

Q.7)

Cascade realization

$$H(z) = (1 + 2z^{-1} - z^{-2})(1 + z^{-1} - z^{-2})$$

$$H(z) = \frac{Y(z)}{X(z)}$$

$$H_1(z) = (1 + 2z^{-1} - z^{-2})$$

$$H_2(z) = (1 + z^{-1} - z^{-2})$$

$$\therefore H_1(z) = \frac{Y_1(z)}{X_1(z)}$$

$$Y_1(z) = X_1(z) + 2X_1(z)z^{-1} - X_1(z)z^{-2} \rightarrow (1)$$

$$\therefore H_2(z) = \frac{Y_2(z)}{X_2(z)}$$

$$Y_2(z) = X_2(z) + X_2(z)z^{-1} - X_2(z)z^{-2} \rightarrow (2)$$

