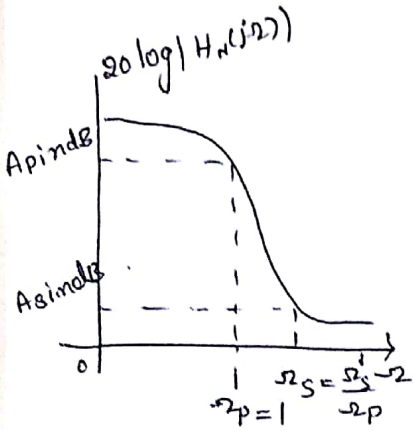
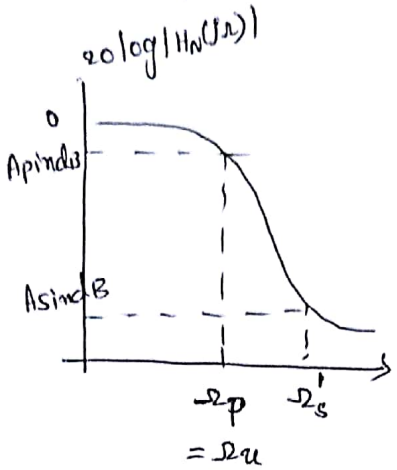
Prototype frequency Response



Transformed freq response

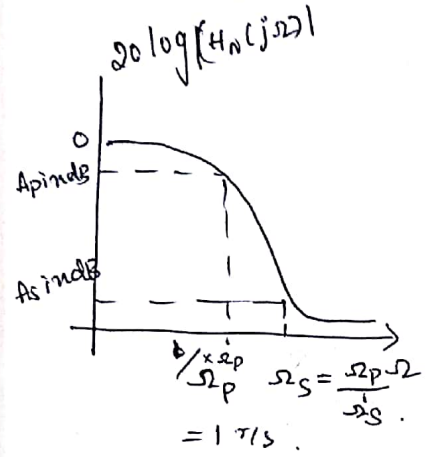


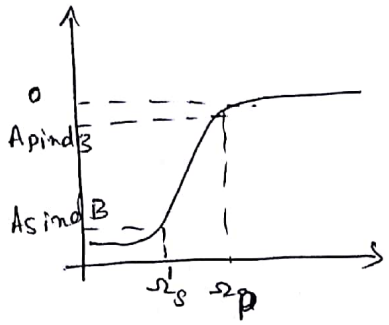
Backword transformation

$$\Omega_s = \frac{\Omega_s'}{\Omega_p}$$

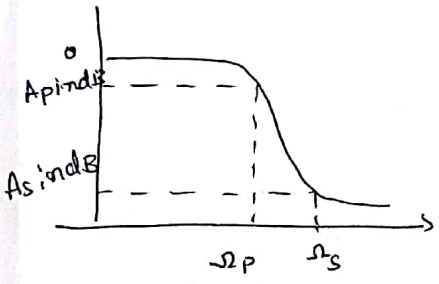
Ω_u = desired frequency

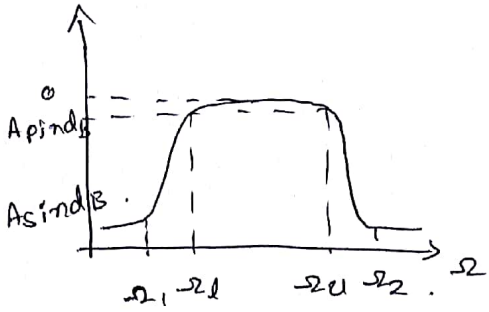
Ω_p = passband edge freq





$$\Omega_s = \frac{\Omega_p}{\Omega_s'}$$

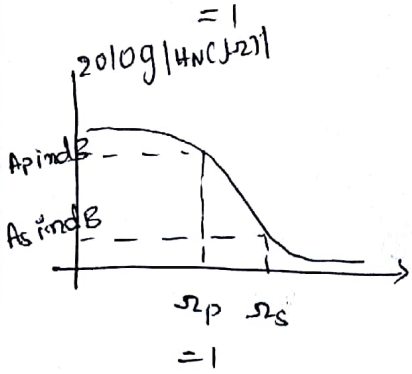


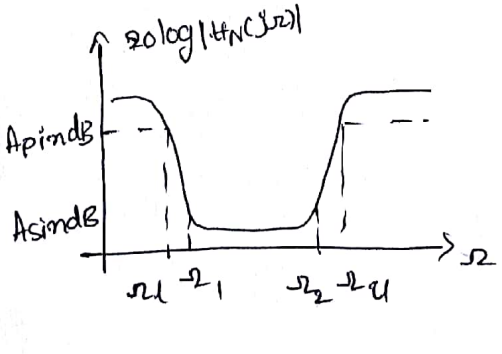


$\Omega_s = \text{Min}\{|A|, |B|\}$

$$A = \frac{-\Omega_1^2 + \Omega_l \Omega_u}{\Omega_1 (\Omega_u - \Omega_l)}$$

$$B = \frac{\Omega_2^2 - \Omega_l \Omega_u}{\Omega_2 (\Omega_u - \Omega_l)}$$





$\Omega_s = \min\{|A|, |B|\}$

$$A = \frac{\Omega_1 (\Omega_u - \Omega_l)}{-\Omega_1^2 + \Omega_l \Omega_u}$$

$$B = \frac{\Omega_2 (\Omega_u - \Omega_l)}{-\Omega_2^2 + \Omega_u \Omega_l}$$