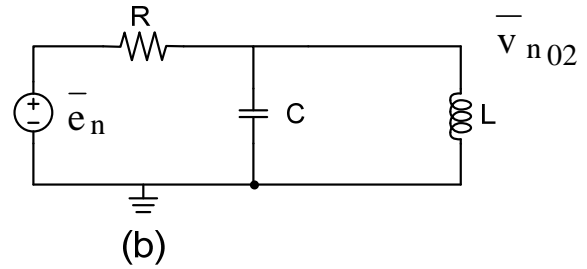
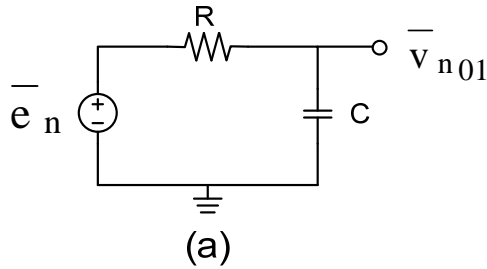


### Homework Assignment #3

Prob. 1. Determine the RMS value of the overall noise of the following circuits:



Where  $\bar{e}_n$  represents the thermal noise of the resistor  $R$ . Determine the noise bandwidth for both cases to evaluate the RMS noise at the output. Recall that the noise equivalent bandwidth is given by

$$\Delta f = \frac{\int_0^{\infty} |A_v(\omega)|^2 d\omega}{\max |A_v(\omega)|}$$

Where  $A_v(\omega)$  is the voltage gain of the circuit under consideration.

Prob. 2. Given the Zigbee standard provide the receiver topology specifications following the procedure discussed in class.