P6) we don't want positive poles, so we will use $\underset{>0}{a}$ $\underset{>0}{b}$ $\underset{>0}{c}$

so, $p+1>0 \Rightarrow p>-1$

$4p-2>0 \Rightarrow p>\frac{1}{2}$

$p>\frac{1}{2} \cap p>-1 \Rightarrow p>\frac{1}{2}$ //

P5) $\underbrace{(p^2-1)}_{\lambda_1}$ $\underbrace{(p-3)}_{\lambda_2}$ $\underbrace{(-1)}_{\lambda_3}$

to be stable λ_1, λ_2 to $\lambda_1, \lambda_2 < 0$

$p^2-1=0$ $p-3=0$ if $p<3$ an $|p|<1$

$p=\pm 1$ $p=3$ $-1<p<1$

asymptotically stable

thus $-1<p<1$ is the interval

2) for $p=3$

$\lambda_1 = 4$ x unstable

for $p=1 \Rightarrow \lambda_1=0$ $\lambda_2=-2 \Rightarrow$ internally stable

for $p=-1 \Rightarrow \lambda_1=0$ $\lambda_2=-4 \Rightarrow$ internally stable

$p=\pm 1 \Rightarrow$ makes system internally stable

3) to make unstable

$\lambda_1, \lambda_2 > 0$ (at least one) or $\lambda=0 \Rightarrow |\lambda_n| > 1$

$p^2-1>0 \Rightarrow |p|>1$ $p-3>0 \Rightarrow p>3$

if first inequality is true the system will be unstable

so $\underline{|p|>1}$