

3.11 The difference equation is $y(n) = by(n-1) + ax(n)$. Apply the z -transform to both sides of the equation we have

$$Y(z) = b z^{-1}Y(z) + aX(z)$$

which gives the transfer function $H(z) = \frac{Y(z)}{X(z)} = \frac{a}{1 - bz^{-1}}$.