

AE 237: Week-9

In *Pencil* please or deduct ____ points

NAME: _____ DATE _____

1. What soldering technique is critical to make a good connection?

2. What tip temperature range is appropriate when soldering conventional components to a printed circuit board (PCB)?

3. The audio reference of 0dB(+ suffix) is the result of 0.775 volts being inflicted upon a tired, poor and weary 600-Ω destination (load) Impedance. This odd voltage was chosen because the **Power** dissipated by the load is a nice round number.

formula	quantities	calculate	Answer (watts)	Answer (???)

4. What do the suffixes “u,” “m” and “V” stand for in the examples below and which one relates to the answer in question 7?

- 0 dBu = _____ volts into _____ load impedance. (7?____)
- 0 dBm = _____ volts into _____ load impedance. (7?____)
- 0 dBV = _____ volts into _____ load impedance. (7?____)

For the problems below, use the Log Table when applicable.

$$dB = 20 * \log \frac{\text{new_volts}}{\text{ref_volts}}$$

$$dB = 10 * \log \frac{\text{new_power}}{\text{ref_power}}$$

$$RMS = .5P-P * .707$$

5. All multi-meters can measure RMS AC volts, but few are calibrated for audio *and* decibels. If a multi-meter is all that's available to calibrate the VU meters on an analog console and the console's nominal level is +4dBu (or dBm), what voltage needs to be at the Mix and Buss outputs before the VU meters can be calibrated?

a.) plug in quantities	c.) intermediate answer	e.) ratio
b.) calculate	d.) anti-log	f.) answer

6. An analog console typically has 18dB of headroom above the Nominal Level. How many volts RMS and peak-to-peak is this?

a.) plug in quantities	d.) anti-log	g.) plug into RMS formula
b.) calculate	e.) ratio	h.) calculate
c.) intermediate answer	f.) RMS answer	i.) peak-to-peak answer

7. An intern is calibrating the input sensitivity of an analog tape machine from a console generating a 1KHz tone set to 0VU on the mix buss VU meters. The DIM switch is engaged, quieting the monitors by 18dB. The signal is just loud enough to confirm the tone (the monitors are dissipating 1/4 watt each). When someone accidentally bumps the DIM switch, the loudspeakers are now dissipating how many watts?

a.) plug in quantities	c.) Intermediate answer	e.) ratio
b.) calculate	d.) anti-log	f.) answer