

## Homework 2: ECE 4370

### Radiation and Reflection

1. **Reflection:** A 50-Ohm RF source capable of providing a maximum of 50 mW is connected to an antenna with complex impedance. If only 25 mW enters into the transmit antenna and the real and reactive parts of the antenna impedance have identical magnitudes, what value(s) of impedance might this antenna have? (10 points)
2. **Matching:** Below is a common T-matching network used to match antenna impedance to a transmitter source with real impedance  $Z_0$ . Find a set of reactances for the tunable components that allows maximum power transfer into the antenna in terms of  $Z_0$ ,  $R_A$ , and  $X_A$ . (10 points)

