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

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

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.