ECEG 497 Wireless System Design Spring 2023

##### Selected Answers to HW #3

Include explanatory text and intermediate calculations in your solutions. You will not receive credit for merely repeating an answer given here without supporting work.

If an answer is not provided below, it is because either the solution is trivial or disclosure of the answer would give away too much of the solution.

Although some effort has been made to ensure that there are no errors in the answers below, some might nevertheless appear because of the rush to post them. Please let me know as soon as possible if you discover an apparent error.

**1.** *L* = 26 nH; *Cc* = 0.69 pF; a 200 nH inductor should be used in place of *C* because it

turns out that the two coupling capacitors do not provide enough capacitive reactance to resonate with the 26 nH inductor. In practice, the original 26 nH inductor and the 200 nH replacement for *C* would be combined in parallel into a single 23 nH inductor.

**2.** *L* = 26 nH; *C* = 1.7 pF; *Cpar* = 5.0 pF

**3.** *L* = 22 nH; *C* = 1.4 pF; *Cpar* = 5.0 pF; *Lpar* = 6.3 nH

**4.** *PA* = 5.0 mW (source alone); *PA* = 49 W (source and attenuator)