3.A) $T_1(s) = \dfrac{s^2+9}{s^2+s\sqrt{2}+1}$; $K = \boxed{A=1}$; $\omega_{0p}^2 = 1 = \dfrac{1}{CL} \Rightarrow CL = 1$

$\omega_{0z}^2 = 9 = \dfrac{B}{CLA} = \dfrac{B}{CL} \Rightarrow CL = \dfrac{B}{9}$

$\left.\begin{array}{l} \dfrac{B}{9} = 1 \Rightarrow \boxed{B=9} \end{array}\right\}$

$\dfrac{\omega_{0p}^2}{f_p} = \sqrt{2} = \dfrac{1}{CR}$

$\dfrac{\omega_{0z}^2}{f_z} = 0 = \dfrac{d}{CRA} \Rightarrow \boxed{d=0}$

$\left.\begin{array}{l} \dfrac{\omega_{0p}^2}{f_p} = \sqrt{2} = \dfrac{1}{CR} \\ \dfrac{\omega_{0z}^2}{f_z} = 0 = \dfrac{d}{CRA} \Rightarrow \boxed{d=0} \end{array}\right\}$ → normalizo red en impedancia con $R = 1\,\Omega$:

$\underline{C = \dfrac{1}{\sqrt{2}} = \dfrac{\sqrt{2}}{2}\,F}$ y $\underline{L = \sqrt{2}\,H}$

$f_z = \infty$ y $f_p = \dfrac{1}{\sqrt{2}} \cdot \sqrt{\dfrac{1}{1}} = \dfrac{1}{\sqrt{2}}$

NOTA

B) $T_2(s) = \frac{s^2 + 1/9}{s^2 + s1/5 + 1}$; $K = \boxed{A = 1}$; $\omega_{0p}^2 = 1 = \frac{1}{CL} \Rightarrow CL = 1$

$\omega_{0z}^2 = \frac{1}{9} = \frac{B}{CLA} = \frac{B}{CL} \Rightarrow CL = B.9$

$B.9 = 1 \Rightarrow \boxed{B = \frac{1}{9}}$

$\frac{\omega_{0p}^2}{f_p} = \frac{1}{5} = \frac{1}{CR}$

$\frac{\omega_{0z}^2}{f_z} = 0 = \frac{d}{CRA} \Rightarrow \boxed{d = 0}$

→ normalizo en impedancia con $R = 1\,\Omega$:

$\underline{C = 5\,F}$ y $\underline{L = \frac{1}{5}\,H}$

$f_z = \infty$ y $f_p = 5 \cdot \sqrt{\frac{1}{1}} = 5$

C) $T(s) = \frac{s^2 + s1/5 + 1}{s^2 + s\sqrt{2} + 1}$; $K = \boxed{A = 1}$; $\omega_{0p}^2 = 1 = \frac{1}{CL} \Rightarrow CL = 1$

$\omega_{0z}^2 = 1 = \frac{B}{CLA} = \frac{B}{CL} \Rightarrow CL = B.$

$\boxed{B. = 1}$

$\frac{\omega_{0p}^2}{f_p} = \sqrt{2} = \frac{1}{CR} \Rightarrow CR = \frac{1}{\sqrt{2}}$

$\frac{\omega_{0z}^2}{f_z} = \frac{1}{5} = \frac{d}{CRA} = \frac{d}{CR} \Rightarrow CR = d.5$

$d.5 = \frac{1}{\sqrt{2}} \Rightarrow \boxed{d = \frac{1}{5\sqrt{2}}}$

→ normalizo en impedancia con $R = 1\,\Omega$:

$\underline{C = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}\,F}$ y $\underline{L = \sqrt{2}\,H}$

$f_z = \frac{(-1/\sqrt{2})}{1/5\sqrt{2}} \cdot \sqrt{\frac{1}{1}} = 5.$

$f_p = \frac{1}{\sqrt{2}} \sqrt{\frac{1}{1}} = \frac{1}{\sqrt{2}}$