## 11.2.1: Signals with Multiple Frequency Components (45 points)

1. In the space below, provide:
   1. The magnitude response of the circuit (as a function of R, C, and ω), (3 pts)
   2. The numerical values of the magnitude response at 500Hz, 1000Hz, and 10kHz, (3 pts) and
   3. A brief comparison as to whether your magnitude response agrees with the limiting cases of equations (1) and (2). (2 pts)
2. Attach to this worksheet an image of the oscilloscope window, showing the voltages *vIN(t)* and *vOUT(t)*. resulting from the input voltage waveform of equation (3). (8 pts)
3. In the space below, briefly discuss the circuit’s response to the input of equation (3), relative to you expectations based on the circuit’s magnitude response and the input voltage. (6 pts)
4. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuit’s response to the input of equation (3). (4 pts total)

**TA Initials: \_\_\_\_\_\_\_**

1. Attach to this worksheet an image of the oscilloscope window, showing the voltages *vIN(t)* and *vOUT(t)*. resulting from the sinusoidal sweep input voltage waveform of part (b) of the lab procedures. (8 pts)
2. In the space below, briefly discuss the circuit’s response to the sinusoidal sweep input voltage, relative to you expectations based on the circuit’s magnitude response and the input voltage. (7 pts)
3. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuit’s response to the sinusoidal sweep input. (4 pts total)

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