6.23 a)

    b) The original transfer function is $H(z) = 1/(1 - b\,z^{-1})$. Add two poles and zeros at $z = b$ $e^{\pm j2\pi/3}$. We get

$$H(z) = (1 + b\,z^{-1} + b^{2}z^{-2})/(1 - b^{3}z^{-3}) = (z^{2} + b\,z + b^{2})/(z^{3} - b^{3})$$