

## AME 21216 – Score Sheet

A10 – Second Order Transient Response

NDID#: \_\_\_\_\_

For more details on any of the items below, please refer to the lab handout.

Item and Description	Points Awarded	Possible Points
<b>Technical writing</b> – Using the correct format, address all questions from the lab handout in the paragraphs.		3
<b>A plot of acceleration (<math>m/s^2</math>) vs. time (s) for one of the data sets. (Show only three periods of oscillation.)</b>		5
<b>A plot of spectral density (amplitude vs. freq.) of the Y acceleration data computed using the FFT code on the A10 web page</b>		4
<b>A table containing the following parameters:</b> <ul style="list-style-type: none"><li>• The measured mass of the weight with electronics mounted <math>m</math> (kg).</li><li>• The measured spring constant <math>k</math> (N/m).</li><li>• The <i>theoretical</i> natural resonance frequency <math>f_n</math> (Hz).</li><li>• The natural resonance frequency <math>f_n</math> (Hz) measured using the stopwatch.</li><li>• The natural resonance frequency <math>f_n</math> (Hz) determined from the FFT plot.</li></ul>		5
<b>Plot of measured amplitude (V) vs. driving frequency (kHz) with theoretical curve for ultrasonic transducer</b>		5
<b>Measured resonance frequency and damping ratio for the UT (in caption of relevant plot)</b>		2
<b>TOTAL</b>		24

NOTE: Although measured data is typically plotted as individual markers, transient signals (such as acceleration vs. time) should be plotted as a continuous line.