1. Design a double-stub impedance matching circuit for $Z_L = (12.5\text{-}37.5j)\,\Omega$ in ADS. The stubs are open-circuited stubs and are spaced $\lambda/8$ apart. The operation frequency is at 2.4 GHz. Plot the reflection coefficient spectrum from 1 to 5 GHz.

2. Plot the input impedance (magnitude and phase) spectrum and reflection coefficient spectrum from 1 GHz to 10 GHz for different parallel RLC circuits including (a) R= 50Ω, L = 0.25 nH, C = 4 pF, (b) R= 50Ω, L = 4 nH, C = 0.25 pF, (c) R= 200Ω, L = 1 nH, C = 1 pF. Discuss the quality factor, reflection coefficient, and phase changes near resonant frequency for these three cases.