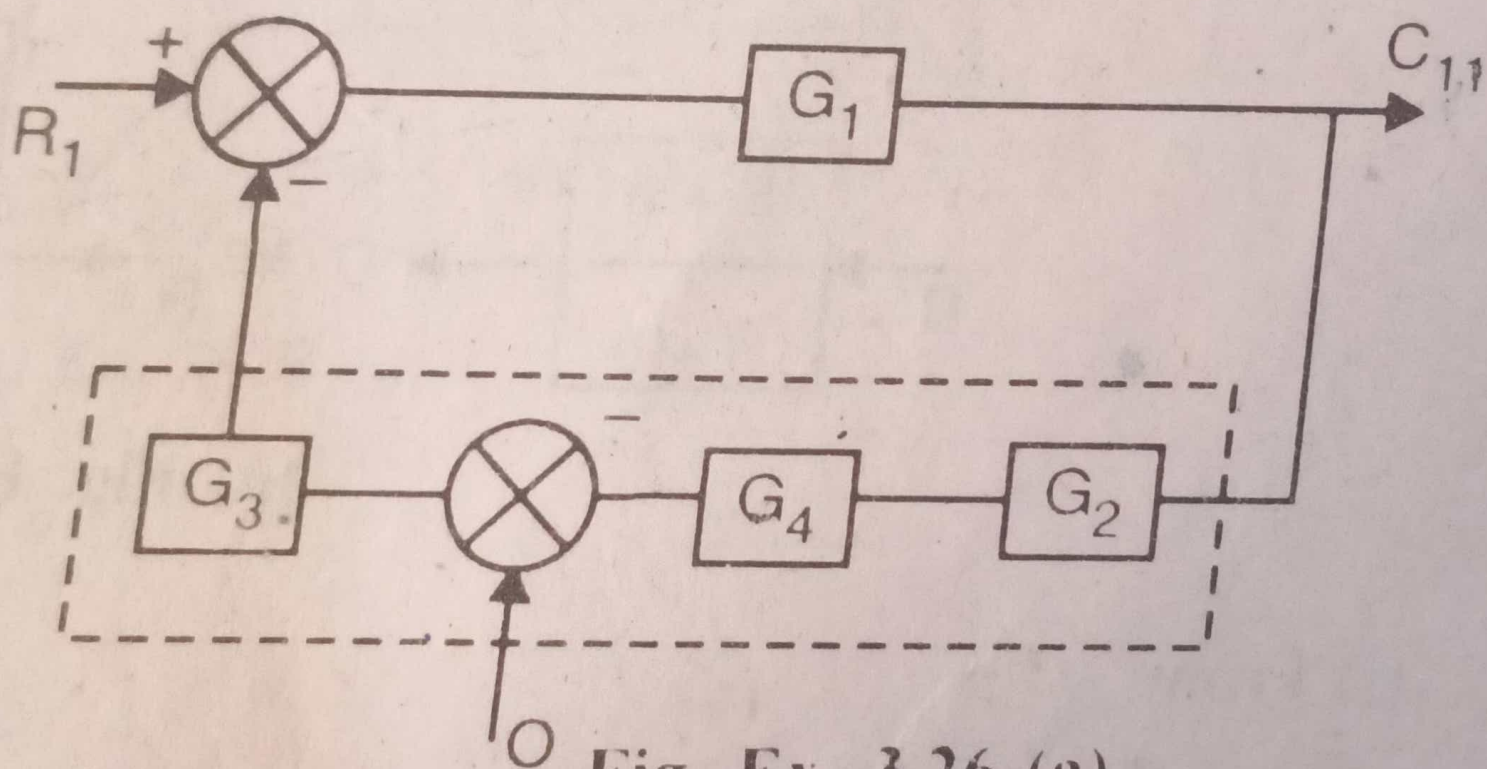
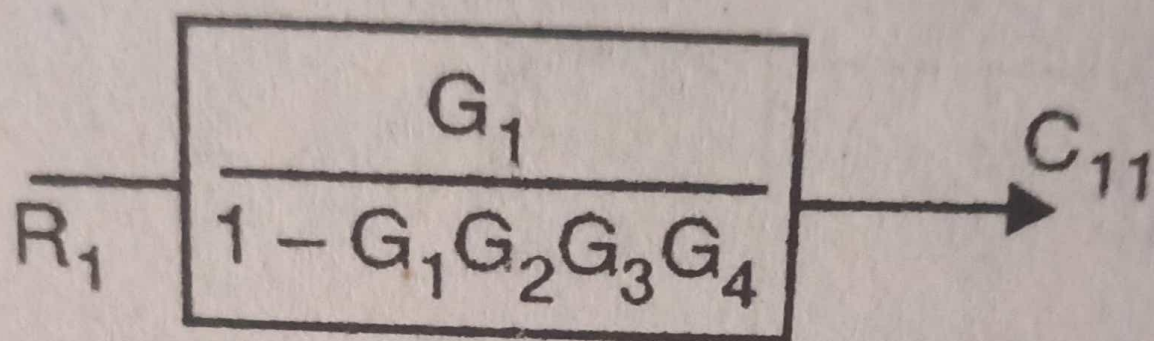
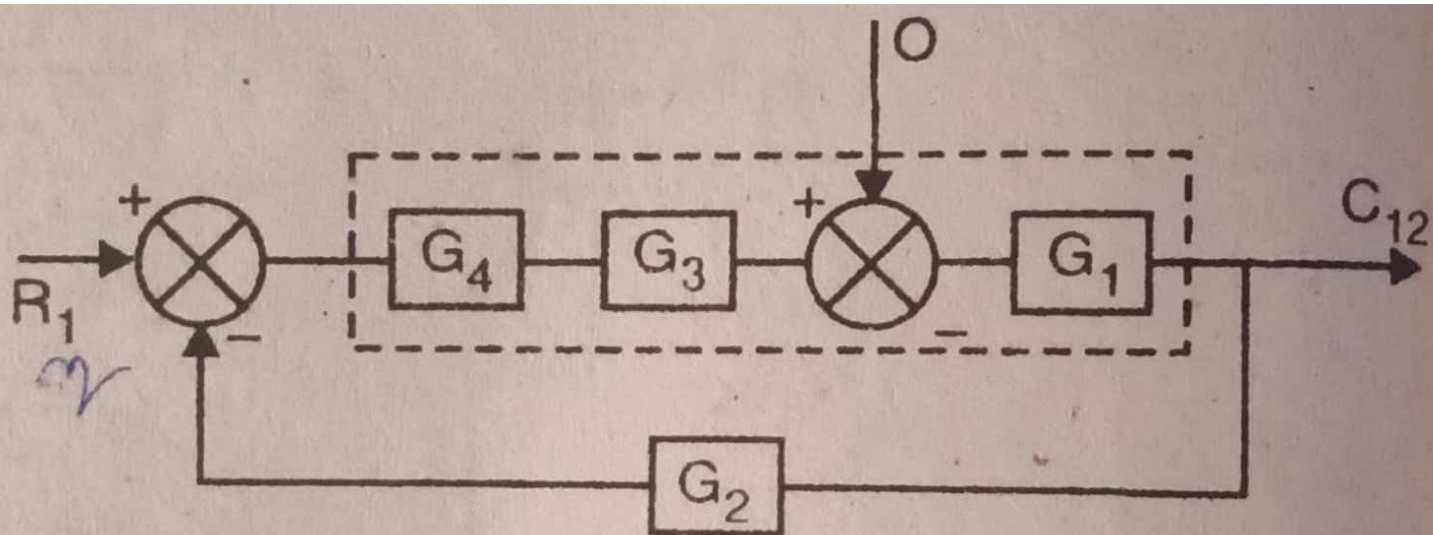


Fig. Ex. 3.26 (a)





Put $R_1 = 0$

$$C_{11} = \frac{G_1 R_1}{1 - G_1 G_2 G_3 G_4}$$

Refer Fig. Ex. 3.26 (c).

This gives, Refer Fig. Ex. 3.36 (d).

$$C_{12} = \frac{-G_1 G_3 G_4 R_2}{1 - G_1 G_2 G_3 G_4}$$

$$C_1 = C_{11} + C_{12}$$

$$C_1 = \frac{G_1 R_1 - G_1 G_3 G_4 R_2}{1 - G_1 G_2 G_3 G_4}$$

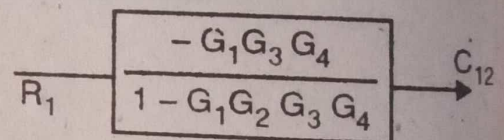


Fig. Ex. 3.36 (d)

For C_2 proceeding along same lines

$$C_{21} = \frac{-G_1 G_2 G_4 R_1}{1 - G_1 G_2 G_3 G_4}$$

$$C_{22} = \frac{G_4 R_2}{1 - G_1 G_2 G_3 G_4}$$

$$\therefore C_2 = \frac{G_4 R_2 - G_1 G_2 G_4 R_1}{1 - G_1 G_2 G_3 G_4} \text{ Ans.}$$

Example 35 (Dec. 93 P. U. Instru)

Refer Fig. Ex. 3.35.

Find $\frac{C_2}{R_1} \Big|_{R_2=0}$, $\frac{C_2}{R_2} \Big|_{R_1=0}$, $\frac{C_1}{R_1} \Big|_{R_2=0}$, $\frac{C_1}{R_2} \Big|_{R_1=0}$.

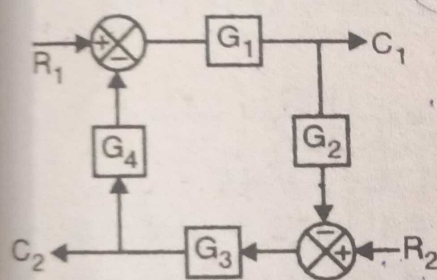


Fig. Ex. 3.35

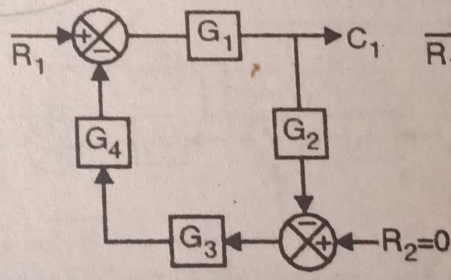


Fig. Ex. 3.35 (a)

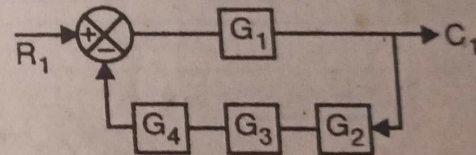


Fig. Ex. 3.35 (b)