EE1000
Lab1 – Notebook Point Breakdown

Communications (Keeping a Proper Notebook) 30 Points Total
Written in Ink ........................................................................................................4
Student Signed every page 4
Student Dated every page ..................................................................................4
TA Signature for every lab session (-3 each session missed) 6
Student's work Reproducible from notebook ..............................................12

C. Model the Thermistor 11 Points Total
Experimental setup diagram for measuring thermistor .........................1
Table of R vs T for thermistor .................................................................3
Derivation of linear equation for thermistor ..............................................2
Matlab program for linear fit (printout of Matlab program) ...............3
Matlab plot of data and linear fit ............................................................2

D. Derive $V_0(t)$ 12 Points Total
Clear use of Kirchhoff’s current law with op amp ................................2
Clear use of Kirchhoff’s voltage law with op amp 2
Correct derivation of $v_0(t)$ ........................................................................6
Two consistency checks ............................................................................2

E1. Computer Program 12 Points Total
Matlab program for fmins fit (printout of Matlab program) ..............6
Matlab function for squared error fit (printout of Matlab program) 6

E2. Computer Program 13 Points Total
Table of resistor values found by Matlab program .............................7
Matlab plot of linearity of original R value guesses 3
Matlab plot of linearity of fmins-optimized R values ..........................3

F. Test the Circuit (Circuit Measurements) 12 Points Total
Schematic of circuit .................................................................................3
Matlab program with actual R values ....................................................3
Table of R vs T for linearized thermistor circuit .....................................2
Matlab plot of measured vs calculated $v_0$ values 4

G. Design a Temperature Meter 5 Points Total
Design of potentiometer circuit ...............................................................3
Drawing of linear thermometer vs thermistor circuit output 2

H. Conclusion (5 pts for completing lab) 5 Points Total