a) Make a rough sketch of the Bode plot (5)
b) Sketch full Nyquist diagram. (10)
c) Determine if the closed loop system is stable or not (5)
d) Without calculations, make a rough sketch of the positive gain root locus of the system with open loop transfer function, $kL(s)$ and comment on your answer in (2c) corresponding to $k = 1$. (5)

Question 2: Root Locus

Plot the root locus for the following system: $L = \dfrac{k(s^2 + 3s + 9)}{(s-1)(s^2 + 2s + 4)}$ as the feedback gain is varied from -∞ to ∞. (25)